IBN HALDUN UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ECONOMICS

MASTER THESIS

EXAMINING THE RELATIONSHIP BETWEEN GOVERNMENT SIZE AND UNEMPLOYMENT: EVIDENCE FROM ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS)

SALIM SAIDY

THESIS SUPERVISOR
ASST. PROF. ŞERİFE GENÇ İLERİ

ISTANBUL, 2023

IBN HALDUN UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF ECONOMICS

MASTER THESIS

EXAMINING THE RELATIONSHIP BETWEEN GOVERNMENT SIZE AND UNEMPLOYMENT: EVIDENCE FROM ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS)

by
SALIM SAIDY

A thesis submitted to the School of Graduate Studies in partial fulfillment of the requirements for the degree of Master of Arts in Economics

THESIS SUPERVISOR
ASST. PROF. ŞERİFE GENÇ İLERİ

ISTANBUL, 2023

APPROVAL PAGE

This is to certify that we have read this thesis and that, in our opinion, it is fully adequate, in scope and quality, as a thesis for the degree of Master of Arts in Economics.

Thesis Jury Members

Title - Name Surname	Opinion	Signature

This is to certify that the School of Graduate Studies at Ibn Haldun University has not imposed any additional requirements on this thesis beyond those that it already fulfills.

Submission Date   Signature/Sign

ACADEMIC HONESTY ATTESTATION

I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

Name Surname: Salim Saidy

Signature:

ÖZ

HÜKÜMET BÜYÜKLÜĞÜ İLE İŞSİZLİK ARASINDAKİ İLİŞKİYİ İNCELEME: BATI AFRİKA DEVLETLERİ EKONOMİK TOPLULUĞU (ECOWAS) ÖRNEĞİ

Saidy, Salim
İktisat Tezli Yüksek Lisans Programı
Öğrenci Numarası: 214024001
Open Researcher and Contributor ID (ORC-ID): 0000-0003-2867-3429
Ulusal Tez Merkezi Referans Numarası: 10547522

Tez Danışmanı: Dr. Ögretim Üyesi Şerife Genç İleri
Temmuz 2023, 87 sayfa

Bu tez, 1991 ve 2021 yılları arasında Batı Afrika Devletleri Ekonomik Topluluğu'nda hükümet büyüklüğü ile işsizlik arasındaki ilişkiyi inceliyor. Keynesyen teori temel alınmış ve ilişkinin doğasını tespit etmek için DOLS, FMOLS ve CCR panel eşbütünleşme teknikleri kullanılmıştır. Bu çalışmada kullanılan değişkenler işsizlik oranı, genel hükümet tüketim harcaması, hükümet yatırım harcaması, YDI, enflasyon, kişi başına GSYİH büyümesi ve nüfus artışıdır. Bulgular, ECOWAS bölgesinde hükümet büyüklüğü ile işsizlik arasında istatistiksel olarak anlamlı pozitif bir ilişki olduğunu ortaya koymaktadır. Bu sonuçlar, Keynesçiler tarafından sıkça savunduğu genişleyici mali politikaların ECOWAS'taki yüksek işsizlik seviyelerini çözmede etkili olmadığını göstermektedir. Aslında sonuçlar, hükümet büyüklüğü genişledikçe işsizlik oranının da yükselme eğiliminde olduğunu öne sürmektedir. Ancak hükümet yatırım harcaması ile işsizlik arasındaki ilişki negatiftir, yani daha büyük bir hükümet yatırım harcaması işsizliği azaltma olasılığını artırmaktadır. Nüfus artışı güçlü pozitif bir ilişki gösterirken, YDI, Enflasyon ve kişi başına GSYİH büyümesi zayıf ilişkiler göstermektedir.

Buna karşılık, hükümet büyüklüğü ile işsizlik arasındaki ilişki WAEMU bölgesinde negatif iken WAMZ bölgesinde pozitif bir korelasyon göstermektedir. Hükümet yatırım harcaması, YDI, enflasyon, kişi başına GSYİH büyümesi ve nüfus artışı,

WAEMU ve WAMZ bölgeleri karşılaştırıldığında zayıf ve kesin olmayan ilişkiler göstermektedir.

Sonuç olarak, ECOWAS bölgesindeki hükümetler işsizlik sorunlarına çözüm bulmak için hükümet büyüklüklerini azaltmayı ciddi olarak düşünmelidir. Ayrıca, hükümetlerin yükselen işsizlik oranlarını dizginlemek için ek bir araç olarak gereksiz hükümet tüketim harcamalarını işgücüne dayalı kamu yatırımlarına yönlendirmeye öncelik vermek ve ekonominin kritik sektörlerine yönelik yatırımı teşvik etmeyi amaçlayan stratejileri aktif bir şekilde izlemeleri gerekmektedir.

Anahtar kelimeler: DOLS. ECOWAS, Hükümet Büyüklüğü, İşsizlik, WAEMU, WAMZ.

ABSTRACT

EXAMINING THE RELATIONSHIP BETWEEN GOVERNMENT SIZE AND UNEMPLOYMENT: EVIDENCE FROM ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS)

Saidy, Salim
MA in Economics
Student ID: 214024001
Open Researcher and Contributor ID (ORC-ID): 0000-0003-2867-3429
National Thesis Center Reference Number: 10547522

Thesis Supervisor: Asst. Prof. Şerife Genç İleri
July 2023, 87 Pages

This paper examines the relationship between government size and unemployment in the Economic Community of West African States between 1991 and 2021. The Keynesian theory was used as the basis, and panel cointegration techniques of DOLS, FMOLS, and CCR were employed to ascertain the nature of the relationship. The variables used in this study were unemployment rate, general government consumption expenditure, government investment expenditure, FDI, inflation, GDP per capita growth, and population growth. The findings reveal a statistically significant positive relationship between government size and unemployment in the ECOWAS region. This indicates that expansionary fiscal policies, often advocated by Keynesians, are ineffective in addressing the high levels of unemployment in ECOWAS. The results suggest that the unemployment rate tends to rise as government size expands. However, the relationship between government investment spending and unemployment is negative, meaning a more significant government investment expenditure is likely to reduce unemployment. While population growth shows a strong positive relationship, FDI, Inflation, and GDP per capita growth illustrate weak relationships.

In contrast, the relationship between government size and unemployment is negative in the WAEMU region, whereas it manifests a positive correlation in WAMZ.

Government investment expenditure, FDI, inflation, GDP per capita growth, and population growth demonstrate weak and inconclusive relationships when WAEMU and WAMZ regions are compared.

Consequently, governments within the ECOWAS region should strongly consider reducing the size of their government as a crucial mechanism for addressing the unemployment challenges. Additionally, it is imperative for governments to actively pursue strategies aimed at promoting investment in critical sectors of the economy and prioritize redirecting unnecessary government consumption spending towards labor-reliant public investments as an additional means to tame the rising unemployment rates.

Keywords: DOLS, ECOWAS, Government Size, Unemployment, WAEMU, WAMZ,.

DEDICATION

I dedicate this thesis to the memory of my late father, Buba Sadiy, and my late grandmother Najonkong Ceesay, whose unwavering support and encouragement have shaped my journey and inspired me to pursue academic excellence. Their guidance and love resonate within me, even in their physical absence. I also extend my heartfelt dedication to my mother, Aminata Samateh, who has been a constant pillar of strength throughout my academic pursuits. Her sacrifices, guidance, and unwavering belief in my abilities have been instrumental in my achievements. I am forever grateful for her endless love and support.

Furthermore, I dedicate this thesis to God Almighty, whose divine presence and blessings have guided me throughout this research endeavor. Through His grace and guidance, I have been able to overcome challenges and make this thesis work possible. Lastly, this work is dedicated to my entire family and circle of friends. Their support played a significant role in guiding me through this transformative journey. I express my profound gratitude for their continuous encouragement and help, and I am deeply indebted to every one of them for their unwavering support.

ACKNOWLEDGEMENT

I humbly extend my deep appreciation to the almighty for his countless blessings, continuous guidance, and unwavering support, enabling me to embark on and complete this thesis journey. This accomplishment would not have been possible without the benevolence of the Almighty.

Secondly, I would like to extend my sincerest gratitude to my supervisor, Professor Şerife Genç Ileri, for her immeasurable guidance, knowledge, and continuous encouragement. Her insightful feedback, constructive criticism, and unwavering commitment to excellence have shaped this research and boosted my academic advancement. I genuinely appreciate her mentorship and the privilege of being under her guidance.

Finally, I would also like to send my deepest gratitude to Prof. Asad ul Islam for his profound patience and support in helping to run the data. His commitment to fostering critical thinking has significantly influenced my academic journey and enriched my understanding of the field. My appreciation knows no bounds for those who have supported me in my academic and personal endeavors. I owe the successful completion of this thesis to your indispensable assistance, advice, and inspiration. Your unwavering motivation has been an invaluable source of encouragement throughout this journey.

Salim Saidy

ISTANBUL, 2023

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF SYMBOLS AND ABBREVIATIONS

ECOWAS	Economic Community of West African States
WAEMU	West African Economic and Monetary Union
WAMZ	West African Monetary Zone
WAMA	West African Monetary Agency
UNEMP	Unemployment
FDI	Foreign Direct Investment
GOV_SIZE	Government size (General Government Consumption Expenditure)
GOV_INV	Government Investment (Gross Fixed Capital Formation)
DOLS	Dynamic Ordinary Least Squares
FMOLS	Fully Modified Ordinary Least Squares
CCR	Canonical Correlation Regression
OLS	Ordinary Least Square
RE	Random Effect
FE	Fixed Effect

CHAPTER I

INTRODUCTION

1.1. Research Contextual Background

In the modern era, a lot of philosophical controversy has emerged surrounding the responsibility of government pertaining to the economy. Several economic crises, particularly in emerging nations, have exerted detrimental consequences on various facets of those nations' growth. Considering these crises, policymakers and researchers have been more interested in this discourse, pushing for government intervention to control economic conditions. Even though long-term economic development is endogenous, government policy impacts it positively or negatively. By stabilizing and influencing financial circumstances, the government may make sure that economic growth is sustainable and beneficial to society. Policymakers in many countries often utilize fiscal policy to address market failures and mitigate their adverse effects. In a broader sense, fiscal policy is implemented to manage expenditure levels, regulate taxation, and make adequate resource allocations. In essence, fiscal policy operates as a way through which a state governs the economy (Anayochukwu, 2012). As Falade and Folorunso (2015) underlined, budgetary policy can stimulate the economy by influencing expenditures and taxes. Diminishing unemployment rates and fostering economic growth are the key objectives of fiscal policy.

Since the Keynesian principles' introduction, governments have started assuming significant roles in governing their nations, potentially entailing direct investments in different areas of the economy. Suppose government boosts its expenditures by funding new public works programs like constructing transportation networks. In that case, it typically generates employment opportunities that lower unemployment and raise spendable income, resulting in increased consumption levels. There has been an ongoing discussion over the theoretical viability and practical significance of the

Keynesian perspective that fiscal expansions are beneficial in this regard (Hemming et al., 2002). Governments can either utilize expansionary or contractionary policies to stabilize the economy. While it is expansionary when government increases spending to boost aggregate demand, it is contractionary when government lowers spending to reduce demand. In the past century, there has been a widespread consensus on the role of expansionary policies that seek to stimulate economic growth, thus leading to an increase in global government spending in per capita spending and its share of national output. As a result, government size, estimated as the amount of government expenditure, has consistently expanded with notable surges in the recent economic crisis. As the size of governments continues to rise, particularly in developing countries, researchers and policymakers are increasingly examining the potential economic implications of bigger governments, especially regarding unemployment. But even though governments use fiscal policy to influence their country's economy, there still exists persistence of a considerable unemployment rate (Barker, 2007). Unemployment has emerged as a significant and persistent social and economic challenge that has plagued West African economies for several decades. Despite the government's significant spending on infrastructure, healthcare, education, and defense, there has been a steady growth in unemployment in West Africa. To solve this problem, governments in the member countries of ECOWAS have approved various fiscal policy measures to manage their economies and address unemployment. However, despite these efforts, the problem persists and remains unresolved. For instance, the average unemployment rate in the region has rapidly escalated, surging from 4.4% in 2010 to approximately 7% in 2021, surpassing the worldwide average rate of 6.2%.

Therefore, this thesis aims to explore the relationship between government size and unemployment in the Economic Community of West African States (ECOWAS) between 1991 - 2021. In addition, it also aims to observe how the relationship between government size and unemployment varies within the region by comparing the two existing economic and monetary unions: WAEMU and WAMZ. As a contribution to the literature, this research intends to further augment the current body of knowledge about the link between government size and the unemployment rate. Also, it seeks to analyze whether government size is dissimilar when WAEMU and WAMZ are compared. This research is also distinct in its utilization of a combination of panel cointegration techniques, namely dynamic OLS, fully modified OLS, and canonical correlation regression. These procedures were chosen based on the data's properties to enhance the analysis's accuracy.

This study's findings indicate a significant and positive relationship between government size and the unemployment rate within the ECOWAS region. This outcome remains consistent across all three estimation methods used. Hence, a percentage rise in government size in the ECOWAS region will likely result in a corresponding rise in the unemployment rate. Specifically, the unemployment rate is projected to increase by 0.867% for the DOLS, while FMOLS and CRR estimators predict 0.333% and 0.321% increments. These findings are aligned with the Abrams (1999) curve and are also consistent with the results of Okunola (2021), who explored the link between ECOWAS' employment dynamics and its fiscal policy. However, the relationship between government investment spending and unemployment is negative, meaning a more significant government investment expenditure has a prospect of reducing unemployment. While population growth shows a strong positive relationship, FDI, Inflation, and GDP per capita growth illustrate weak relationships. When WAEMU and WAMZ regions are compared, interesting findings emerge. While the relationship between government size and unemployment rate showed a negative coefficient across the WAEMU region, it appeared positive in WAMZ regions. On the contrary, government investment expenditure, FDI, inflation, GDP per capita growth, and population growth demonstrate weak and inconclusive relationships when comparing WAEMU and WAMZ regions.

The dissertation comprises six parts, and it is structured as outlined below: Chapter one provides an overview of the investigation and the contextual details regarding government size and unemployment. Chapter two outlined the background information about the EWCOWAS region and its two sub-blocs. The third chapter exhibits a comprehensive literature analysis, including practical and theoretical research. This is followed by chapter four which explains the methodology employed and describes the information utilized. In the fifth chapter, the outcomes gathered from the data examination are discussed, while the sixth chapter summarizes the primary discoveries of the research and provides a few policy recommendations.

CHAPTER II

ECONOMIC COMMUNITY OF WEST AFRICAN STATES (ECOWAS)

2.1. The Contextual Background of ECOWAS

The West African regional economic bloc’s inception can be traced back to 1975, when the regional intergovernmental organization was founded to foster economic integration, regional cooperation, and development within its fifteen member states in West Africa. The regional body has many programs and undertakings geared towards maintaining and fostering economic growth, improving the quality of life of its population, promoting free trade, and achieving harmonious regional integration. These programs and undertakings include:

- Establishment of a shared market via market liberalization, establishing a harmonized external tariff and trade program, allowing free flow of goods, services, capital, and individuals among participating nations.
- Creation of a customs union that eliminates tariffs and other trade barriers among the countries within the organization.
- To form an economic union by coordinating policies in diverse financial, economic, social, and cultural sectors.
- Establishment of a single currency, the Eco, initially planned for implementation in 2020.
- Coordination of monetary and fiscal policies to strengthen economic stability and expansion.
- Facilitating the management and coordination of country-level policies and promoting unification plans, projects, and actions.

Recently, ECOWAS' commitment to improving political stability and security in the region has been exemplified via the implementation of diverse conflict resolution and prevention strategies, which includes the ECOWAS Mediation and Security Council. Despite the persistent efforts of ECOWAS, various obstacles hinder its progress. These include high unemployment rates, inadequate infrastructure, political instability, and porous borders in some countries that impede the regulation of the movement of goods, people, and weapons. Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo are currently the fifteen (15) West African nations that comprise the Economic Community of West African States (ECOWAS).

For the sake of fulfilling its outlined goals, ECOWAS proposed a convergence criterion (See Table 2.1). This proposal was later adopted in 2001 by implementing a surveillance mechanism system. The purpose of the surveillance mechanism was to act as a regional tool for monitoring the alignment of macroeconomic and fiscal strategies among member states (Saka et al., 2015). The criterion was anticipated to significantly impact the efforts toward monetary integration, specifically in achieving the goal of establishing a common currency, the ECO. In 2015, member states in the economic bloc adopted the revised version of the macroeconomic convergence criteria as a requirement to attain the single currency goal by 2019. They now extended to 2026 due to the consequences caused by the COVID-19 crisis. According to WAMA (2022), the convergence criteria are targeted at ensuring price stability, minimizing budget deficit, imposing limitations on central bank financing of the budget deficit, and upholding adequate levels of gross external reserves. Furthermore, the benchmarks emphasize guaranteeing debt sustainability and stability of the nominal exchange rate. The convergence criteria incorporate primary and secondary requirements (See Table 2.1).

Table 2.1. Convergence Criteria for ECOWAS

ECOWAS	
PRIMARY CRITERIA	**SECONDARY CRITERIA**
1. Aggregate fiscal deficit ≤ 3% (grants included) as a ratio of GDP 2. Annual inflation rate (average) ≤ 5% 3. Central Bank financing budget deficit ≤ 10% of tax revenue of the preceding year 4. Gross external reserves ≥ 3 months of import cover	1. Nominal exchange rate stability ± 10% 2. Public debt to GDP ratio ≤ 70%

Source: ECOWAS convergence criteria report, 2021

- **Primary Criteria:** The first requirement is that the total budget deficit of ECOWAS member states, including grants, should be no more than 3% of GDP. Since fiscal deficit measures the disparity between government revenues and expenditures, lowering it signifies a reduced requirement for public borrowing and minimizes the risk of accumulating debt and potential crowding out of private investment. Another condition is limiting the average annual inflation rate to, at most, 5%. As an indicator for price stability, preservation of the purchasing power of money and the ability of economic actors to determine outcomes according to real variables instead of nominal variables are the effects of reducing and stabilizing the inflation rate. To ensure monetary policy independence, ECOWAS member states agreed to peg the funding of budget shortfall by the central bank to no more than 10% of the tax revenue collected in the previous year. This measure is necessary to ensure that the participating countries' central banks are less subjected to fiscal dominance and allow them to concentrate on preserving price stability. The fourth requirement is that the gross external reserves of the respective nations should at least cover three months of imports to sustain external stability. This is paramount as it will preserve the sufficiency of foreign currency reserves to address the import requirements of the nation in the event of an abrupt shock or crisis.

- **Secondary Criteria:** There exist only two criteria in this part. The first mechanism is to peg the threshold of the nominal exchange rate within a range of ± 10%. This is meant to steadily safeguard the worth of domestic currency in the region against hard currencies. The second measure aims to ensure the region's fiscal health by putting the public debt-to-GDP ratio benchmark at no more than 70% of GDP. This threshold is considered a safe zone, signaling that the respective nations are not overburdened by their debt payment obligations.

2.2. Sub-blocs within ECOWAS

The regional economic body, ECOWAS, is home to two distinct sub-bodies. These are the West African Economic and Monetary Union (WAEMU) and the West African Monetary Zone (WAMZ). While WAEMU primarily comprises French-speaking West African states, WAMZ comprises English-speaking West African nations.

WAEMU comprises eight (8) West African nations that have collectively embraced a shared currency, the CFA franc, and a common market. The union has implemented numerous initiatives and programs, including harmonizing fiscal policies. The member states are Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal, and Togo. On the other hand, WAMZ, a union of six West African countries, aims to foster macroeconomic stability, fiscal responsibility, and the development of the financial sector in participating nations. These countries include Gambia, Ghana, Guinea, Liberia, Nigeria, and Sierra Leone. While the two unions have notable differences in the fiscal and monetary policies, their shared objective is to address the economic and financial crises causing significant disruptions in the West African region.

Table 2.2. Convergence Criteria for WAEMU and WAMZ

WAEMU	
PRIMARY CRITERIA	**SECONDARY CRITERIA**
1. Total fiscal balance ≤ 3% (grants included) of GDP 2. Annual inflation rate (average) ≤ 3% 3. Overall public debt ≤ 70% of GDP	1. Tax revenue as a ratio of GDP ≥ 20% 2. Wage bill as a share of tax revenue ≤ 35%
WAMZ	
PRIMARY CRITERIA	**SECONDARY CRITERIA**
1. Aggregate fiscal deficit ≤ 3% (grants included) as a ratio of GDP 2. Annual inflation rate (average) ≤ 5% 3. Central Bank financing budget deficit ≤ 10% of tax revenue of the preceding year 4. Gross external reserves ≥ 3 months of import cover	1. Total public debt ≤ 70% of GDP 2. Nominal exchange rate stability ± 10%

Source: ECOWAS convergence criteria report, 2021

Table 2.2 exhibits the essential thresholds of primary and secondary convergence criteria that each WAEMU and WAMZ countries must meet before initiating monetary integration and the suggested establishment of the ECO, the shared currency. WAEMU focuses mainly on achieving only three (3) out of the four (4) primary requirements proposed by ECOWAS. These include limiting the total budget deficit, including grants, to 3% of GDP, targeting the average annual inflation rate below the 3% threshold, and maintaining the public debt-to-GDP ratio to no more than 70% of GDP. Regarding secondary criteria, WAEMU is committed to increasing its revenue collection to more than 20% of GDP. This will allow the bloc to have enough funds to provide essential services. Similarly, it aims at lowering the amount of money it spends on wages to below the 35% threshold as a policy not to overpay its employees. The criteria for the WAMZ member states are the same as that of ECOWAS in general.

That is, it maintains all the requirements that ECOWAS put in place for realizing monetary integration and introducing the common currency in the region. One notable difference between the two sub-bloc is the exchange rate issue. Within Ecowas, two different exchange rate regime exists – fixed and flexible exchange rate systems. WAEMU has a shared currency, the CFA franc, and thus enjoys a fixed exchange rate regime. Each country in WAMZ has its currency, making it vulnerable to rate fluctuations. Hence, the bloc aims to keep the nominal exchange rate within a band of ± 10% to safeguard the available currencies against foreign ones.

CHAPTER III

LITERATURE REVIEW

3.1. Theoretical Foundation

The philosophical debate about the government's economic involvement has resurfaced in the spotlight in recent years. This unavoidable debate is thanks to the periodic economic crises the world has been facing, particularly in developing countries, which negatively affect various aspects of countries' growth. One indicator that has suffered the most in this debate is the growing rate of unemployment and how it could be tackled. As a result, policymakers and researchers have been more interested in how government could play a role in mitigating this menace.

From the theoretical standpoint, several schools of thought explain the role of government exist. While some economists support the government's involvement in economic policy to protect its citizens from economic adversity, others are opposed to the idea with the view that the natural course of free markets and free trade are self-regulatory. Without government intervention, the former claim, countries may transition from unstable growth to extended recessions and increasing challenges in the labor market. Thus, calling for the need for government interaction with the economy to better promote the economic well-being of its citizens. This involves preserving and furthering the economic interests of the public. These divergent points of view sparked an expanding discussion over how governments' fiscal policies, especially spending, affect unemployment.

The advocates of the principle of Ricardian Equivalence contend that government spending, regardless of whether it is funded through government debt or tax revenues, does not affect economic growth and unemployment since consumers foresee future tax hikes and adapt their spending and savings accordingly. According to Barro (1989) and Cunningham and Vilasuso (1994), if individuals anticipate future tax hikes, they may save more and decrease their consumption. Consequently offsetting the multiplier effect of government spending.

Keynesian economic theory holds a divergent viewpoint in opposing the Ricardians. While acknowledging the interaction between government spending and the economy's advancement, they posit that the effect stems from government outlay on economic development. According to Keynesian theory, expansionary fiscal policy infuses money into the economy, stimulating aggregate demand, boosting output, and ultimately enhancing economic growth. Consequently, optimism among investors surges as aggregate demand increases, leading to more economic investment and job creation. According to Keynesians, the economy's lack of aggregate demand drives unemployment because a lack of private sector spending reduces output and increases employment. Hence, the government should directly raise spending during recessions or decrease taxes to stimulate consumption and investment. Therefore, devotees of this line of thought encourage expansionary fiscal policies, particularly in recessionary periods, since they believe the government plays a crucial role in correcting market failures and providing public goods (Barro, 1990; Coddington, 1976). In the famous general theory, Keynes (1936) claimed that a negative association between inflation and unemployment exists and that governments should employ fiscal policy to balance the two. Hence, government spending can create jobs through the multiplier effect.

In contrast, the classical doctrine maintains that full employment has always existed and that the economy self-regulates. In the event of unemployment, the economy will correct itself and return to maximum employment levels if it is fully competitive because supply and demand forces determine the relative values of goods and services (Onodugo et al., 2017). According to the classical school of thought, critical drivers of unemployment are government interference or private monopolies, incorrect calculations made by entrepreneurs, their actions, and artificial resistance (Walterskirchen, 1999). In this concept, unemployment could be solved by lowering wages to increase the demand for labor, boost economic activity, and generate job opportunities. In other words, wage changes can balance off economic surpluses or shortages.

Theoretically, several viewpoints about the government’s economic functions seem to exist. Still, the majority agrees that the state has a role in an economy but disagrees on how this role should be implemented.

3.2. Empirical Evidence

Numerous empirical researches studied the link between government size and unemployment level. Despite the inconclusive outcomes, more robust results about government size's influence on unemployment have been found. According to Nepram et al. (2021), many governments, predominantly in emerging economies, face mounting spending demands and continually grapple with heightened budget shortfalls. Fiscal stability is rarely the subject of debate. Priorities are often placed on various duties, including expanding healthcare, education, infrastructure, and employment generation. More enormous government spending is often equated with more significant economic advancement for these countries. However, many researches have claimed that a bigger government size has a detrimental impact on the unemployment rate (Abrams, 1999; Aysu, 2011; Christopoulos et al., 2005; Christopoulos & Tsionas, 2002; Feldmann, 2006). These results are contrary to the prevailing belief across numerous nations that a bigger size of government has the potential to address the unemployment crisis. Conversely, other empirical examinations have found an adverse link between government size and unemployment. This includes research by Devries et al. (2010), Holden and Sparrman (2011), Monacelli et al. (2010), and Ramey (2012). All of them have concluded that higher government spending results in reduced unemployment. These conflicting results sparked a mounting debate on how government spending affects unemployment.

3.2.1. Global Context

As a leader in this realm of research, Abrams (1999) assessed the implications the size of government exerts on the unemployment rate, utilizing simple OLS for 20 OECD nations from 1984 to 1993. The outcomes presented substantial evidence linking the size of the government with the unemployment rate, further bolstering the notion that the growth of government size often affects taxes and expenditures that tend to raise unemployment. The Abrams (1999) curve has since become an established economic phenomenon. However, the evidence Abrams presented could have been more robust as the analytical approach relied solely on fundamental OLS estimation, without even factoring in distinct intercepts as in standard panel data analyses. Moreover, it is anticipated that specific variables, like government size and unemployment, will often manifest nonstationarity, implying a potential cointegration among them. Failing to consider the cointegrating component may result in erroneous outcomes in an OLS regression.

To verify the Abrams curve, Christopoulos and Tsionas (2002) investigated the nexus between the two variables in 10 EU nations from 1961 to 1999, utilizing causality inferences. Their findings reveal a positive link between government size and unemployment, along with a unidirectional causal connection from the size of the government to unemployment. Thus, supporting the existence of the Abrams curve for this region. This means that government size is responsible for the surge in unemployment, and not the other way around. In a subsequent examination of this correlation involving the same countries and utilizing panel cointegration analysis and fully modified OLS, Christopoulos et al. (2005) found a similar conclusion. Their results support the Abrams curve's existence, exhibiting substantial positive interaction regarding government size and unemployment rate discourse. Feldmann (2006) also conducted a similar study examining 19 industrialized nations between 1985 and 2002. Employing generalized least squares (GLS) and random effects methodologies, the findings indicated that a massive government sector is detrimental to the unemployment rate within industrialized countries. As a result, countries facing severe unemployment rates and an enormous government sector must prioritize reducing its size as a viable solution to tackle the problem. The study further pointed out that the presence of leading state-run corporations, a significant proportion of government investment compared to the general investment, heightened marginal levels of tax on earnings, and minimum-income benchmark subject to these rates are the primary factors responsible for this dilemma.

To study how government size affects the steady-state rate of unemployment for 20 OECD member nations from 1970 to 1999, Abrams and Wang (2006) reached the same findings. Utilizing structural ECM (error correction model), they found government size, expressed as total government spending relative to GDP, to have significantly affected a country's steady-state rate of unemployment. This research was further bolstered by Aysu et al. (2011), who replicated the study across 17 nations of the OECD from 1990-2007. The study employed cointegration techniques, such as FMOLS and DOLS. Their outcomes positively link government size and the rate of unemployment. Their results signaled that a massive government sector influences a surge in the unemployment rate in OECD nations. Although these studies' methodology and sample sizes varied, they all seem to have reached the same conclusion. Additionally, these findings challenge the predominant notion in several nations that a bigger government size would be instrumental in tackling the issue of unemployment. In trying to understand the interconnection regarding the size of government, rates of inflation, and unemployment, Afonso et al. (2018) studied eight major developing economies from 1980 to 2015. Their evidence proved that the size of government is linked positively with both inflation and unemployment across the countries examined. The causation analysis of Granger illustrated that the route of causality is towards unemployment and inflation from government size. According to the study, however, the implications of inflation and unemployment receive revolved around the portion of government size. Taking government consumption expenditure as a yardstick, the relationship is positive for both inflation and unemployment. While indirect taxes also appeared to have a positive connection with unemployment, direct taxes substantially influenced inflation.

A growing number of empirical investigations have shown the possibility that the contrary may hold. The correlation between government size and unemployment rates may be negative. Devries et al. (2010) studied fiscal consolidation, including government spending cuts and tax increases, in 15 advanced nations from 1980 to 2009. The results indicated that when deficit reduction strategies revolved around spending cuts, there was a 0.2 percentage point surge in unemployment rates within these countries. This highlights that implementing spending cuts will likely result in a noticeable increase in unemployment levels. Considering 20 OECD nations spanning from 1960 to 2007, Holden and Sparrman (2011) scrutinized the result of government spending on unemployment rates. The findings revealed a connection between higher government spending and decreased unemployment rates. In fact, for every percentage rise in government spending relative to GDP, unemployment is reduced by 0.2 percent within the same year. The impact of economic downturns on this effect is more noticeable than during booms. It is particularly prominent in an anchored exchange rate system compared to a market-determined system. In their investigation of the nexus between labor market performance and fiscal policy of the United States, Monacelli et al. (2010) found that government expenditures favorably impact unemployment rates. Specifically, a 1% surge in government outlays relative to the GDP yields multiplier effects of roughly 1.2% on production after 12 months and a 0.6% reduction in unemployment at its highest level. Besides, about 1.3 million job opportunities surface in the US for every percent increase in GDP. Ramey (2012) dived into the depths of how government spending affects the labor markets of the United States over the period 1939-2008. Employing a variety of techniques for identification and analyzing a diverse range of samples, the study depicted that an upsurge in government spending could cause the unemployment rate to decline. What is more interesting is that the study revealed that the effect is majorly owing not to an upsurge of private jobs but to government works. Saraireh (2020) utilized the co-integration test of ARDL to inspect the connection between government expenditure and unemployment rates within Jordan. Based on data spanning 1990 - 2019, the findings exhibited that government spending and the unemployment rate have a favorable long-term connection in Jordan. It demonstrated that when government spending expands by a percentage of the country's GDP, unemployment can drop by around 0.43 percentage points within the same year. However, in the short term, a positive connection was established. They all have concluded that an upsurge in government expenses causes unemployment to fall. This disparity of findings has ignited a growing dialogue about government spending and the unemployment rate.

3.2.2. Sub-Saharan African Region

Several studies have been carried out on the African continent to study the affiliation of government size and the rate of unemployment. Anjande & Ushahemba Ijirshar (2020) led a research work exploring if an asymmetric effect exists in the behavior of government expenditure on national income and unemployment within Africa. Using a dynamic panel model of the pooled mean group (PMG), the study analyzed 40 nations from 1970 to 2017. The observations from their work exposed an exciting insight regarding how economic indicators were impacted by government spending. It indicated that the expansion of government expenditure is resiliently positive in growing national income but simultaneously detrimentally affects the unemployment rate across African nations. In contrast, a decrease in government expenditure was ascertained to possess an adverse effect in stimulating national income, but it beneficially impacts unemployment within these countries. This means that the influence of increased government spending on income and employment growth is more substantial than the effect of reduced government spending. These results imply that government intervention and heightened spending are essential in promoting significant investments that aid in the progression of income generation and creating employment opportunities in Africa.

Onuoha & Agbede (2019) conducted a similar study on the continent but focused on evaluating the effects categorized public expenditure has on unemployment across 20 African nations. The research made use of panel data gathered between 2000 to 2017. A generalized method of moments (GMM) was utilized to analyze how the unemployment rate is affected by disaggregated government outlay. The investigation revealed that investment in infrastructure and education enhances the reduction of unemployment rates in Africa. Conversely, allocating resources toward defense and healthcare had a detrimental impact, forcing the unemployment rate to rise. The unfavorable correlation between unemployment and healthcare spending is thanks to the potential mishandling of public funds, often resulting from corrupt activities within the health sector. The relationship between defense spending and unemployment is associated with rising levels of insecurity and crime prevalent in those regions of Africa.

In a quest to determine government consumption and employment association in 41 African countries, N'guessan (2017) utilized a panel threshold model for data spanning 1980 to 2014. A threshold effect is found to have existed regarding spending on government consumption and employment. The outcome underlines that government expenditure positively influences employment, mainly when its share of GDP is below 20.43%. Nevertheless, when government consumption surpassed this threshold, it no longer significantly impacted employment. This analysis presents valuable insights for guiding fiscal policy decisions about labor market performance. It underscores the significance of considering nonlinear relationships and threshold effects when developing policy recommendations. In their study, Adamu et al. (2018) delved into globalization's effects on unemployment across 35 Sub-Saharan African nations between 2007 and 2014. Utilizing the generalized method of moments (GMM) technique, the researchers unearthed consequential findings regarding the role of globalization in affecting the unemployment rate. In those African countries, it found, the overall globalization measures, encompassing social, political, and economic aspects, substantially influence the unemployment rate. However, political globalization is the only specific component that has a noticeable impact on reducing unemployment rates. Furthermore, the research indicated that economic growth rate and labor market regulations played crucial roles in decreasing unemployment, showing a significant negative correlation. Conversely, inflation and the wage rate surged the unemployment rate. Accordingly, the research suggested that policies to tackle unemployment should keep inflation low, advance political globalism, implement effective employment policies, and encourage economic development.

Attempting to analyze how increasing public spending has affected unemployment rates, Fosu (2019) studied Sub-Saharan Africa's 34 countries, covering 1990 - 2017. The core goal was to comprehend if the implications of public spending, particularly state expenditure on consumption and government investment expenditure on unemployment, are positive, negative, or negligible. The research utilized various econometric models, including that of pooled ordinary least squares (OLS), as well as random and fixed effects. The study indicated that expenditure on consumption and investment significantly affects the unemployment rate. The findings demonstrated that a surge in the unemployment rate is connected with government expenditure on consumption. Equally, government investment spending and unemployment are negatively related, showing the importance of government investments in creating jobs in Sub-Saharan Africa. The analysis, therefore, suggested that more priorities should be devoted to expenditures on investment since they possessed a higher ability to generate employment opportunities than consumption expenditures. Governments can foster economic growth and lessen the region's unemployment crisis by focusing on investment-led policies. On a similar research topic, Abouelfarag and Qutb (2021) probed whether government spending can lower Egypt's unemployment rate. They used the VECM model for years covering 1980–2017 to solve this puzzle. According to the findings, rising public spending substantially correlates with long-term unemployment progress. This association is observed for essential and non-essential expenditures, as they manifest similar coefficients. Furthermore, the study underlined an adverse effect of non-essential expenditure on unemployment, primarily influenced by staff remuneration and government subventions. The insignificant impact of investment expenditure on unemployment rates can be attributed to its relatively small proportion of government expenses.

3.2.3. ECOWAS Region

Recently, a proliferation of mass investigations revolving around government spending as a tool for budgetary strategy and other vital macroeconomic measures, including employment challenges, in advanced and developing nations. The West African region has now become a center of focus. For example, Magazzino (2016) delved into the connection between the convergence of fiscal variables and economic advancement across ECOWAS. This research utilized data from 1980 to 2011 for 15 different ECOWAS countries. With the aid of various econometric techniques, the interplay between fiscal isntruments like government revenue, expenditure, and net lending and their effect on the development of those economies were analyzed. The research findings pointed towards pro-cyclical spending and revenue patterns in ECOWAS. A similar trend is observed in the countries that are part of the West African Economic and Monetary Union (WAEMU). Simultaneously, the government budget balance has had a business cycle-dependent disposition for WAEMU from 1999 and 2011. Furthermore, a feeble and drawn-out connection between government revenue and expenditure was found solely for nations in WAMZ. Upon conducting a causation analysis of Granger, WAEMU countries' outcomes were inconclusive. However, the "tax-and-spend" theory appeared to be valid for four out of six WAMZ countries, as government revenue directly influences expenditure.

Drawing upon the theoretical frameworks of the famous curve of Philips and the law of Okun, Folawewo, and Adeboje (2017) explored what sort of link exists among unemployment and various components of macroeconomics in ECOWAS. The study employed a combination of FMOLS, random effects, and fixed effects techniques. It covered aggregate ECOWAS data levels and varying sub-regional levels from 1991 to 2014. The research findings noted an insignificant reverse correlation between GDP growth and the unemployment rate, indicating diminished employment elasticity within the region. Conversely, inflation substantially affected unemployment, thus disproving Phillips's curve concept. The paper presents a crucial discovery indicating that labor productivity positively affects unemployment, highlighting that workforce efficiency and job creation have a give-and-take link. Foreign direct investment and foreign debt's impact on the unemployment rate is deemed insignificant, whereas the impact of population growth is continuously increasing. The study emphasizes the need for creating an enabling atmosphere in ECOWAS that can create jobs.

Drawing on Keynesian theory, Okunola (2021) undertook a study to assess if government's fiscal policy and employment dynamics are related across the Economic Community of West African States (ECOWAS). Utilizing the ARDL model for the 15 ECOWAS member states from 1990 to 2019; the evidence confirmed that the employment rate in the region is affected by government expenditure over the long term as well as tax revenue since both factors carry considerable significance. Specifically, government expenditure hurts employment, whereas tax income is positive. This implies that governments should prioritize using tax revenue to generate employment opportunities, as it is the sole driver of enhancing employment levels within ECOWAS nations.

Meanwhile, this study appeared to be the only available paper written on the ECOWAS region in this realm of research. However, this thesis differs from that of Okunola on different fronts. First, Okunola (2021)'s work was solely based on three variables: the fiscal policy variables of government expenditure and tax revenue and employment. Our study emphasizes unemployment, government consumption expenditure, government investment expenditure, and other control variables such as foreign direct investment, inflation, GDP per capita, and population. While Akunola focused on employment to analyze the dynamics of the two fiscal variables, we used a combination of fiscal and other target variables to examine its effect on unemployment. Secondly, the study of Okunola relied on the ARDL technique to draw inferences. In a panel data system where variables signal cross-sectional dependence, the ARDL model assumes that the coefficients of the variables are homogenous in the long run. If heterogeneity exists, which is often the case in a panel of countries with similar economic backgrounds, ARDL's long-run results could be erroneous and misleading. The techniques utilized in this thesis are more robust and better as they address problems that a panel ARDL model could not capture. These problems include heterogeneity, sample size bias, simultaneity bias, endogeneous variables, and autocorrelation. Therefore, this study is expected to contribute meaningful results that can be used to make inferences and policy recommendations. Another viable contrast to Okunola's research is the subdivision of the ECOWAS region into two sub-blocs. This deliberate division enables us to scrutinize these blocs' variations and potential commonalities.

Also, building on the framework of Keynesian economics, Abubakar (2016) studied production and unemployment and how Nigeria's spending policy shocks impact them. The Structural Vector Autoregression (SVAR) technique was used to analyze the annual data spanning 1981 to 2015. The SVAR regression output revealed that government expenditure shock persistently and substantially affects production. The shock coming from revenue also positively influences production, although it is lesser than public expenditure shocks. On the other hand, revenue shocks temporarily negatively affect unemployment. Therefore, the research suggested that the government restructure spending patterns by allocating extra resources to the efficient sectors. A further recommendation is that revenue generation should be enhanced through expanding taxable income and implementing tax policies with efficacy and proficiency to diversify income sources.

To investigate if poverty and unemployment are influenced by government spending, Nwosa (2014) used data from Nigeria from 1981 to 2011. By employing the conventional method of ordinary least squares, the study has emphasized the fact that the expenditure made by the government substantially and positively affect the rate of unemployment. Nonetheless, its influence on the poverty rate is negative and trivial. Per the outcome, the immediate focus should be directed towards addressing the escalating levels of unemployment and the persistent issue of high poverty rates as a vital tool for attaining the goal of positioning the country among the top 20 global economies and accomplishing the MDG targets of cutting the rate of poverty in half. Re-modelling Nwosa (2014)'s study, Enyoghasim et al. (2022) used unemployment as a function of fiscal policy to examine its impact on Nigeria from 1981 to 2011. Through the expo-factor research design, the study employed ARDL methodology to probe if various government policies alter unemployment. According to the research, unemployment was significantly affected by government investment spending, debt repayment, and gross fixed capital formation. However, interest rates, inflation, and the government's recurrent spending exhibited no consequence on the unemployment rate. To curb unemployment, the authors suggested spending should be devoted to valuable areas that can create more jobs for many unemployed people and avoid taking more loans. Onodugo et al. (2017) also investigated how private investment, capital spending, and consumption are related to Nigeria’s unemployment. They discovered that while recurrent spending is not statistically robust enough to do the same, spending on capital and that of the private sector are drivers for lowering the short and long-term unemployment rates.

Even though many practical investigations back the positive effect, evidence of nonlinearity continues to grow. The available literature proves indecisive due to many issues like the samples used, the development of countries, duration, and the techniques utilized. This, therefore, warrants the need for more sophisticated approaches in future studies to grasp dependable outcomes.

CHAPTER IV

METHODOLOGY

This chapter will present the empirical model, methodologies, and data in exploring government size and unemployment rate association within the Economic Community of West African States (ECOWAS). Estimation procedures, detailing the tools and techniques utilized, and offering a comprehensive overview of the data types and sources utilized are also outlined. Besides, the chapter covers a thorough description, and chosen variables are elaborated.

4.1. Data and Sample Size

This exercise rests on secondary data from the World Bank's WDI database to explore the connection between government size and the unemployment rate. Overall, the analysis encompasses twelve of the available fifteen ECOWAS countries, namely Benin, Burkina Faso, Cote D'Ivoire, Gambia, Ghana, Guinea- Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo. Countries like Liberia, Guinea, and Cabo Verde were excluded due to inadequate data availability. To ensure consistency and address any potential issues with missing data, the study carefully selected panel data from the countries mentioned above, covering 1991 and 2021. The rate of unemployment (UNEMP), measured as a proportion of the overall labor force, is the dependent variable in this research. Primary independent variables involved general government consumption expenditure (GOV_SIZE) and gross fixed capital formation (GOV_INV), expressed as GDP percentages. In addition, several control variables are included in the analysis. These consist of inflation (INF), yearly proportion change in CPI, GDP per capita (Y) growth rate, and population (POP) growth rate. These control variables are incorporated to consider their potential impact on the unemployment rate. By employing this comprehensive dataset and considering various relevant variables, the research seeks to review the interaction regarding government size and unemployment of ECOWAS. It also aims to analyze potential variations or discrepancies about the size of government and unemployment within two sub-unions of ECOWAS: WAEMU and WAMZ.

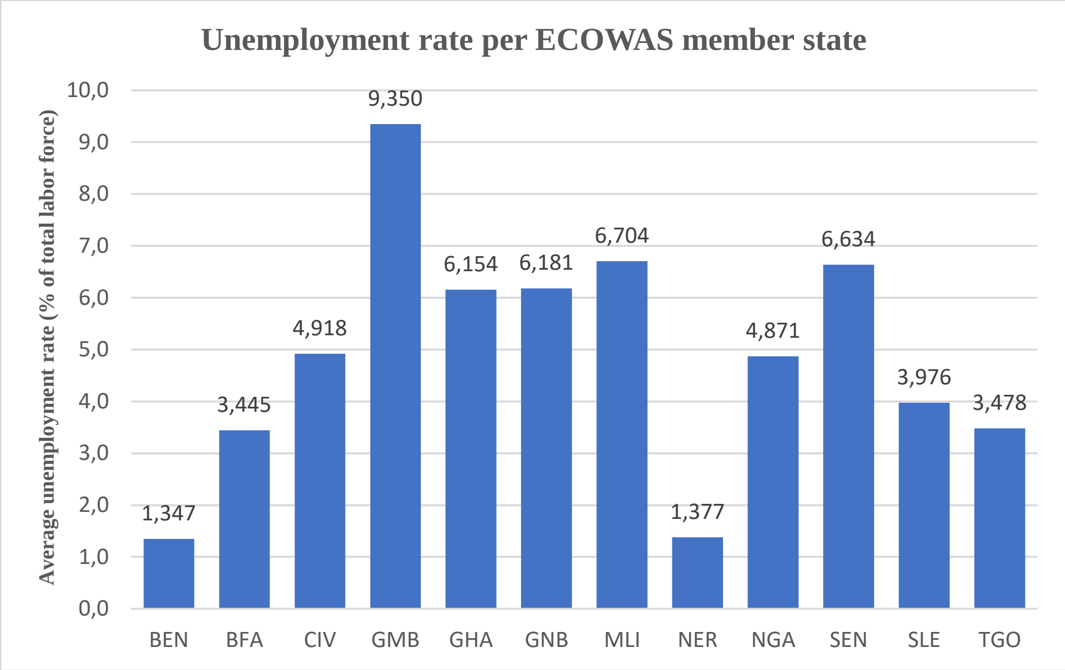
4.1.1. Discussion of the Variables

The subject matter of labor market performance has been thoroughly examined in both theoretical research and existing literature, focusing on investigating the various factors that influence a country's unemployment rate. Hence the need to observe and comprehend the variables explained below:

4.1.2. Dependent Variable

- **Unemployment Rate (UNEMP):** This thesis's primary focus and crucial factor is unemployment, the sole dependent variable. It entails the share of individuals possessing the ability and willingness to be employed at the existing pay scale but needing help finding a job that offers adequate payment. It is expressed as a proportion of the overall labor force.

Findings presented in Figure 4.1 below reveal interesting results regarding the average rate of unemployment in ECOWAS nations. Gambia distinguishes itself as it records the highest average unemployment rate, despite its relatively small population, with Senegal, Mali, and Ghana closely behind. This lack of uniformity among member states is further highlighted by the significant variation in unemployment rates, with Gambia recording the highest rate at 9.350 and Benin the lowest at 1.347. This demonstrates substantial heterogeneity, with different nations experiencing varying unemployment rates. Significant disparities exist in the average unemployment rate across WAEMU and WAMZ member nations. The former records a relatively low or moderate rate of joblessness, while the latter displays a higher degree of volatility in the labor market. The discrepancy noted can be attributed to dissimilarities in the monetary and fiscal policies of the two sub-blocs, indicating the requirement for additional research in this field.

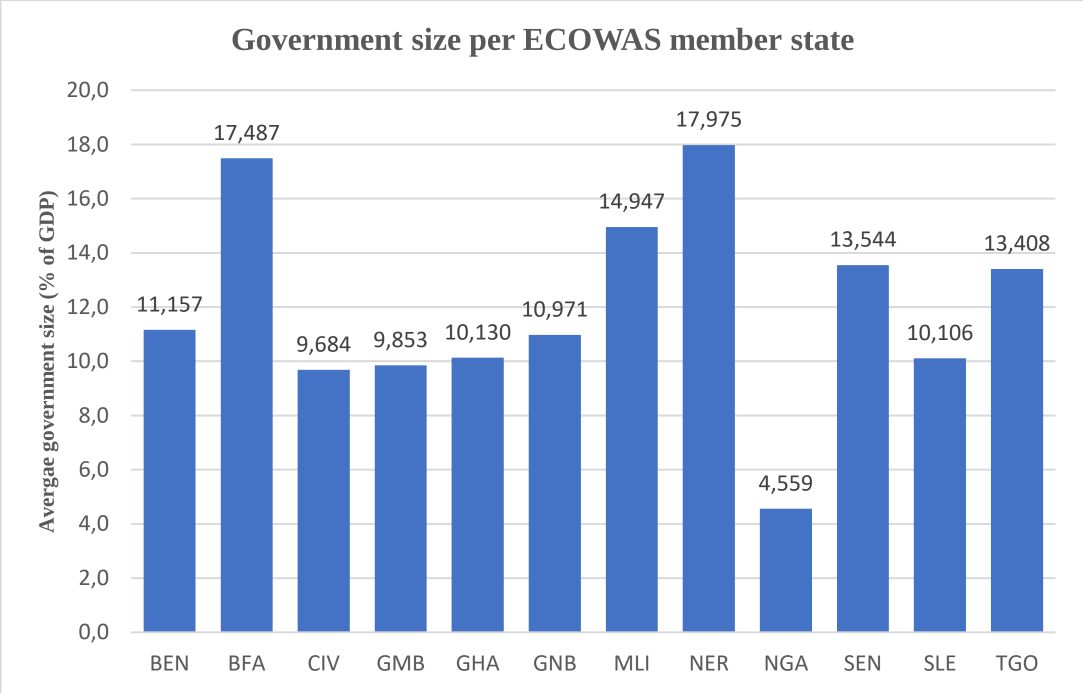


Note: BEN: Benin, BFA: Burkina Faso, CIV: Cote d'iviore, GMB: Gambia, GHA: Ghana, GNB: Guinea-Bissau, MLI: Mali, NER: Niger, NGA: Nigeria, SEN: Senegal, SLE: Sierra Leone, TGO: Togo.

Figure 4.1. Average Unemployment Rate in ECOWAS from 1991-2021

4.1.3. Independent Variables

- **Government Size (GOV_SIZE):** The general government consumption expenditure (final) represents the government size in this study. It is essential in computing a nation's GDP since it constitutes a substantial portion of overall government expenditure. This category encompasses the government's total outlay on goods and services consumed within the current period. It encompasses diverse current expenses, including employee salaries and wages, social benefits, subsidies, and other transfers. It also encompasses a significant portion of national defense and security spending. The affiliation between unemployment and general government consumption expenditure needs to be clarified, as several investigations have provided mixed results. While the studies of (Abrams, 1999; Aysu et al., 2011; Christopoulos et al., 2005; Christopoulos & Tsionas, 2002) have established that the nexus is positive, the likes of Devries et al. (2010), Holden & Sparrman (2011), Monacelli et al. (2010), and Ramey (2012) have found the relationship to be negative. But based on the recent empirical findings, we anticipate that this component of government spending will positively affect unemployment.

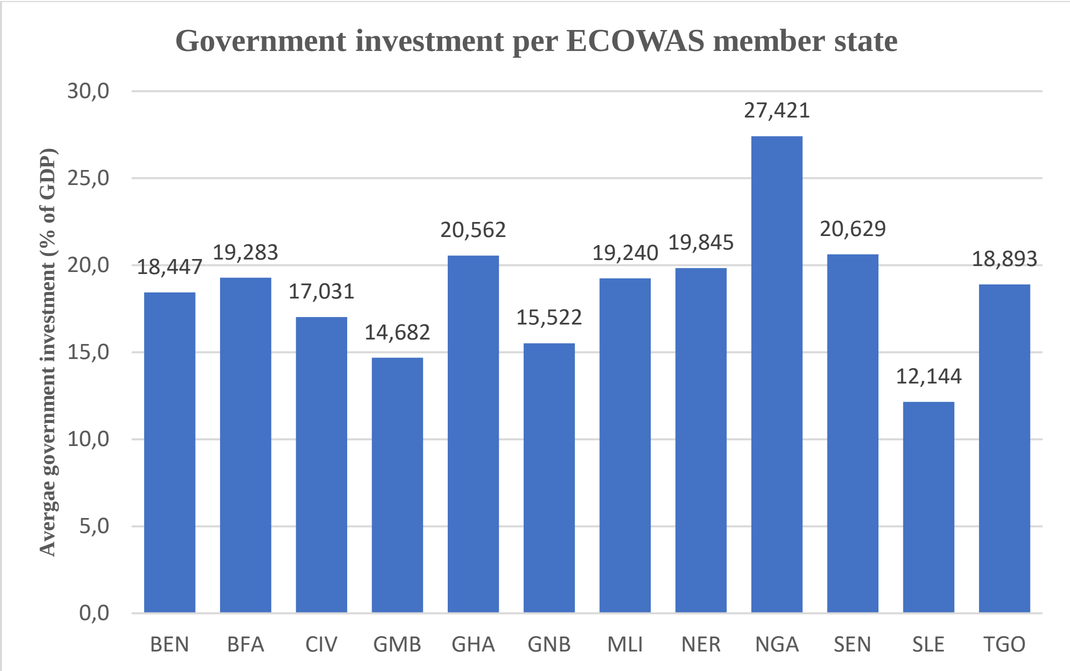


Note: BEN: Benin, BFA: Burkina Faso, CIV: Cote d'iviore, GMB: Gambia, GHA: Ghana, GNB: Guinea-Bissau, MLI: Mali, NER: Niger, NGA: Nigeria, SEN: Senegal, SLE: Sierra Leone, TGO: Togo.

Figure 4.2. Average Government Size in ECOWAS from 1991-2021

Figure 4.2 illustrates the average government size of ECOWAS member nations. Unlike the unemployment rate, the average size of the government provides more compelling results. Niger and Burkina Faso exhibit the highest government size, with a mean expenditure of 17.975 and 17.487, respectively. Conversely, the lowest government size on average is recorded by Nigeria. When comparing the two blocs, WAEMU countries display higher spending, almost surpassing 10%, with some minor variations. Government size is mainly similar for WAMZ member states, with only slight differences.

- **Government Investment (GOV_INV):** Gross Fixed Capital Formation is a proxy for government investment in this research. It is undoubtedly an integral component of a country's economic development since it represents investments in physical infrastructure that can contribute to economic growth and boost productivity. It encompasses expenditures made within the economy to improve land, acquire new buildings, machinery, and equipment, and construct essential infrastructure such as roads, railways, schools, hospitals, and other facilities. GFCF is a significant factor measuring the overall worth of spending on fixed assets and is depicted as a percentage of GDP. Therefore, government investment will likely demonstrate an inverse connection with unemployment, meaning that unemployment rates will likely decrease as the government increases investment. This is because the creation of an enabling environment for sustainable economic activities through physical infrastructure investment can foster job creation and result in decreased levels of unemployment. Therefore, higher government spending on investment is anticipated to generate more job opportunities and reduce unemployment. This notion gathers support from the research of (Meyer and Sanusi, 2019; Pasara and Garidzirai, 2020), which demonstrates that the unemployment rate will fall when government spends on investment. So, we predict that the results will depict the same in this study.



Note: BEN: Benin, BFA: Burkina Faso, CIV: Cote d'iviore, GMB: Gambia, GHA: Ghana, GNB: Guinea-Bissau, MLI: Mali, NER: Niger, NGA: Nigeria, SEN: Senegal, SLE: Sierra Leone, TGO: Togo.

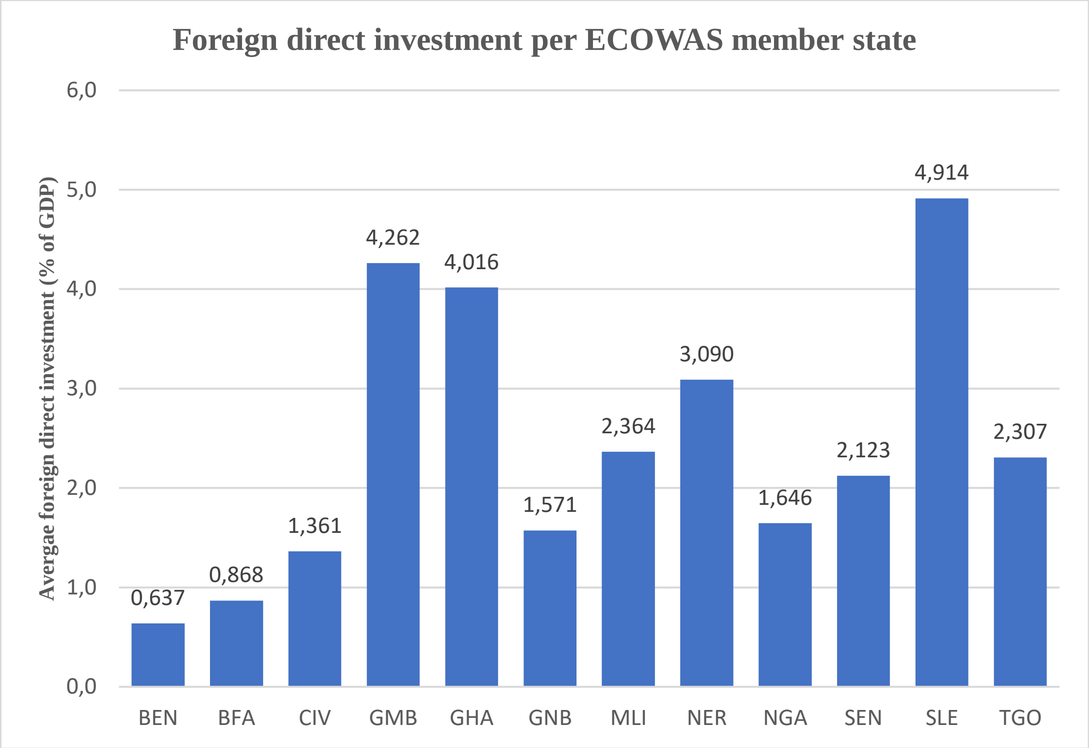
Figure 4.3. Average Government Investment in ECOWAS from 1991-2021

In Figure 4.3 above, Nigeria exhibits the highest average government investment expenditure among the ECOWAS countries. However, the remaining member states demonstrate relatively similar numbers regarding investment expenditure. There are a few variations in government investment expenditures across these countries.

Interestingly, the WAMZ countries display more noticeable investment expenditure variations than the WAEMU countries. The observed difference can be linked to the WAEMU member nations adopting broadly similar fiscal policies. This, in turn, may have led to more stable government investment expenditure patterns observed across these states.

4.1.4. Control Variables

- **Foreign Direct Investment (FDI):** Foreign direct investment is undertaken by foreign entities to secure significant ownership shares in enterprises functioning in nations different from those of the investors. Investment of this nature incorporates capital stock, plowing-back profits, and other types of assets, both long-run and short-run, mirrored within the balance of payments. FDI is a critical factor in stimulating the host country's economy. It catalyzes economic progression, promoting international partnerships and commerce and creating many job prospects. It has the potential to create new jobs, which can bring about a drop in unemployment rates. This investment is often attributed to foreign investors introducing new technologies and management practices that enhance productivity and efficiency, increasing employment opportunities. Consequently, a rise in foreign direct investment can be related to a decline in unemployment, contingent upon the specific circumstances and regional contexts. Recent studies by Alalawneh & Nessa (2020) and Karimov et al. (2020) showed an association between the unemployment rate and FDI taking a negative direction. Specifically, if foreign direct investment surges, the unemployment rate will fall. The neoliberal philosophy theorizes the notion that FDI is beneficial for unemployment rate-based targeting for the receiving country. Hence, we expect the relationship in this study to be negative.

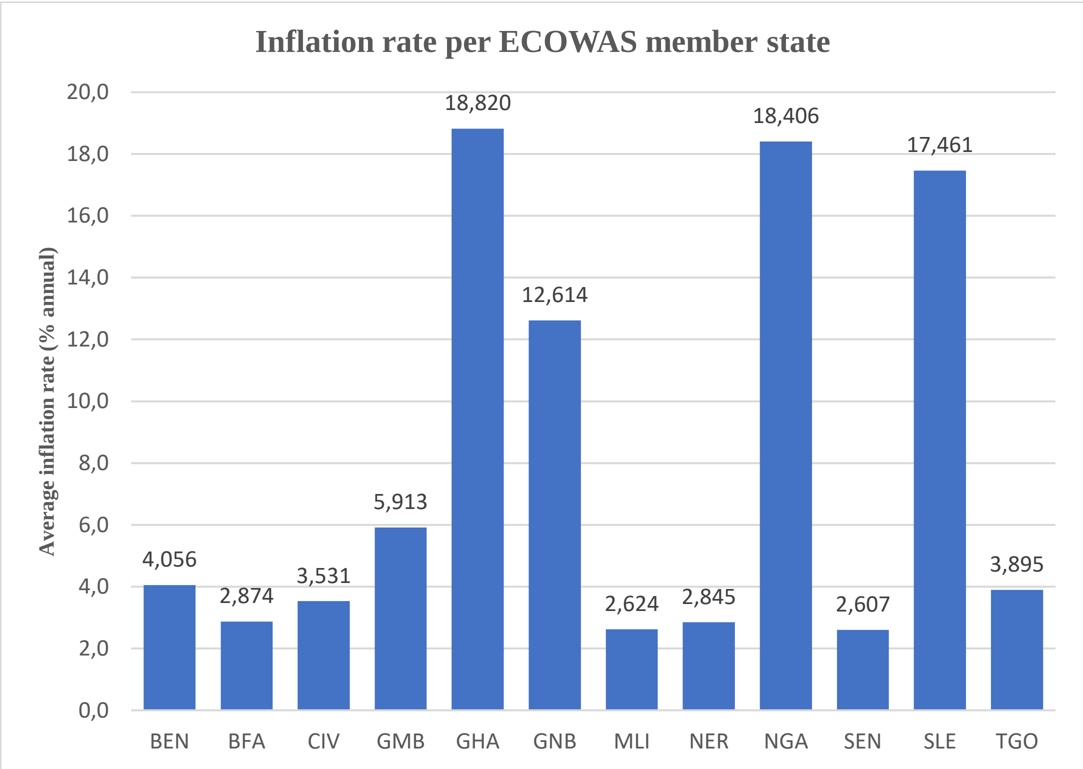


Note: BEN: Benin, BFA: Burkina Faso, CIV: Cote d'iviore, GMB: Gambia, GHA: Ghana, GNB: Guinea-Bissau, MLI: Mali, NER: Niger, NGA: Nigeria, SEN: Senegal, SLE: Sierra Leone, TGO: Togo.

Figure 4.4. Average Foreign Direct Investment in ECOWAS from 1991-2021

The figure above displays the average values regarding foreign direct investment (FDI) inflows in ECOWAS member countries. It is impressive how Sierra Leone leads among West African nations' average foreign direct investment (FDI) rates with a score of 4.914%. Gambia and Ghana are closely behind, with average scores of 4.262% and 4.016%, respectively. Nonetheless, Benin and Burkina Faso show low average FDI inflows at only 0.637% and 0.868%, respectively, placing them among the lower-ranking ECOWAS member countries regarding average FDI inflows. Interestingly, all but one member country in the West African Monetary Zone (WAMZ) attained remarkable average FDI inflows exceeding 4%. However, this was not reciprocated by WAEMU countries as they are mainly situated at or below the 2% threshold, with Niger being the sole exception at 3.090%. Therefore, it is safe to state that, on average, FDI inflows are higher for WAMZ countries than WAEMU countries.

- **Inflation (INF):** A consistent, widespread rise across the price spectrum of products and services over a defined duration is called inflation. Indexes such as the price index for consumer goods (CPI) are frequently used to determine the inflation rate. This index monitors inflation by displaying the price fluctuation rates that a typical buyer pays to acquire products and service-related offerings. These products and offerings sets may remain consistent or fluctuate periodically, such as annually. The well-cited Phillips Curve declares that the association of unemployment with inflation is inverse. If inflation rises, unemployment tends to decrease, while higher levels of unemployment tend to correspond with lower inflation levels. Several studies have tried to validate this hypothesis. Studies by Kasseh (2018) and Korkmaz & Abdullazade (2020) have found a significant inverse interaction between unemployment and inflation. Therefore, we expect a negative link between the two.



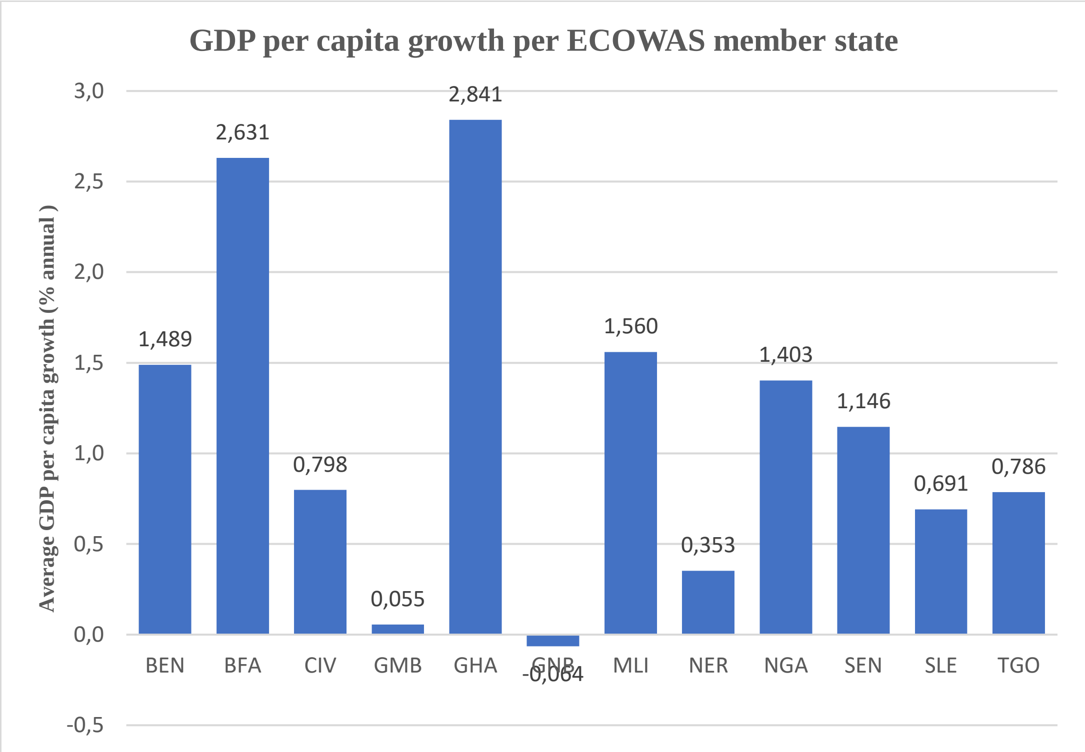
Note: BEN: Benin, BFA: Burkina Faso, CIV: Cote d'iviore, GMB: Gambia, GHA: Ghana, GNB: Guinea-Bissau, MLI: Mali, NER: Niger, NGA: Nigeria, SEN: Senegal, SLE: Sierra Leone, TGO: Togo.

Figure 4.5. Average Inflation Rate in ECOWAS from 1991-2021

Inflation on average for the ECOWAS member countries is illustrated in Figure 4.5. On average, Ghana has the highest average inflation rate, standing at 18.820%, followed closely by Nigeria at 18.406% and Sierra Leone at 17.461%. However, Senegal and Mali demonstrate the lowest average inflation rates, recording 2.607% and 2.624%, respectively. Compared to their WAEMU counterparts, all the WAMZ member states, excluding the Gambia, encountered the highest average inflation. Among the nations of WAEMU, Guinea-Bissau shows an average inflation rate of 12.614%, with the remaining member states dropping behind by more than half. Thus, we can conclude that the observed differences between WAMZ and WAEMU countries could be due to a standard currency system and fixed exchange rate regime within the WAEMU.

- **Gross Domestic Product per Capita (Y):** In simple terms, GDP per capita represents the total Gross Domestic Product (GDP) of a country proportional to its population. It has been commonly used to determine the average economic output per person within a country, and it gives an insight into the nation's standard of living and economic development. Therefore, GDP per capita has been the most used variable to measure economic growth in literature. In theory, a surge in income per capita often results in a decline in the unemployment rate, keeping everything else the same. But this interaction mentioned above has appeared to be a topic of extensive research and scholarly debate over time. While some earlier studies suggested an inverse association between unemployment and the growth of an economy, recent ones have challenged this long-standing concept. New empirical investigations have proved this nexus is more complex than previously thought. In some cases, economic growth may lead to reduced unemployment rates. Still, in other cases, it could lack substantial power on job levels or even exacerbate unemployment. These findings have prompted scholars to reconsider their understanding of the complex connection between unemployment and economic advancement and explore alternative explanations and theoretical models. Both theoretical and empirical studies demonstrate the evolution of perspectives and the absence of uniformity in the theories elucidating unemployment - growth link across the world (Nagel, 2015).

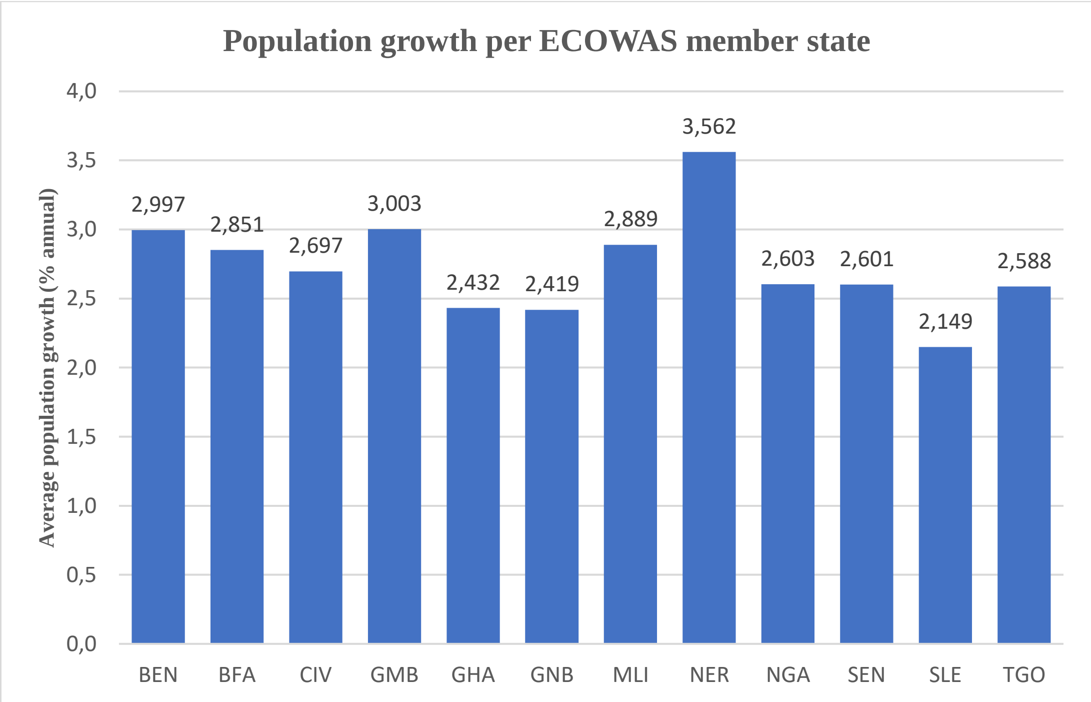
Presented in Figure 4.6 is the annual growth rate of GDP per capita average for ECOWAS member countries. Ghana is at the forefront with the highest per capita GDP, growing at a rate of 2.841%, closely followed by Burkina Faso, with a growth rate of 2.631%. The significant fluctuation in the countries' average GDP per capita growth rate is worthy of attention. Guinea-Bissau has the lowest average growth rate, at -0.064%. Both the WAEMU and WAMZ member countries exhibit similar trends of fluctuations, with some countries experiencing high growth rates while others show low rates. This shows the inherent volatility and sensitivity of the concerned variable within the ECOWAS region.



Note: BEN: Benin, BFA: Burkina Faso, CIV: Cote d'iviore, GMB: Gambia, GHA: Ghana, GNB: Guinea-Bissau, MLI: Mali, NER: Niger, NGA: Nigeria, SEN: Senegal, SLE: Sierra Leone, TGO: Togo.

Figure 4.6. Average GDP per Capita Growth in ECOWAS from 1991-2021

- **Population Growth (POP):** A population's growth rate denotes the speed at which a particular geographic area or locality population increases over a specific period, typically expressed in percentages. Calculating this rate involves deducting the rate of death from that of birth and subsequently adding a net migration rate. A positive population growth rate indicates a surge in the population, whereas a negative growth rate signifies a population decline. Measurement of the population growth rate is an integral demographic factor that facilitates understanding population patterns and future projections. Its significance extends to policymaking in diverse social, economic, and environmental sectors, emphasizing its criticality in effective decisionmaking and planning. A larger population can drive up product and service-related offerings demand, thereby spurring prolonged economic advancement. Nevertheless, if the economy's expansion fails to match the speed of population growth, job opportunities may not expand enough to absorb the growing labor force. Consequently, more people will compete for a limited number of available jobs, leading to a surge in unemployment rates. In cases where population growth outpaces economic growth, a larger population can exert more significant pressure on the labor market, potentially resulting in a detrimental effect on unemployment. Population growth has been demonstrated to have forced unemployment to rise (Gideon, 2020; Afolabi & Bobola, 2020). Therefore, we expect the unemployment and population growth rates to be positively related.



Note: BEN: Benin, BFA: Burkina Faso, CIV: Cote d'iviore, GMB: Gambia, GHA: Ghana, GNB: Guinea-Bissau, MLI: Mali, NER: Niger, NGA: Nigeria, SEN: Senegal, SLE: Sierra Leone, TGO: Togo.

Figure 4.7. Average Population Growth in ECOWAS from 1991-2021

The average annual population growth rate of ECOWAS is shown in Figure 4.7 below. On average, Niger occupies the top spot as the country with the highest population growth, offering a rate of 3.562%. A tied race among Gambia, Benin, Mali, and Burkina Faso closely follows this. A point deserving of consideration is that all the countries are between 2% and 4% of annual population growth rate, signaling a similar pattern across the countries. Sierra Leone has the lowest average yearly population growth rate, just 2.149%. Additionally, WAEMU and WAMZ member nations are equal, as the two sub-blocs display similar patterns. This clearly shows that there has been a steady and constant population growth within the ECOWAS region.

Overall, the Economic Community of West African States (ECOWAS) has observed noteworthy disparities in the averages of our target variables. The extent of variation varies based on the nature of the variable, with some demonstrating significant deviations, whereas others display negligible fluctuations. Examining the two sub-blocs reveals obvious dissimilarities, and it is imperative to delve into the underlying factors responsible for these patterns.

Table 4.1. Descriptions of the Variables

No	**Variables**	**Abbreviations**	**Measure**	**Source**	**Expected Impact**
1	Rate of Unemployment	UNEMP	% of the total labor force	World Bank	
2	General Government Consumption Expenditure	GOV_SIZE	% GDP	World Bank	Positive
3	Gross Fixed Capital Formation	GOV_INV	% GDP	World Bank	Negative
4	Foreign Direct Investment	FDI	% of GDP	World Bank	Negative
5	Inflation	INF	Annual % of CPI	World Bank	Negative
6	GDP per capita growth	Y	Annual growth %	World Bank	Negative
7	Population Growth	POP	Annual growth %	World Bank	Positive

4.2. Research Hypothesis

This research analyzes the interaction between government size and unemployment in the ECOWAS region. As a result, the study intends to test three different hypotheses to determine the behavior of our independent and control variables about the dependent variable.

Case 1: Government size and unemployment in ECOWAS
Ho: Government size has no influence on unemployment in ECOWAS.
H1: Government size has an influence on unemployment in ECOWAS.

Case 2: Government size and unemployment in WAEMU
Ho: Government size has no influence on unemployment in WAEMU.
H1: Government size has an influence on unemployment in WAEMU.

Case 3: Government size and unemployment in WAMZ
Ho: Government size has no influence on unemployment in WAMZ.
H1: Government size has an influence on unemployment in WAMZ.

4.3. Model Specification

This research explores the relationship linking unemployment and the size of the government of ECOWAS countries. As we delve into this study, we seek to discover if the effect of the size of government on the rate of unemployment varies in the West African region by comparing the West African Economic and Monetary Union (WAEMU) and the West African Monetary Zone (WAMZ). The size of the government's connection concerning unemployment appeared to be a complicated one that defies a single theoretical explanation. However, this study adopts Keynesian theory as its foundation, as recently incorporated by Okunola (2021). According to Keynesian theory, unemployment is primarily caused by insufficient aggregate demand in the economy. Therefore, government intervention through expansionary measures is necessary to stimulate economic activity and address unemployment issues. The study recognizes the relevance and contemporary acceptance of Keynesian theory in understanding and addressing the dynamics between government actions and unemployment rates. The approach of Keynesian highlights the efficacy of government policy in addressing macro-level economic challenges by advocating for measures like fiscal injection, reduction of taxes, and transfer enhancement to boost economic activity and generate employment opportunities (Schiller, 2008).

Therefore, incorporating the Keynesian theory, unemployment is determined by the independent and factor variables:

$$UNEMP = f(GOV\_SIZE, GOV\_INV, FDI, INF, Y, POP)$$

Hence, the panel data regression takes the following form:

$$UNEMP_{it} = \alpha + \beta_1 GOV\_SIZE_{it} + \beta_2 GOV\_INV_{it} + \beta_3 FDI_{it} + \beta_4 INF_{it} + \beta_5 Y_{it} + \beta_6 POP_{it} + \mu_{it}$$

Where each of the 12 ECOWAS nations is represented by the variable i, while t represents the time between 1991-2021. The variable $UNEMP_{it}$ is rate of unemployment for nation i and time t. While GOV_SIZE_{it} is the general government consumption expenditure, GOV_INV_{it} refers to gross fixed capital formation. FDI_{it} is foreign direct investment, INF_{it} is inflation, Y_{it} is GDP per capita growth rate, and POP_{it} stand for population growth rate. As component μ_{it} represents the error term, the factors $\beta 1, \ldots, \beta 6$ account for the various coefficients in the model.

4.4. Selection Method for Regression

As a sophisticated tool, panel data analysis allows us to examine data from numerous sources collected over time. However, selecting the best approach for doing panel data regression can be difficult and necessitates numerous diagnoses. If we skip these tests and proceed with our study unthinkingly, we risk creating misleading results that may lead to wrong conclusions. This is because panel data regression is a complex process that entails many assumptions and demands a thoughtful approach to various properties, like the data’s feature, coupled with the purpose pursued by the research. As a result, it is critical to execute the necessary tests to find the best approach for running panel data regression in our study. These tests may involve conducting panel cross-sectional dependence, slope homogeneity, a test of unit root, and cointegration analysis, among others. By conducting these preliminary tests, we can identify the most appropriate estimation technique to obtain accurate and reliable results. Therefore, we will select our model for the following diagnostic tests.

4.4.1. Cross-Sectional Dependence Test

A cross-sectional dependence test is a statistical analysis that helps to determine the existence of interdependence or relationship among cross-sectional dataset in a given observation. It assesses whether there is a dependency or association between the different data points within the dataset. This preliminary examination is indispensable as it enables us to ascertain the level of interdependence or independence concerning the chosen predictors. The underlying explanation for this phenomenon is that an economic shock in a particular country can affect other nations through a ripple effect, either directly or indirectly. The GDP of Burkina Faso can be affected by that of Ghana and vice versa. Therefore, the findings of this analysis are critical to direct us to the selection of appropriate unit root tests coupled with aiding us in determining the most suitable models to utilize in our estimations. Pesaran (2004) devised the test statistics for cross-sectional dependence using the Lagrange Multiplier (LM) statistics proposed by Breusch and Pagan (1980), which is mainly applicable for fixed N as T$\rightarrow \infty$. The equation for this test is given below:

$$CD_{lm} = T \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \hat{\rho}^{2}{}_{ij}$$

Here, $\widehat{\rho_{ij}}^2$is the pair-wise sample estimate for the residual’s relationship. Hence, it represents the pairwise correlation coefficient between the residuals of individual units i and j. However, the fact that we have fixed T and N and since the above LM test is inclined to exhibit inaccurate results with finite parameters, a different test for cross-sectional dependence was proposed by Pesaran (2004). The approach utilizes the correlation coefficients of pairwise variables instead of their squares, employed by the LM test. It thus becomes:

$$CD = \sqrt{\frac{2T}{N(N-1)}}\left(\sum_{i=1}^{N-1}\sum_{j=i+1}^{N}\hat{\rho}_{ij}\right)$$

The above equation exhibits the null hypothesis of no across-sectional dependence. In contrast to the Breusch and Pagan (1980) LM test statistic, Pesaran's above method accurately reflects a range of panel data techniques, including models with heterogeneity, unit roots, and dynamics, while incorporating fixed T and N parameters. Therefore, this test perfectly applies in our case, where N = 12 and T = 31. The two tests were used in this study for comparison purposes. The results suggest the existence of solid interdependence, as shown in Chapter V.

4.4.2. Slope Homogeneity Test

A slope homogeneity test can be defined as a statistical test that investigates the consistency of the relationship between two or more variables across many groups or categories. Swamy (1970) introduced a framework for assessing the homogeneity of slope coefficients in the cointegration equation to test uniformity in the effects of variables in panel data. Building upon Swamy's work, Pesaran and Yamagata (2008) enhanced a slope homogeneity test through the incorporation of $\tilde{\Delta}$ (for small samples) and $\tilde{\Delta}_{adj}$ (for large samples) test statistics.

$$\tilde{\Delta}= \sqrt{N}\,\left(\frac{N^{-1}\tilde{S}-k}{\sqrt{2k}}\right) \sim x^2{}_k$$

$$\tilde{\Delta}_{adj} = \sqrt{N}\,\left(\frac{N^{-1}\tilde{S}-k}{var(T,k)}\right) \sim N(0,1)$$

Here, N represents the total amount of cross-sectional elements, S signifies the test statistics of Swamy, and k means the number of independent parameters. The null hypothesis posits a slope homogeneity, but the traditional $\tilde{\Delta}$ test necessitates the absence of serial correlation in the errors. The Heteroscedasticity and Autocorrelation Consistent (HAC) test, as a strong adaptation of the test for slope homogeneousness, was developed by Blomquist & Westerlund (2013) to tackle the problems of homoscedasticity and serial independence. Hence, Δ_{HAC} and $(\Delta_{HAC})_{adj}$ where suggested.

$$\Delta_{HAC}= \sqrt{N}\left(\frac{N^{-1}\tilde{S}_{HAC}-k}{\sqrt{2k}}\right)$$

$$(\Delta_{HAC})_{adj} = \sqrt{N}\left(\frac{N^{-1}\tilde{S}_{HAC}-k}{var(T,k)}\right) \sim N(0,1)$$

The present study employs these two tests, and the findings suggest that the coefficients of the variables in our theoretical framework are not uniform, thus exhibiting heterogeneity. The outcomes have been tabulated in Tables 5.4.1, 5.4.2, and 5.4.3.

4.4.3. Unit Root Test

In the preceding two tests, we identified the presence of cross-sectional dependence in the error terms, indicating interrelationships among the observations. Additionally, we observed heterogeneity in the coefficients of the exogenous variables, suggesting variations across the different units. A second-generation unit root test assesses stationarity and accounts for interconnectedness and non-uniformity. Consequently, we executed two second-generation unit root tests, factoring in interdependence among the variables. The Fisher-type tests introduced by Pesaran (2003) were predicated on the significant levels of the individual test for cross-sectionally augmented Dickey-Fuller (CADF). In contrast, the cross-sectionally augmented IPS test (CIPS) was suggested by Pesaran (2007) to tackle the issue of interrelationship and serial correlation in the residuals.
Mathematically, it is as follows:

$$\Delta y_{i,t} = \alpha_i + b_i y_{i,t-1} + c_i \bar{y}_{t-1} + d_i \bar{y}_t \;\; \varepsilon_{i,t}$$

Where $\Delta y_{i,t}$ represents a change in cross-sectional mean. Whereas the term α_i is predetermined, $\bar{y}_t$ represents the cross-sectional mean at a particular time t, while ρ denotes lag order. The associated ratio of α_i is $t_i(N,T)$, commonly known as the

Cointegrating Augmented Dickey-Fuller (CADF) statistic. The CIPS is determined through an average of the t ratios. By the findings outlined in section 5.5, the CADF and the CIPS demonstrate stationarity at the first difference for our variables, confirming their status as stationary at order 1 (I(1)). As a result, the subsequent stage involves conducting a cointegration test.

4.4.4. Cointegration Test

As we established that all the variables were stationary at the first difference, a panel cointegration examination was carried out. This involved the execution of three distinct cointegration tests, namely Westerlund, Pedroni, and Kao. They all followed the regression model: All of them built upon this regression model:

$$y_{it} = x'_{it}\beta_i + z'_{it}\gamma_i + e_{it}$$

Westerlund (2005) postulated double tests for residual-driven panel cointegration to assess the null hypothesis that assumes non-cointegration.

a. Panel variance ratio statistics (for all panels):

$$VR_p = \sum_{i=1}^{N}\sum_{t=1}^{T}\hat{E}^2{}_{it}\left(\sum_{i=1}^{N}\hat{R}_i\right)^{-1}$$

b. Group variance ratio statistics (for some panels):

$$VR = \sum_{i=1}^{N}\sum_{t=1}^{T}\hat{E}_{it}{}^2\hat{R}_i{}^{-1}$$

Where $\hat{E}_{it} = \sum_{j=1}^{t}\hat{e}_{it}, \hat{R}_i = \sum_{t=1}^{T}\hat{e}^2{}_{it}$ and $\hat{e}_{it}$ represent the residuals obtained from the analysis. When we standardized the model, it became clear that the test statistics of asymptotic distribution gradually approach $N(0, 1)$.

Pedroni (1999) proposed cointegration test statistics derived from a model featuring panel-specific AR parameters, known as group mean statistics.

$$Modified\,pp\;t = TN^{-1/2}\sum_{i=1}^{N}\left(\sum_{t=1}^{T}\hat{e}^{2}{}_{i,t-1}\right)^{-1}\sum_{t=1}^{T}\left(\hat{e}_{i,t-1}\Delta\hat{e}_{i,t} - \hat{\lambda}_{i}\right)$$

$$pp\;t = N^{-1/2}\sum_{i=1}^{N}\left(\hat{\sigma}^{2}{}_{i}\sum_{t=1}^{T}\hat{e}^{2}{}_{i,t-1}\right)^{-1/2}\sum_{t=1}^{T}\left(\hat{e}_{i,t-1}\Delta\hat{e}_{i,t} - \hat{\lambda}_{i}\right)$$

$$ADF\;t = N^{-1/2}\sum_{i=1}^{N}\left(\sum_{t=1}^{T}\hat{s}^{*2}{}_{i}\hat{e}^{2}{}_{i,t-1}\right)^{-1/2}\sum_{t=1}^{T}\hat{e}_{i,t-1}\Delta\hat{e}_{i,t}$$

Where $\hat{e}_{i,t}$ represents the errors derived from the model, the following calculation is performed:

$$\hat{\lambda}_{i} = \frac{1}{2}(\hat{\sigma}^{2}{}_{i} - \hat{s}^{2}{}_{i})$$

While $\hat{\sigma}^{2}{}_{i}$ and $\hat{s}^{2}{}_{i}$ represent the corresponding simultaneous long-term variances of the errors resulted from DF test, $\hat{s}^{*2}{}_{i}$ indicates respective simultaneous adjustment of the errors originating from ADF test.

Kao (1999) introduces test statistics totaling five. The first four, namely unadjusted modified DF t, DF t, unadjusted DF t, modified DF t, and are founded on the DF test:

$$\hat{e}_{it} = \rho\hat{e}_{i,t-1} + v_{it}$$

The estimated residuals possess a standard AR parameter denoted as ρ. The test statistics are derived accordingly as follows:

$$DF\ t = \frac{t_\rho + \frac{\sqrt{6N}\ \hat{\sigma}_v}{2\hat{\omega}_v}}{\sqrt{\frac{\hat{\omega}^2{}_v}{2\hat{\sigma}^2{}_v} + \frac{3\hat{\sigma}^2{}_v}{10\hat{\omega}^2{}_v}}}$$

$$Modified\ DF\ t = \frac{\sqrt{N}T(\hat{\rho} - 1) + \frac{3\sqrt{N}\ \hat{\sigma}_v}{\hat{\omega}^2{}_v}}{\sqrt{3 + \frac{36\hat{\sigma}^4{}_v}{5\hat{\omega}^4{}_v}}}$$

Where $\hat{\rho}$ denotes the approximated value of ρ, $\hat{\sigma}^2{}_v$ and $\hat{\omega}^2{}_v$ are scalar terms that exhibit consistency in their estimations. t_ρ denotes the t statistic utilized for null hypothesis testing.

The DF test statistics, which rely heavily on the assumption of exogenous inflexibility and the independence of residuals, are provided as follows:

$$Unadjusted\ DF\ t = \sqrt{\frac{5t_\rho}{4}} + \sqrt{\frac{15N}{8}}$$

$$Unadjusted\ modified\ DF\ t = \frac{\sqrt{N}T(\hat{\rho} - 1) + 3\sqrt{N}}{\sqrt{\frac{51}{5}}}$$

The ADF test is shown as follows:

$$\hat{e}_{it} = \rho\hat{e}_{i,t-1} + \sum_{j=1}^{p} \rho_j \Delta\hat{e}_{i,t-j} + v^*{}_{it}$$

Where p means the number of terms that are lagged differences. With the utilization of the ADF test, the statistics test is formulated as follows:

$$ADF\ t = \frac{t_{ADF} + \frac{\sqrt{6N}\,\hat{\sigma}_v}{2\hat{\omega}_v}}{\sqrt{\frac{\hat{\omega}^2{}_v}{2\hat{\sigma}^2{}_v} + \frac{3\hat{\sigma}^2{}_v}{10\hat{\omega}^2{}_v}}}$$

Here, $t_{ADF} = \frac{\hat{\rho}}{\widehat{SE}(\hat{\rho})}$ is derived from the ADF regression, and all test statistics asymptotically converge to $N(0, 1)$ distribution.

4.4.5. Long-run Cointegration Estimation

After examing the stationarity of variables at the first difference, confirming cointegration, cross-sectional dependent, and heterogeneity, the subsequent course of action is to ascertain the characteristics of the long-term relationship of government size in connection with unemployment in ECOWAS and further analyze how this relationship differs between the two sub-blocs within ECOWAS. As a result, to delve deeper into the long-run cointegration coefficients, we have employed three dynamic panel models: dynamic ordinary least squares (DOLS), fully modified ordinary least squares (FMOLS), and canonical correlation regression (CCR). As Phillips and Hansen (1990) initiated the FMOLS technique, Stock and Watson (1993) developed that of DOLS, and finally, the CRR model was devised by Park (1992). FMOLS, DOLS, and CCR are renowned for their capability to address issues such as sample size bias, simultaneity bias, endogeneous variables, and autocorrelation, making them highly effective methods in mitigating these concerns. These techniques are widely acknowledged and often utilized in labor economics, development economics, and the overall macroeconomic landscape.

4.4.5.1. The DOLS Model

The DOLS model was introduced by Stock and Watson (1993). This technique utilizes a parametric approach to estimate long-term connection in a given regression with integrated variables in different orders, but cointegration exists among the variables. Kurozumi and Hayakawa (2009) state that the DOLS model addresses simultenary and small sample biases by incorporating time lags. DOLS is derived from the least-squares estimates that showcase asymptotic efficiency and unbiasedness despite endogeneity. Moreover, the constraints correct for potential serial correlation and when abnormality appears in residuals (Stock and Watson, 1993; Herzer et al., 2006). The estimating equation of DOLS is given by:

$$y_t = \alpha + bX_t + \sum_{i=-k}^{i=k} \theta_i \Delta X_{t+i} + \varepsilon_t$$

Where α is constant, b represents the long-run elasticity, and lag and lead integration of I(1) regressors of the coefficients are denoted by θ. This helps to tackle any potential endogeneity and serial correlation.

4.4.5.2. The FMOLS Model

Phillips and Hansen (1990) initiated the FMOLS technique. The approach involves using semi-parametric methods to derive estimates of long-term parameters. According to Agbola (2013) and Bashier and Siam (2014), the FMOLS method can provide steady restrictions even with minimal sample size while also addressing issues such as endogenous variables, autocorrelation, the unobserved bias of variable, errors in measurement, and heterogeneity in the long-term coefficients. Specifically, the model estimates a single cointegrating relationship among variables with different integration orders. Moreover, the technique centers its attention on the transformation of not only the data but also the parameters, duly emphasized by Park (1992). Compared to traditional EG cointegration techniques, FMOLS corrects inference problems and yields t-statistics that are correct for long-term estimation (Amarawickrama and Hunt, 2008). FMOLS exhibits asymptotic unbiasedness and possesses a typical combination of asymptotic circulation that is fully efficient. This property is emphasized by Adom et al. (2015), and it enables the use of the standard test of Wald with the statistical interpretation of asymptotic chi-square. Notably, Research by Aysu et al. (2011), Christopoulos et al. (2005), and Folawewo and Adeboje (2017) all utilized the FMOLS methodology to explore the correlation between the size of government and unemployment.

The FMOLS estimator is given by:

$$\hat{\text{O}}_{\text{FME}} = \left(\sum_{t=1}^{T} Z_t Z_t'\right)^{-1} \left(\sum_{t=1}^{T} Z_t Y_t^+ - T \begin{bmatrix} \lambda_{12'}^+ \\ O \end{bmatrix}\right)$$

Where the bias terms $Y_t^+$and λ_{12}^+ are introduced to address the issues of endogeneity and serial correlation, Z_t signifies the cointegrating vector, and Ô represents the long-run covariance matrix.

4.4.5.3. The CCR Model

The canonical correlation regression (CCR) was pioneered by Park (1992). This method is suitable for testing cointegrating vectors in a model with integrated variables at first difference. Like FMOLS, CCR also involves data transformation. The only difference is that CCR focuses solely on the transformation of statistics, whereas FMOLS encompasses the change of statistics and the coefficients (Adom et al., 2015; Park, 1992). Additionally, Park (1992) noted that CCR is a univariate estimation approach extended to multiple-variable estimations independent of modifications and sacrification of efficacy. The estimation involving CCR can be represented as follows:

$$\hat{\text{O}}_{\text{CCR}} = \left(\sum_{t=1}^{T} Z_t^* Z_t^{*1}\right)^{-1} \sum_{t=1}^{T} Z_t^* Y_t^*$$

Here, the bias terms Y_t^* is presented to address the issues of endogeneity and serial correlation, Z_t^* implies the transformed cointegrating vector, and $\hat{\text{O}}_{\text{CCR}}$ represents the long-run covariance matrix of the canonical correlation regression (CCR). Incorporating these three models, the long-term connection linking government size and unemployment was ascertained and discussed in Chapter V.

CHAPTER V

RESULTS AND DISCUSSIONS

In this particular section of the dissertation, before embarking on the regression analysis, it is crucial to perform an elaborate study of descriptive statistics to get a holistic outline of the research dataset. In this thesis, the objective is to analyze the correlation that exists between government size and the unemployment rate within ECOWAS from 1991 to 2021. This research also explores potential differences or disparities regarding government size concerning unemployment concerning the West Africa Economic and Monetary Union (WAEMU) and the West African Monetary Zone (WAMZ) as regional blocs within ECOWAS. This entails exploring any differences or distinctions that a change in government size might have on unemployment in those two blocs.

To realize this objective, it is crucial to execute initial examinations of the information available to obtain an all-encompassing comprehension of its characteristics and distribution. This includes examining the summary statistics, conducting panel cross-sectional dependence test, slope homogeneity, test of unit root, and that of cointegration. We can pinpoint the optimal estimation method to attain precise and reliable results by initiating these preliminary investigations. The information obtained from these findings can be utilized to make well-informed statistical inferences and offer valuable insights for policy recommendations. Ultimately, the research has the potential to enrich our comprehension of the correlation between government size and unemployment, providing valuable perspectives to policymakers dedicated to resolving unemployment concerns within the ECOWAS region. Moreover, the discoveries of this study can offer valuable direction to confront the challenges of unemployment in the two sub-blocs, thereby making a substantial contribution to the realm of policy making firmly grounded in sound evidence.

5.1. Summary of the Statistics

Before initiating the analysis, performing descriptive statistics to summarize the research data is crucial. The key variables' summary statistics and their discussions are illustrated below.

Table 5.1. Summary Statistics of the Main Variables for ECOWAS

Variable	Obs.	Mean	Std. Dev.	Min	Max
UNEMP	372	4.870	2.605	0.32	11.71
GOV_SIZE	372	11.985	4.337	.911	26.065
GOV_INV	372	18.642	7.523	-2.424	48.4
FDI	372	2.43	3.093	-2.545	32.301
INF	372	7.97	13.039	-7.797	102.697
Y	372	1.141	4.305	-29.413	19.457
POP	372	2.733	0.672	-1.765	5.785

Note: UNEMP: Unemployment, GOVE_SIZE: General Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment, INF: Inflation, Y: GDP per capita growth, and POP: Population Growth.

Table 5.1. provides a comprehensive overview of the main variables of the examination. The data reveals essential patterns and characteristics among the variables. Government Investment Expenditure is observed to have a higher average value (18.642) than Government Size (11.985) across ECOWAS member states. The prioritization of investment expenses implies a strategic concentration on sustained economic development, recognizing the importance of allocating resources to crucial domains like education and infrastructure.

Among the variables, the indicators displaying the lowest average figures are FDI and GDP per capita. This implies that the countries in the sample have relatively lower income levels per person and foreign investment inflows on average. On the other hand, inflation demonstrates a moderate mean value, but it stands out with the highest standard deviation, almost twice as large as the following variable. This wide variation in inflation rates among ECOWAS countries signifies substantial heterogeneity, with some nations experiencing significantly higher or lower inflation than the average.

Such divergence in inflation rates can significantly affect economic stability and performance. Rapidly rising inflation rates erode consumers' purchasing power and introduce uncertainties for businesses, while persistently low inflation may signal sluggish demand and below-par economic growth. Consequently, analyzing the underlying factors contributing to these divergences in inflation rates is imperative. Such analysis can assist policymakers in formulating appropriate monetary and fiscal policies to foster price stability and enhance overall economic prosperity.

Table 5.2. Summary Statistics of the Main Variables for WAEMU

Variable	Obs	Mean	Std. Dev.	Min	Max
UNEMP	248	4.26	2.466	.32	11.71
GOV SIZE	248	13.647	3.815	6.408	26.065
GOV INV	248	18.611	5.841	5.885	48.397
FDI	248	1.79	2.245	-2.545	18.818
INF	248	4.381	9.831	-7.797	69.584
Y	248	1.088	3.88	-29.413	14.583
POP	248	2.825	.556	-.68	4.467

Note: WAEMU: West African Economic and Monetary Union, UNEMP: Unemployment, GOVE_SIZE: Government Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment, INF: Inflation, Y: GDP per capita growth and POP: Population Growth.

Table 5.3. Summary Statistics of the Main Variables for WAMZ

Variable	Obs	Mean	Std. Dev.	Min	Max
UNEMP	124	6.088	2.452	3.388	11.212
GOV SIZE	124	8.662	3.287	.911	15.308
GOV INV	124	18.702	10.108	-2.424	48.4
FDI	124	3.709	4.033	-.971	32.301
INF	124	15.15	15.517	-.918	102.697
Y	124	1.247	5.065	-22.488	19.457
POP	124	2.547	.83	-1.765	5.785

Note: WAMZ: West African Monetary Zone, UNEMP: Unemployment, GOVE_SIZE: Government Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment, INF: Inflation, Y: GDP per capita growth and POP: Population Growth.

The statistical analysis of tables 5.2. and 5.3. reveals notable distinctions regarding the West Africa Economic and Monetary Union (WAEMU) in connection to the West African Monetary Zone (WAMZ). The notables are government size, inflation rate, and unemployment rate. Firstly, WAEMU exhibits a larger government size, as indicated by a mean value of 13.647, compared to WAMZ, with a mean value of 8.662. Despite this disparity, both blocs display similar levels of variation in government size, as reflected by their comparable standard deviation figures. Moreover, a prominent contrast arises in the inflation rates between the two unions. On average, WAMZ's inflation rate is three times higher than WAEMU's. Especially the inflation rate in the WAMZ exhibits considerable volatility, evidenced by a substantial standard deviation value of 15.15, surpassing its average rate. In contrast, the WAEMU region displays a lower mean inflation rate, yet still, possesses a relatively higher standard deviation, implying significant fluctuations in inflation across both blocs. While the unemployment rate in WAEMU is approximately half that of WAMZ, both regions exhibit comparable levels of variation in unemployment rates. This indicates a comparable level of ambiguity and heterogeneity in employment trends within both economic unions.

5.2. Correlations Analysis Among the Variables

A panel correlation analysis was also conducted to explore the association among dependent, independent, and control variables. The results are presented in the tables below.

Table 5.4. Pearson's Pairwise Correlation Matrix for ECOWAS

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) UNEMP	1.000						
(2) GOV_SIZE	-0.214***	1.000					
(3) GOV_INV	-0.080	-0.178**	1.000				
(4) FDI	0.121**	-0.103**	0.279***	1.000			
(5) INF	0.071	-0.344***	0.203**	-0.014	1.000		
(6) Y	-0.098*	-0.005	0.145**	0.142**	-0.052	1.000	
(7) POP	-0.091*	0.265***	0.110**	0.082	-0.340**	0.142**	1.000

(***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels respectively. UNEMP: Unemployment, GOVE_SIZE: Government Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment, INF: Inflation, Y: GDP per capita growth, and POP: Population Growth.

The findings derived from the correlation matrix reveal significant associations among several crucial variables examined in the study. At a 5% significance level for the correlation matrix, there are positive and substantial correlations among government size and population, government investment expenditure and foreign direct investment, and government investment expenditure and inflation. Conversely, significant adverse correlations are observed among unemployment and government size, inflation, government size, and population. The remaining correlations demonstrate weak magnitudes.

Generally, the unemployment rate significantly correlates with government size and foreign direct investment. The former relationship exhibits a negative association, while the latter shows a positive connection. As the central objective of this investigation is to scrutinize the correlation linking unemployment and general government consumption spending, it is evident that a detectable nexus between these two factors does exist. Furthermore, a vital aim of this inquiry is to determine the degree to which the dependent and control variables impact the independent one. All variables, except GDP per capita, correlate substantially with the government size. In addition, correlation analysis plays a critical purpose in assessing the existence of multicollinearity in the model. However, the results derived from this analysis indicate no substantial evidence of a high correlation among the independent variables. No single coefficient among the independent variables approaches 1 or -1, signifying the absence of a perfect or precise linear relationship between the regressors. Consequently, it can be concluded that the model is devoid of multicollinearity. As a result, there is no need to ascertain the existence of a variance inflation factor (VIF).

Table 5.5. Pearson's Pairwise Correlation Matrix for WAEMU

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) UNEMP	1.000						
(2) GOV_SIZE	-0.157**	1.000					
(3) GOV_INV	-0.130**	0.032	1.000				
(4) FDI	-0.001	0.057	0.477***	1.000			
(5) INF	0.066	-0.184**	0.215**	-0.068	1.000		
(6) Y	-0.095	-0.023	0.240**	0.070	0.072	1.000	
(7) POP	-0.258***	0.250**	0.113*	0.207**	-0.099	0.042	1.000

(***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels respectively.
UNEMP: Unemployment, GOVE_SIZE: Government Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment,
INF: Inflation, Y: GDP per capita growth, and POP: Population Growth.

Table 5.6. Pearson's Pairwise Correlation Matrix for WAMZ

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1) UNEMP	1.000						
(2) GOV_SIZE	0.222**	1.000					
(3) GOV_INV	-0.044	-0.561***	1.000				
(4) FDI	0.060	0.097	0.169*	1.000			
(5) INF	-0.241**	-0.171*	0.220**	-0.201**	1.000		
(6) Y	-0.135	0.056	0.062	0.210**	-0.196**	1.000	
(7) POP	0.281**	0.122	0.115	0.106	-0.457***	0.258**	1.000

(***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels respectively.
UNEMP: Unemployment, GOVE_SIZE: Government Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment,
INF: Inflation, Y: GDP per capita growth, and POP: Population Growth.

As illustrated in Tables 5.5. and 5.6., notable distinctions emerge between the West Africa Economic and Monetary Union (WAEMU) and the West African Monetary Zone (WAMZ). Table 5.5. reveals that within WAEMU, significant correlations exist among government investment expenditure and foreign direct investment, government investment expenditure, GDP per capita growth, and population and government size. Conversely, in the case of WAMZ, associations are observed to be positive among unemployment and population growth, unemployment, government size, GDP per capita growth and rate of population growth. Notably, an overall positive relationship emerged concerning government size and unemployment in WAMZ, while a negative relationship is observed among WAEMU countries.

5.3. Cross-Sectional Dependence Test

With globalization, liberalization, and the growth of information technologies, countries have become increasingly interconnected. An economic shock in one country can ripple effect on other countries, either directly or indirectly. As such, the cross-sectional dependence test is a crucial preliminary test, offering valuable insights into the relationships among our variables, their direction, and characteristics. This test allows us to ascertain our variables' interdependence or independence level. The outcomes of this test play a vital role in guiding us toward selecting suitable unit root tests and determining the most appropriate models to employ in our estimations.

Its assumption is frequently considered excessively limiting in numerous empirical scenarios, especially macroeconomics, finance, and international finance. Considering that our focus is on macroeconomic data, empirically examining the interdependence between our key instruments becomes imperative. The test's outcomes are illustrated below.

Table 5.7. Breusch-Pagan Cross-Sectional Dependence Test Results for ECOWAS

	__e1	__e2	__e3	__e4	__e5	__e6	__e7	__e8	__e9	__e10	__e11	__e12
__e1	1.0000											
__e2	0.6130	1.0000										
__e3	-0.1253	-0.1526	1.0000									
__e4	0.3771	0.7706	-0.2975	1.0000								
__e5	-0.2229	-0.4916	-0.2067	-0.2282	1.0000							
__e6	-0.1463	-0.0563	-0.2531	0.1979	0.0206	1.0000						
__e7	-0.0919	0.5032	0.3298	0.3867	-0.2736	-0.1579	1.0000					
__e8	-0.5095	-0.2837	0.4712	-0.2818	0.1004	-0.2064	0.3774	1.0000				
__e9	0.3180	0.6871	-0.5735	0.8056	-0.3526	0.2889	0.1164	-0.4690	1.0000			
__e10	-0.0611	-0.0647	0.8272	-0.2624	-0.0315	-0.3599	0.5120	0.4841	-0.6804	1.0000		
__e11	0.6757	0.7038	-0.0953	0.5611	-0.5042	-0.1176	0.0979	-0.3887	0.5258	-0.0840	1.0000	
__e12	-0.6467	-0.2616	-0.4084	0.0802	0.0733	0.4467	-0.0699	0.1890	0.3318	-0.5352	-0.2805	1.0000

Breusch-Pagan LM test of independence: chi2(66) =323.091, Pr= 0.0000. Based on 31 complete observations over panel units.

The results in Table 5.7. demonstrate the cross-sectional dependence test conducted utilizing the Breusch and Pagan (1980) method. The findings reject the null hypothesis of no interdependence with 1% significance. This implies compelling proof that interdependence among the residuals in our analysis exists. In other words, the error terms for the ECOWAS member states exhibit correlation. This is unsurprising, given that these countries have similar economic circumstances and are susceptible to experiencing internal and external shocks within the region.

Table 5.8. Breusch-Pagan Cross-Sectional Dependence Test Results for WAEMU

	__e1	__e2	__e3	__e6	__e7	__e8	__e10	__e12
__e1	1.0000							
__e2	0.7148	1.0000						
__e3	-0.1167	-0.0933	1.0000					
__e6	-0.1587	-0.1087	-0.3788	1.0000				
__e7	-0.0576	0.3631	0.4419	-0.3216	1.0000			
__e8	-0.3600	-0.1502	0.5823	-0.3686	0.5629	1.0000		
__e10	-0.0934	-0.1050	0.8546	-0.5622	0.5498	0.6204	1.0000	
__e12	-0.4992	-0.0799	-0.4076	0.4021	-0.0042	-0.0381	-0.5126	1.0000

Breusch-Pagan LM test of independence: chi2(28) =145.473, Pr= 0.0000.

Based on 31 complete observations over panel units.

Table 5.9. Breusch-Pagan Cross-Sectional Dependence Test Results for WAMZ

	__e4	__e5	__e9	__e11
__e4	1.0000			
__e5	0.0115	1.0000		
__e9	0.6039	-0.3252	1.0000	
__e11	0.6791	-0.3716	0.6740	1.0000

Breusch-Pagan LM test of independence: chi2(6) =47.244, Pr= 0.0000.

Based on 31 complete observations over panel units.

Like ECOWAS, the results obtained from WAEMU and WAMZ countries provide substantial evidence that the null hypothesis is rejected with a high significance of 1%.

Hence, there exists substantial evidence pointing towards the existence of dependence across the two blocs.

Table 5.10. Pesaran's Cross-Sectional Dependence Test Results for ECOWAS

Variable	CD-test	p-value	corr	abs(corr)
UNEMP	0.170	0.863	0.004	0.384
GOV_SIZE	1.210	0.225	0.027	0.353
GOV_INV	3.830	0.000	0.085	0.353
FDI	7.560	0.000	0.167	0.277
INF	17.690	0.000	0.391	0.474
Y	4.430	0.000	0.098	0.164
POP	1.690	0.091	0.037	0.358

Notes: Under the null hypothesis of cross-section independence, CD ~ N(0,1)

Table 5.10. goes further by conducting the CSD test for individual variables utilizing Pesaran's (2004) approach. Apart from the rate of unemployment, government size, and population growth variables, all other variables exhibit a substantial dependency. The population growth variable shows significance at a 10% level. However, we did not find adequate information to reject the null hypothesis of independence for both the unemployment rate and government size. Given that most variables show statistical significance at a 1% level, it thus suggests that cross-sectional dependence exists among the variables studied. The finding is not surprising as it stems from the interconnectedness and interdependence among West African countries from the founding of ECOWAS in 1975. For instance, Senegal and Cote d'Ivoire are key trading partners for The Gambia within the region. The Gambia's economic stability is inherently linked to the economic status of its neighboring countries. As such, any unforeseen economic disturbances or upheavals in these countries would undoubtedly profoundly affect The Gambia's economy. Burkina Faso is a clear example of the region's interdependence by relying on imports from neighboring countries like Ghana, Nigeria, Cote d'Ivoire, and Senegal. This reliance exposes Burkina Faso to potential spillover effects of economic shocks from these countries, making them susceptible to their impacts.

Table 5.11. Pesaran's Cross-Sectional Dependence Test Results for WAEMU

Variable	CD-test	p-value	corr	abs(corr)
UNEMP	-0.330	0.739	-0.011	0.358
GOV_SIZE	2.090	0.036	0.071	0.377
GOV_INV	6.080	0.000	0.206	0.384
FDI	5.990	0.000	0.203	0.270
INF	20.750	0.000	0.704	0.708
Y	3.890	0.000	0.132	0.194
POP	-1.270	0.205	-0.043	0.371

Notes: Under the null hypothesis of cross-section independence, CD ~ N(0,1)

Table 5.12. Pesaran's Cross-Sectional Dependence Test Results for WAMZ

Variable	CD-test	p-value	corr	abs(corr)
UNEMP	2.500	0.012	0.183	0.586
GOV_SIZE	-1.630	0.103	-0.120	0.329
GOV_INV	-2.840	0.005	-0.208	0.324
FDI	0.440	0.658	0.032	0.175
INF	1.750	0.079	0.129	0.179
Y	1.460	0.144	0.107	0.226
POP	3.850	0.000	0.282	0.446

Notes: Under the null hypothesis of cross-section independence, CD ~ N(0,1)

Once more, notable contrasts are apparent between the two sub-blocs, as can be observed from the outcomes presented in tables 5.11. and 5.12., respectively. Within the WAEMU countries, only the unemployment rate and population growth exhibit cross-sectional independence, while the remaining variables demonstrate a 5% statistically substantial dependency. The scenario differs in the WAMZ area, where only the unemployment rate, government investment expenditure, and population growth rate exhibited a vital significance at a 5% level. This means that the error terms of these three variables for WAMZ exhibit correlation, while the other variables do not illustrate such dependence.

5.4. Slope Homogeneity Test

The slope homogeneity test is another critical test before estimating the model. This empirical test helps us ascertain if the coefficients of the slope of the countries are either the same or different across the board. In other words, it examines whether they are homogeneous or heterogeneous or if there are variations among them. If the actual model involves heterogeneous slopes, assuming slope homogeneity would lead to inconsistent and biased results. As such, this test plays a crucial role in our estimation process. The test results of Pesaran & Yamagata (2008) and Blomquist & Westerlund (2013) are depicted below.

Table 5.13. Slope Homogeneity Test Results for ECOWAS

Tests	$Delta$	$Delta_{adj}$	$Delta_{HAC}$	$Delta_{HACadj}$
Pesaran, Yamagata	3.450**	4.123***	-	-
Blomquist, Westerlund	-	-	12.027***	14.375***

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively. Similarly, whiles $Delta$ and $Delta_{adj}$ represents the "simple" and "mean variance bias adjusted" slope homogeneity tests, the $Delta_{HAC}$ and $Delta_{HACadj}$ represents the "heteroscedasticity" and "autocorrelation consistent" versions of "simple" and "mean variance bias adjusted" slope homogeneity tests.

The findings posit that the slope homogeneity's null hypothesis is rejected across cases as a result of statistically significance 1% and 5% levels. This indicates that the coefficients of the slopes are non-uniform and vary in all nations studied, suggesting heterogeneity. As a result, it is necessary to utilize panel techniques that accommodate this variation in slope coefficients.

Table 5.14. Slope Homogeneity Test Results for WAEMU

Tests	$Delta$	$Delta_{adj}$	$Delta_{HAC}$	$Delta_{HACadj}$
Pesaran, Yamagata	1.963**	2.346**	-	-
Blomquist, Westerlund	-	-	1.865*	2.229**

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively. Similarly, whiles $Delta$ and $Delta_{adj}$ represents the "simple" and "mean variance bias adjusted" slope homogeneity tests, the $Delta_{HAC}$ and $Delta_{HACadj}$ represents the "heteroscedasticity" and "autocorrelation consistent" versions of "simple" and "mean variance bias adjusted" slope homogeneity tests.

Table 5.15. Slope Homogeneity Test Results for WAMZ

Tests	$Delta$	$Delta_{adj}$	$Delta_{HAC}$	$Delta_{HACadj}$
Pesaran, Yamagata	2.532**	3.027**	-	-
Blomquist, Westerlund	-	-	-1.002	-1.197

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively. Similarly, whiles $Delta$ and $Delta_{adj}$ represents the "simple" and "mean variance bias adjusted" slope homogeneity tests, the $Delta_{HAC}$ and $Delta_{HACadj}$ represents the "heteroscedasticity" and "autocorrelation consistent" versions of "simple" and "mean variance bias adjusted" slope homogeneity tests.

Tables 5.14. and 5.15. highlight intriguing differences between the two sub-blocs. The results in the tests of Pesaran and Westerlund demonstrate that slope heterogeneity exists within the WAEMU sub-bloc, whereas the findings for the WAMZ sub-bloc are contradictory. The Pesaran test provides compelling evidence of variations in slope coefficients across the cross-sectional units of WAMZ countries, while the Westerlund test notes the opposite. Overall, it can be inferred that there exists a variation in the coefficients of the slopes across the WAEMU and WAMZ regions.

5.5. Second Generation Unit Root Test

Gaining insights about the research and conducting unit root tests becomes crucial. Because the cross-sectional dependence test suggests strong interdependence among our variables and the observed variations in slope coefficients across the sample countries indicated by the slope homogeneity test, it is necessary to employ unit root tests of the second generation. Using that of the first generation in this scenario would yield misleading outcomes, as they assume independence among variables across cross-sectional units. Therefore, we performed two tests that account for the existence of interdependence in the variables. The Fisher-type tests based on the levels of significance of the specific cross-sectionally augmented Dickey-Fuller (CADF) test was introduced by Pesaran (2003). Four years later, Pesaran (2007) proposed another one, but this time a cross-sectionally augmented IPS test (CIPS) to address interconnectedness and autocorrelation. The tests assessed the null hypothesis that the used variables have unit roots, suggesting non-stationarity. If the null is rejected, we assume the alternative hypothesis holds; there is no unit root. The outcomes are found below.

Table 5.16. Second Generation Unit Root Test at Level for ECOWAS

Variable	CADF		CIPS	
	Constant	Constant & Trend	Constant	Constant & Trend
UNEMP	-0.705	-1.609	-1.117	-2.082
GOV_SIZE	-2.425**	2.830**	-2.443**	-2.991**
GOV_INV	-1.895	-2.139	-2.001	-2.240
FDI	-3.036***	3.341***	-3.213***	-3.185***
INF	-5.311***	5.218***	-5.329***	-5.237***
Y	-4.880***	-4.920***	-4.919***	-4.839***
POP	-2.078	-2.082	-2.427	-2.603

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

Table 5.17. Second Generation Unit Root Test at First Difference for ECOWAS

Variable	CADF		CIPS	
	Constant	Constant & Trend	Constant	Constant & Trend
UNEMP	-3.637***	-3.802***	-3.496***	-3.597***
GOV_SIZE	-5.276***	-5.398***	-5.281***	-5.282***
GOV_INV	-5.250***	-5.446***	-4.967***	-5.347***
FDI	-5.851***	-5.962***	-5.458***	-5.525***
INF	-5.838***	-6.005***	-5.441***	-5.621***
Y	-6.190***	-6.420***	-6.152*	-6.402***
POP	-3.363*	-3.589***	-2.871 *	-3.172***

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

Table 5.16. depicts that regardless of the test method, Pesaran's CADF and CIPS unit root tests yield consistent results. The tests indicate show the variables under consideration caries statistical significance, except for the unemployment rate, government investment expenditure, and population growth. They are non-stationary at level, necessitating a test at the first difference for the variables that are not stationary. But in this study, we tested stationarity for consistency at the first difference for all the variables.

Table 5.17. illustrates unit root tests at order 1, and it reveals that all variables exhibit stationarity, indicating that they are order 1 (I(1)) integrated. This proposes the potentiality of a long-term association among the variables of interest, calling for further examination through a test that can detect such a relationship.

Table 5.18. Second Generation Unit Root Test at Level for WAEMU

Variable	CADF		CIPS	
	Constant	Constant & Trend	Constant	Constant & Trend
UNEMP	-1.521	-2.072	-2.038	-3.235***
GOV_SIZE	-2.300*	-2.617	-2.300*	-2.991
GOV_INV	-1.877	-2.159	-2.096	-2.240
FDI	-3.180***	-3.377***	-3.180***	-3.274***
INF	-4.300***	-4.187***	-5.481***	-5.575***
Y	-5.284***	-5.375***	-5.040***	-5.314***
POP	-1.708	-1.082	-2.947***	-2.489

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

Table 5.19. Second Generation Unit Root Test at Level for WAMZ

Variable	CADF		CIPS	
	Constant	Constant & Trend	Constant	Constant & Trend
UNEMP	0.043	-1.740	-0.312	-1.945
GOV_SIZE	-1.985	-1.952	-1.985	-1.952
GOV_INV	-2.001	-1.944	-2.001	-1.944
FDI	-2.206	-2.647	-2.206	-2.647
INF	-4.490***	-4.498***	-4.354***	-4.674***
Y	-4.883***	-4.892***	-4.883***	-4.839***
POP	-1.113	-2.423	-0.150	-4.892

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

As observed in Table 5.18. and Table 5.19., it is evident that only inflation and per capita GDP growth exhibit stationarity among the WAMZ countries. Conversely, for WAEMU countries, foreign direct investment, inflation, and per capita GDP growth are stationarity. These findings emphasize the need for a difference-level stationarity test.

Table 5.20. Second Generation Unit Root Test at First Difference for WAEMU

Variable	CADF		CIPS	
	Constant	Constant & Trend	Constant	Constant & Trend
UNEMP	-3.776***	-3.793***	-3.919***	-3.910***
GOV_SIZE	-5.151***	-5.278***	-5.151***	-5.278***
GOV_INV	-5.604***	-5.707***	-5.207***	-4.996***
FDI	-5.807***	-5.912***	-5.227***	-5.290***
INF	-6.023***	-6.247***	-5.819***	-6.035***
Y	-6.190***	-6.420***	-6.190***	-6.402***
POP	-3.000***	-3.301***	-3.335***	-3.497***

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

Table 5.21. Second Generation Unit Root Test at First Difference for WAMZ

	CADF		CIPS	
Variable	Constant	Constant & Trend	Constant	Constant & Trend
UNEMP	-3.289***	-3.583***	-3.289***	-3.583***
GOV_SIZE	-5.491***	-5.563***	-5.491***	-5.563***
GOV_INV	-4.729***	-5.083***	-4.729***	-5.083***
FDI	-5.416***	-5.426***	-5.416***	-5.426***
INF	-5.098***	-4.993***	-4.949***	-4.722***
Y	-6.190***	-6.420***	-5.952***	-6.131***
POP	-2.333***	-2.423***	-3.418**	-3.472***

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

However, contrasting outcome emerges when the stationarity test is performed at the first difference. The test outcomes reveal the stationarity of all variables as they are significant for the 1% level. The first difference unit root test, as depicted in Table 5.20. and Table 5.21., demonstrates that all variables exhibit stationarity in WAEMU and WAMZ. Meaning their order of integration is 1 (I(1)). Consequently, indicating a potential long-term association similar to what is observed in the case of ECOWAS.

5.6. Panel Cointegration Test

After establishing an integration order that exhibited stationarity at the first difference, it is imperative to examine whether these variables exhibit any form of cointegration. The objective is to determine whether a long-term connection does occur among the concern variables. This move is essential as it will guide us in selecting the most appropriate model. To do so, trio tests for cointegration were utilized.

Table 5.22. Panel Cointegration Test for ECOWAS

Tests	Methods	Statistics
Westerlund	All Panels	2.5440***
	Some Panels	8.2772***
Pedroni	Modified Phillips–Perron t	5.2475***
	Phillips–Perron t	4.6101***
	Augmented Dickey-Fuller t	5.1028***
Kao	Modified Dickey-Fuller t	-0.3780
	Dickey-Fuller t	0.2107
	Augmented Dickey-Fuller t	-0.9480
	Unadjusted modified Dickey-Fuller t	1.0428
	Unadjusted Dickey-Fuller t	1.3258*

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

Table 5.22. presents the findings of the three separate tests for cointegration: Westerlund, Pedroni, and Kao. Each test uses different methods and reports the corresponding statistics. The Westerlund test illustrates a strong influential outcome for all panels at the 5% level, with some panels exhibiting even higher significance at the 1% level. Conversely, the Pedroni test signals significant results at 1% for all three methods: Modified Phillips–Perron t, Phillips–Perron t, and Augmented Dickey-Fuller t. In contrast, the test of Kao produces mixed results, with only the Unadjusted Dickey-Fuller t method indicating significance as high as 10%. Overall, the tests of Pedroni and Westerlund provide prove that the variables are cointegrated. But the Kao test begs to differ, with only one method demonstrating significance at a higher level. Therefore, the findings provide strong evidence of a prolonged affiliation. This means that the variables are interconnected over time and that changes in one variable could be linked to changes in the other variables in the ECOWAS member States.

Table 5.23. Panel Cointegration Test for WAEMU

Tests	Methods	Statistics
Westerlund	All Panels	2.8234***
	Some Panels	6.6763***
Pedroni	Modified Phillips–Perron t	4.3071***
	Phillips–Perron t	3.8319***
	Augmented Dickey-Fuller t	4.1509***
Kao	Modified Dickey-Fuller t	-1.3222
	Dickey-Fuller t	-0.8201
	Augmented Dickey-Fuller t	-1.7768**
	Unadjusted modified Dickey-Fuller t	0.2236
	Unadjusted Dickey-Fuller t	0.0326

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

Table 5.24. Panel Cointegration Test for WAMZ

Tests	Methods	Statistics
Westerlund	All Panels	0.4013
	Some Panels	4.8947***
Pedroni	Modified Phillips–Perron t	2.9535***
	Phillips–Perron t	2.5273***
	Augmented Dickey-Fuller t	2.9680***
Kao	Modified Dickey-Fuller t	0.8417
	Dickey-Fuller t	1.2879*
	Augmented Dickey-Fuller t	0.0025
	Unadjusted modified Dickey-Fuller t	0.9429
	Unadjusted Dickey-Fuller t	1.4126*

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively.

Here, the test of both Pedroni and Westerlund demonstrates substantiality at a 1% level in all methods across WAEMU countries. Conversely, the Kao test presents mixed outcomes, with only the Augmented Dickey-Fuller t method indicating significance at the 5% level. Only the Pedroni test exhibits significance at the 1% level for WAMZ across all methods. Westerlund and Kao's estimations produce different results, with the Westerlund test showing significance only for some panels, and the Kao test indicates significance for the Dickey-Fuller t and Unadjusted Dickey-Fuller t methods at the 10% level. In light of the outcomes, it can be derived that there exists cointegration for both WAEMU and WAMZ countries, as indicated by the statistically significant findings from the Westerlund and Pedroni tests.

5.7. Panel Empirical Results

Following a comprehensive examination of the available data, which involved conducting various preliminary tests such as summary statistics, correlation analysis, cross-sectional dependence test, slope homogeneity test, the test of unit root, and that of cointegration, a thorough understanding of the dataset and suitable technique for the analysis were found. Test findings led to the identification of three estimation techniques deemed suitable for obtaining accurate and reliable results for the study. These are dynamic ordinary least squares (DOLS), fully modified ordinary least squares (FMOLS) and canonical correlation regression (CCR). These three techniques are well known for their aptitude to effectively solve problems like cross-sectional dependence, heterogeneity, sample size bias, simultaneity bias, endogenous variables, autocorrelation, and data with low sample sizes. The study used these methods because many of these problems were found to exist in our diagnostic tests. These techniques are widely recognized and frequently applied in labor economics, development economics, and the overall macroeconomic arena. Another justification is that Aysu et al. (2011), Christopoulos et al. (2005), and Folawewo and Adeboje (2017) all utilized either one or two of these methods to explore the relationship between the size of government and unemployment. Therefore, these methods were selected to investigate the relationships between government size and unemployment in ECOWAS and within its two sub-blocs, WAEMU and WAMZ.

Furthermore, it is essential to point out that the results of these regressions are robust, as they have effectively addressed potential issues such as cross-sectional dependence, multicollinearity, autocorrelation, heterogeneity, and heteroskedasticity. Accounting for these issues makes the estimation results more reliable, consistent, and efficient. The empirical findings for ECOWAS, WAEMU and WAMZ, encompassing the outcomes of the models mentioned above, are shown in Table 5.25., Table 5.26., and Table 5.27., respectively.

Table 5.25. Panel Regression Results for ECOWAS

VARIABLES	(1) DOLS	(2) FMOLS	(3) CCR
GOV_SIZE	0.8674***	0.3328***	0.3214***
	(0.1277)	(0.0453)	(0.0676)
GOV_INV	-0.4336***	-0.1327***	-0.1263***
	(0.0584)	(0.0298)	(0.0394)
FDI	-0.0093	-0.0643***	-0.0697*
	(0.0401)	(0.0240)	(0.0361)
INF	-0.1511***	0.0136	0.0150
	(0.0453)	(0.0171)	(0.0277)
Y	-0.0448	-0.0298	-0.0346
	(0.0545)	(0.0243)	(0.0363)
POP	0.3049	0.6557***	0.6717***
	(0.3588)	(0.0818)	(0.1322)

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively. Standard errors are in parentheses. UNEMP: Unemployment, GOVE_SIZE: Government Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment, INF: Inflation, Y: GDP per capita growth and POP: Population Growth.

Table 5.26. Panel Regression Results for WAEMU

VARIABLES	(1) DOLS	(2) FMOLS	(3) CCR
GOV_SIZE	-0.5579***	-0.0765**	-0.0755**
	(0.0672)	(0.0311)	(0.0347)
GOV_INV	0.2338***	-0.1250***	-0.1233***
	(0.0319)	(0.0146)	(0.0186)
FDI	-0.2502***	-0.0028	-0.0024
	(0.0144))	((0.0106)	(0.0160)
INF	0.0442***	0.0178**	0.0217
	(0.0141)	(0.0078)	(0.0142)
Y	-0.5196***	-0.0444***	-0.0451***
	(0.0247)	(0.0106)	(0.0158)
POP	-3.4503***	0.1008*	0.1054
	(0.1835)	(0.0522)	0.0927

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively. Standard errors are in parentheses. UNEMP: Unemployment, GOVE_SIZE: Government Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment, INF: Inflation, Y: GDP per capita growth and POP: Population Growth.

Table 5.27. Panel Regression Results for WAMZ

VARIABLES	(1) DOLS	(2) FMOLS	(3) CCR
GOV_SIZE	0.4177***	0.2809***	0.3498***
	(0.0620)	(0.0775)	(0.1088)
GOV_INV	0.1550***	0.0087	0.0068
	(0.0156)	(0.0063)	(0.0109)
FDI	-0.1532***	-0.0082	-0.0063
	(0.0191)	(0.0083)	(0.0147)
INF	0.1103***	-0.0039**	-0.0038**
	(0.0116)	(0.0042)	(0.0018)
Y	0.0473*	-0.0060	-0.0056
	(0.0254)	(0.0039)	(0.0073)
POP	0.7104***	-0.1403***	-0.1369***
	(0.1213)	(0.0367)	(0.0415)

Notes: (***), (**) and (*) represents statistical significance at 1%, 5% and 10% levels, respectively. Standard errors are in parentheses. UNEMP: Unemployment, GOVE_SIZE: Government Size, GOV_INV: Government Investment Expenditure, FDI: Foreign Direct Investment, INF: Inflation, Y: GDP per capita growth and POP: Population Growth.

As shown in the above table, column one explains FMOLS results, followed by column two, which represents DOLS findings, and column three shows results from the CRR estimator. The study considers the unemployment rate (UNEMP) as the dependent variable, government size (GOV_SIZE) and government investment expenditure (GOV_INV) as independent variables. Inflation (INF), GDP per capita growth (Y), plus Population growth (POP) are control variables. The association of the dependent variable in connection to both independent and control variables will now be analyzed individually.

- **Government Size (GOV_SIZE):** The results from all three estimators, namely fully modified ordinary least squares (FMOLS), dynamic ordinary least squares (DOLS), and canonical correlation regression (CCR), consistently indicate a statistically significant association that is significant at the 1% level about government size and rate of unemployment. The DOLS estimator suggests a 1% surge in government size would likely increase the unemployment rate by 0.867%, keeping all other factors unchanged. On the other hand, both FMOLS and CCR estimators show relatively minor coefficients, indicating a 0.333% and 0.321% potential increment in unemployment, respectively, in response to a 1% increase in government size, holding other factors constant.

These findings support the concept of the Abrams curve, initially introduced by Abrams (1999), which establishes positive nexus connecting government size and unemployment. Abrams' study, conducted for 20 OECD nations between 1984 and 1993 using a basic ordinary least squares (OLS) approach without accounting for heterogeneity, demonstrated this positive relationship. Therefore, this work strengthens the expanding pool of empirical evidence from various regions and sets of variables, confirming that the linkage of government size and unemployment is positively curved. Similar conclusions have been drawn in other studies, including those conducted by Aysu et al. (2011), Christopoulos & Tsionas (2002), and Feldmann (2006).

The findings of this study align with Okunola's (2021) scholarly investigation into the correlation between the dynamics of employment and fiscal policy, particularly in the ECOWAS nations. The study employed panel data covering 15 countries over the period spanning from 1990 to 2019. The outcomes demonstrated that the employment rate falls when government expenditure goes up. This implies that these countries do not hold the expected positive correlation between government expenditure and employment rate. Hence, we can deduce that government size expansion negatively affects unemployment across the nations belonging to ECOWAS.

- **Government Investment Expenditure (GOV_INV):** The results from all three estimation methods (DOLS, FMOLS, and CRR steadily demonstrate a negative but statistically valid connection of government investment expenditure concerning unemployment. To DOLS estimation, a 1% rise in government investment expenditure is linked with a probable drop of 0.434% in long-term unemployment figures while keeping all other factors constant. Similarly, the FMOLS and CRR estimations show similar patterns, indicating a 0.133% and 0.126% possible fall in the unemployment rate. These findings align with previous empirical analyses that have established a similar relationship. A study conducted by the World Bank has recently demonstrated that investing in infrastructure and education can significantly benefit West Africa by reducing unemployment rates. The workforce's skills can be developed by investment in education, as it will make them more attractive to potential employers. On the other hand, investing in sectors like infrastructure government could create employment opportunities. But the exact influence of such spending on unemployment may differ depending on the country and invested sector.

- **Foreign Direct Investment (FDI):** All three methods agree that FDI and unemployment are negatively linked. However, the significance of the coefficients varies across the methods. The FMOLS results demonstrate a negative and statistically valid association at 1%. Conversely, the DOLS method does not establish a significant relationship, despite the negative association. The canonical correlation regression (CRR) results only show significance at the 10% level. According to the FMOLS regression, when foreign direct investment goes up by 1%, it may lessen the unemployment rate by 0.064% in the long term, keeping all the remaining things constant. However, FDI and unemployment rate relationship indicate an insignificant and weak association in DOLS and CRR estimations. Furthermore, many reasons could indicate the negative relation in member states of ECOWAS. Foreign direct investment can create new jobs as overseas firms initiate operations and increase their labor force in the host nation. It can also contribute to overall economic growth and thus add more employment opportunities over time.

- **Inflation (INF):** The outcome in this regard presents mixed results. Dynamic ordinary least squares (DOLS) estimation discoveries underline that inflation and unemployment have a negative connection, with a statistical significance of 1%. Per DOLS, an increment of 1% in inflation could cut the unemployment rate by 0.151%, assuming all other factors remain constant. However, FMOLS and CRR estimations contradict that of the DOLS. Both FMOLS and CRR estimations indicate that inflation and unemployment are connected positively, even though this association is statistically insignificant. The estimation of DOLS approves the traditional curve of Phillips'theory that suggests an inverse correlation between the two variables of interest. However, FMOLS and CRR regressions present a different perspective by showcasing a positive yet trivial inflation and unemployment link. The contrasting correlation between the two is underscored by these divergent outcomes, underscoring the need for more comprehensive exploration and analysis to comprehend the forces in motion fully.

- **GDP per Capita (Y):** Regarding annual GDP per capita growth, all three estimation methods consistently demonstrate similar patterns, suggesting a negative tendency. Nonetheless, this correlation is of no statistical significance across all three approaches. In other words, while economic growth possesses the capacity to mitigate unemployment in West African countries, the actual impact is deemed insignificant and negligible. These findings contradict the outcomes of numerous recent studies conducted on West African states that claim that the nexus between unemployment and GDP per capita growth is substantial. This investigation's findings suggest a pressing requirement for deeper exploration and scrutiny to comprehend better the precise dynamics and elements involving West African nations.

- **Population Growth (POP):** Population growth is often linked to a corresponding surge in unemployment levels. If the population grows at a given rate, and the economy does not grow fast enough to keep up with the speed, it can lead to more individuals pursuing job opportunities. Consequently, the rate of unemployment tends to rise. In the present study, all three estimation methods agree that the relationship between unemployment and population growth is positive. The discoveries from both FMOLS and CRR estimators indicate similar verdicts. Specifically, the unemployment rate could increase by 0.656% when the population grows by 1%, according to the

FMOLS estimation, and a 0.672% increase is expected, according to the CRR estimation. On the other hand, while the DOLS estimator also demonstrates a positive relationship, it fails to reach statistical significance. These results emphasize the importance of considering a growing population's influence on unemployment. Because as the population grows, there is a higher likelihood of an increase in unemployment.

Upon analyzing the outcomes of the DOLS, FMOLS, and CRR methods for WAEMU and WAMZ, distinct patterns emerge, showcasing mixed results between the two sub-blocs. There are contrasting findings regarding the linkage between the size of the government (GOV_SIZE) and the unemployment rate. Within the WAEMU sub-bloc, all three estimators disclose a negative link between the two at 1% significance. DOLS estimation shows unemployment could be reduced by 0.558% with just a 1% increase in government size. Similarly, FMOLS and CRR methods demonstrate smaller coefficients of 0.077% and 0.076%, respectively. Conversely, for the WAMZ sub-bloc, the scenario takes an entirely different turn, as all methods unveil a correlation between government size and unemployment is positive at a significance level of 1%. In addition, the DOLS estimation suggests that if government size expands by 1%, unemployment could increase by about 0.418%. Besides, both FMOLS and CRR methods project an increase in unemployment of 0.281% and 0.350%, respectively, for every possible 1% increase in government size. These diverging results on the influence of government size on unemployment can be attributed to the distinct economic conditions prevailing within each sub-bloc. These circumstances could contribute to the different outcomes observed between the two regions. Although WAEMU and WAMZ aim to align macroeconomic policies across their member states, they diverge in government size and associated policies.

WAEMU has a regional surveillance mechanism that monitors and evaluates member states' compliance with fiscal regulation and other macroeconomic instruments that align with the implementation of the standard policies and programs of the union. Therefore, fiscal policy decisions such as expenditures are coordinated and monitored in such a way that allows discipline spending and putting resources into sectors that are development oriented. Hence, creating a platform for effective and responsible spending policies in the region as member states are bounded by the regulation that oversees the convergence criteria in the WAEMU states. According to (Manasse et al., 2005) and Buti et al., (2001), this measure is essential to the economic synchronization of nations, and adherence with it enables economic integration and ensures the growing level of fiscal discipline. The existence of common currency and policy restrictions within this bloc makes it more resistant to market inefficiencies and encourages responsible and disciplined spending. As a result, Kebalo and Zouri (2022) concluded that implementing the fiscal convergence criterion in the bloc enhances the improvement of business cycle harmonization through the coordination of economic policies. In contrast, there exists no such mechanism in WAMZ countries. This is because the bloc has a more decentralized structure that heavily depends on national authorities and working groups to report their data on vital fiscal variables such as expenditure. Although a goal of achieving a unified fiscal outlook exists, the member states are not under any urgency to harmonize their expenses. Additionally, WAMZ has more room for adjustment and independence of fiscal policy as they enjoy fiscal sovereignty and policy flexibility. But this self-control and autonomy have a cost as it exposes countries within WAMZ to more economic and market shortcomings. For example, the exchange rate regime in WAMZ countries is flexible, and the influences of demand and supply decide the rate of the respective nation's currencies. Since these countries are import dependent, the need for foreign currencies is usually high, often leading to inflationary pressures and increasing the cost of imported goods and services. This eventually raises the amount of money the government spends on consumption, which is found to have a positive relationship with unemployment. For WAEMU, on the other hand, a fixed exchange rate regime exists. They have a common currency, the CFA franc, set to the Euro. Thus, they are less sensitive to market shortcomings.

Moreover, within the WAEMU region, a fiscal regulation exists as a component of its convergence criteria, which restricts the overall fiscal deficit to 3% of GDP. In contrast, the WAMZ countries adopt a more lenient approach by setting the overall budgetary deficit limit to 4% of GDP. Despite the challenges faced by both countries in meeting and maintaining the regulatory threshold, the countries within WAEMU derived more significant advantages from the abovementioned regulation. Generally, many believe that WAMZ members, due to their economic freedom and autonomy, should experience a more promising economic outlook characterized by progress and development. This is because the individual countries have their respective central banks, and their governments are often free from interference, so they are expected to govern their economic affairs effectively. Contrary to expectations, the findings of this study have revealed a contrasting reality, evident in the disparity of government size between the WAMZ and WAEMU regions. In the context of the WAMZ, a larger government size appears to have an undesirable bearing on unemployment, whereas, in the case of WAEMU, it demonstrates a positive impact.

One potential rationale for the favorable influence of government size on unemployment rates in countries within the West African Economic and Monetary Union (WAEMU) is linked to its association with its previous colonial power, France. WAEMU countries share a single currency pegged to the Euro, with the region's central bank maintaining an account with the Treasury of France. Under this particular monetary framework, the West African Central Bank is mandated to deposit half of its foreign currency reserves into the coffers of the French Treasury, obligating itself to direct no less than 20% of its foreign currency balances towards sight liabilities and the bank is also constrained in its ability to access no more than 20% of the previous year's revenue (Ibrahim, 2020). This action aims to ensure the continued sustainability of the West African CFA franc in the global market by preventing occurrences such as inflation hikes, currency devaluation, and fiscal turmoil. Although there have been accusations of neo-colonialism against Paris, the conditions associated with the CFA franc zone have generally proved to be effective in promoting increased stability and growth within the economies of WAEMU when compared to those of WAMZ. This is because, due to limited financial resources at their disposal and the existence of oversight measures, WAEMU countries are forced to determine the sectors into which they inject their financial funds. The situation presents a marked contrast for the West African Monetary Zone (WAMZ). Devoid of colonial pressures, the individual countries are free to administer their internal affairs, including monetary and fiscal policies. This, however, can lead to an increase in imprudent spending and unsound policy decisions.

WAEMU and WAMZ countries can also be distinguished based on their employment culture. As per Faujas Alain (2012), the deputy chairman of the French Council of Investors, Bouthelier Anthony, claims that nations with an Anglo-Saxon culture tend to prioritize business and entrepreneurship, and individuals in such countries are less willing to aspire for public service positions compared to those with a French cultural background. Thus, it can be inferred that citizens of WAMZ are mainly preoccupied with generating job prospects for themselves, therefore relying less on the government to secure employment. In such countries, the authorities are not forced to allocate financial resources towards areas that primarily generate employment, channeling funds into sectors that do not directly influence employment prospects. Hence, an increase in government size will likely lead to a corresponding rise in unemployment rates, which has a detrimental impact on the economy. Conversely, countries that belong to the WAEMU bloc are more prepared to be absorbed by the public sector for employment. The appetite towards job seeking rather than entrepreneurialism is evident among them. This social tendency compels the government to devise and allocate its expenditures toward initiatives that can yield sustainable employment prospects for the populace. As a result, an upsurge in the size of the government could potentially decrease the unemployment rate as the government continues to devote more funds to sectors inclined towards generating employment opportunities.

Hence, it is comprehensible that the Abrams (1999) curve, which established a positive relationship between government size and unemployment, is upheld in the context of WAMZ. Nevertheless, this assertion is contradicted in the scenario of WAEMU nations.

Government investment expenditure (GOV_INV) is another variable that yields mixed outcomes within these two sub-regional blocs. Within the WAEMU, all three methods exhibit a statistically significant connection between government investment expenditure and the unemployment rate. Nevertheless, the nature of this relationship differs among the estimators. The DOLS regression suggests a positive relationship, whereas the FMOLS and CRR methods indicate an inverse correlation between the two. For DOLS estimation, when the government's investment expenditure is increased by 1%, this could likely cause unemployment to fall by 0.234%. Conversely, FMOLS and CRR estimators suggest that a rise of about 1% in government investment expenditure would reduce the unemployment rate by 0.125% and 0.123%, respectively. In the WAMZ region, all three methods show that government investment expenditure and unemployment are positively correlated. However, only the DOLS estimator's result reaches significance at the accepted level. Consequently, an increase in government expenditure on investment by 1% could cause a rise of about 0.155% in the unemployment rate. The coefficients for FMOLS and CRR are 0.009% and 0.008%, respectively, but they lack significance to exert a substantial impact on unemployment. Once again, these disparities in government investment spending could be attributed to different economic forces at play within the two sub-regions, resulting in minimal and negligible effects on unemployment.

Over the years, WAEMU nations have executed fiscal reforms and enhanced their public financial management systems. Such actions effectively promote budgetary discipline and reinforce regional transparency and accountability. French financial assistance is allocated primarily to African countries that are part of the Francophone community, especially those in WAEMU nations. This aid is distributed through various mechanisms, including grants, loans, direct investments, aid projects, and military aid (Ibrahim, 2020). Implementing check and balance mechanisms in these nations has limited the sectors to which the government may allocate its resources. Hence, much emphasis has been placed on funding projects focused on infrastructure, education, healthcare, and other forms of long-term investments. Investing in these areas tends to reduce unemployment in the long run. The scenario for the neighboring countries of WAMZ is somewhat distinct. These countries' governments lack a direct connection with their previous colonial ruler, the United Kingdom. Typically, they obtain financial assistance in varied formats from any nation, group, or organization with a strategic stake in the area. Many of these partners often lack interest in how the funds are allocated as long as the nations fulfill their objectives. This autonomy granted to the member states of WAMZ enables them to allocate resources according to their discretion, resulting in a greater emphasis on consumption expenditure than on investment. Unfortunately, the limited amount of resources allocated to public investment is inadequate to generate a significant positive impact on unemployment rates within the bloc.

The results about the association between unemployment and FDI exhibit similarities in both WAEMU and WAMZ countries, reflecting patterns observed in the broader ECOWAS region. The overall trend suggests a negative link between unemployment and FDI in the two sub-regions. However, only the DOLS estimation yields favorable results at 1%, while FMOLS and CRR estimators are statistically insignificant for WAEMU and WAMZ. According to the DOLS estimator, the rise of 1% in foreign direct investment is expected to decrease unemployment by 0.250% for the WAEMU region and a 0.153% decrease for the WAMZ region. However, the coefficients of FMOLS and CRR are not statistically significant in both sub-regions. This outcome aligns with the results obtained from the ECOWAS region, suggesting that foreign direct investment can reduce unemployment within the WAEMU and WAMZ regions. However, its impact on the unemployment rate is insignificant enough to exert a substantial effect. The potential explanation for this phenomenon may stem from the restricted inflow of capital that both regions receive. One possible rationale for the area's limited capital inflow and economic diversification is the presence of structural obstacles, specifically a deficient institutional framework and inadequate infrastructure. These impediments may have hindered the region's capacity to entice investors and promote a more varied economy. Another likely factor contributing to the ineffectiveness of foreign direct investment in reducing unemployment in the WAMZ and WAEMU regions is the prevalent occurrence of capital flight. Foreign investors often bring their technical knowledge to host countries and prioritize employing their personnel instead of utilizing local labor. A case in point is the increasing influence of Chinese investors in the region, who are gaining a base in the capital investment landscape. Remittance transfers are a prevalent practice among expatriates working in the region. They send the funds to help their families and facilitate the development of their countries of origin. This practice may lead to a depletion of financial resources in the host nation, thereby triggering economic hurdles like diminished investment, slow growth, and currency devaluation. Consequently, the long-term impact on unemployment is considerably insignificant.

The effect of inflation on unemployment in the WAEMU and WAMZ regions appears to yield inconclusive results. The relationship between these two variables could be more consistent across the two sub-blocs. In the case of WAEMU, DOLS and FMOLS methods demonstrate a direct link between inflation and unemployment, significant at 1% and 5% levels. The DOLS model suggests a 1% increase in inflation is projected to raise the unemployment rate by 0.044%, while the FMOLS estimator means a 0.018% possible increase in unemployment. Conversely, WAMZ’s findings are entirely different. Only DOLS directs the existence of a positive connection between them, while FMOLS and CRR estimators show a negative but statistically significant relationship. The estimation of DOLS signals that if inflation rises by 1%, unemployment is expected to increase by 0.110%. On the other hand, FMOLS and CRR estimators suggest that a rise in inflation by 1% would likely result in an unemployment reduction of 0.0039% and 0.0038%, respectively. FMOLS and CRR models support the Phillips curve theory, which suggests an inverse association between unemployment and inflation. However, the positive relationship observed in the DOLS estimator contradicts this claim. The contrasting results highlight the complexity of the connection between unemployment and inflation within the two blocs.

This study's GDP per capita growth is a crucial control variable, representing economic advancement. Comparing WAEMU and WAMZ regions regarding this variable yields exciting findings. In the case of the WAEMU region, all three estimators consistently demonstrate a substantial negative association between GDP per capita growth rate with unemployment. This indicates that unemployment can be reduced by 0.5196% for DOLS, 0.0444% for FMOLS, and 0.0451% for CRR when GDP per capita grows by 1%. These outcomes illustrate that higher economic growth within the WAEMU countries contributes to declining unemployment. However, when examining the WAMZ region, the results are more mixed. While the connexion between the GDP per capita growth and unemployment rates shows positive and negative coefficients, none reach statistical significance. This implies that the influence of growth on unemployment within WAMZ falls short of being significant. Overall, considering the analysis of the GDP growth rate within the broader context of the ECOWAS region, the results indicate a negative but insignificant relationship. However, when dissecting the findings of the two sub-regions, WAEMU exhibits a negative and significant relationship, whereas WAMZ shows a negative but insignificant relationship. It is worth noting that the insignificance of the results in the WAMZ region outweighs that of the WAEMU, thereby resulting in an overall insignificant relationship for the ECOWAS region.

The examination of the population growth rate reveals interesting findings when comparing the WAEMU and WAMZ regions. Both sub-blocs present mixed results, highlighting the complexity of the link concerning the population growth rate and the unemployment rate. Within the WAEMU region, only the DOLS estimator displays a significant inverse relationship between population growth rate and unemployment. Conversely, the FMOLS and CRR estimators indicate positive coefficients but lack statistical significance at the given level. These contrasting results in the WAEMU region suggest complex affairs between the two variables. Turning to the WAMZ region, all three estimators demonstrate statistical significance, even with different natures of the relationship. The DOLS estimator reveals a direct association between population growth rate and unemployment at the 1% significance level. In contrast, the FMOLS and CRR estimators show an inverse connection for 1%. These divergent findings among the estimators within the WAMZ region underscore the complicated nature of the relation concerning the population growth and unemployment rate in this sub-region. Overall, the population growth rate analysis highlights the complexity of its relationship with the unemployment rate within the WAEMU and WAMZ regions. The WAEMU region shows a significant negative relationship based on the DOLS estimator, while the FMOLS and CRR estimators yield insignificant positive coefficients. In the WAMZ region, the connection varies across the estimators, with the DOLS estimator indicating a positive relationship and the FMOLS and CRR estimators suggesting a negative relationship.

CHAPTER VI

CONCLUSION

6.1. Conclusion

Through this study, I analyze the nexus concerning the size of the government and the unemployment rate of ECOWAS between 1991 to 2021. Apart from examining the overall relationship between these variables across ECOWAS, the study also aims to analyze potential variations or discrepancies in the connection surrounding government size and unemployment within WAEMU and WAMZ.

In pursuit of this aim, various diagnostic tests were conducted to understand the data, its characteristics, and its underlying nature. These tests included pre-estimation analyses such as summary statistics, cross-sectional dependence test, slope homogeneity, test for unit root, and cointegration test. I could identify the most suitable estimation technique to yield accurate and dependable results by performing these assessments. Subsequently, a trio of models was used with great efficacy to accurately capture and comprehend the linkage surrounding government size and unemployment rate within the ECOWAS region while simultaneously comparing and evaluating this connection in the two distinct sub-regional blocs. Dynamic ordinary least squares (DOLS), fully modified ordinary least squares (FMOLS), and canonical correlation regression (CRR) are the models used. The empirical investigation identified several key factors that significantly influence the unemployment rate within ECOWAS. These factors include the size of the government, government investment spending, inflation, foreign direct investment, and population growth rate.

The discoveries revealed consistent and substantial positive connections concerning government size and unemployment within the ECOWAS region. This outcome remains constant across all three estimation methods utilized. Based on the discoveries, a percentage surge in government size is linked to a corresponding rise in the region's unemployment rate. Specifically, the unemployment rate for the DOLS is projected to rise by 0.867% in the ECOWAS region. In comparison, FMOLS and CRR estimators suggest a 0.333% and 0.321% possible increment for the two methods, respectively. This evidence shows that expansionary fiscal policies, often advocated by Keynesian economics, are ineffective in addressing the high unemployment rates of ECOWAS. The findings suggest that as government size expands, the unemployment rate tends to rise, holding all other factors constant. These findings align with the Abrams (1999) curve. They are also consistent with the results of Okunola (2021), who explored the link between employment dynamics and government policy in ECOWAS and found that when government expenditure goes up, employment levels fall. However, when WAEMU and WAMZ regions were compared, interesting findings emerged. While the relationship is estimated to be harmful in the WAEMU regions, its coefficients are positive in the WAMZ regions. This considerable variation in the connection between government size and the unemployment rate is owed to the distinct nature of the economic conditions prevailing within the two sub-blocs.

Moreover, all three estimation techniques concur in demonstrating an opposing correlation linking government investment expenditure and unemployment within the ECOWAS region. This suggests the unemployment rate will decline if the government increases investment spending. These discoveries align with established economic theory, which asserts that targeted investments in sectors such as infrastructure and education can effectively generate employment opportunities and reduce unemployment in the long run. For instance, investment in infrastructure can stimulate economic activity and create job openings within the relevant sector. In contrast, investment in education can enhance the skills and qualifications of the workforce, thereby improving their employability and reducing unemployment rates. However, the findings become inconclusive when comparing the WAEMU and WAMZ sub-regions. In the case of WAEMU, the kind of connection between the rate of unemployment and government investment expenditure varies depending on the specific method employed. Conversely, the relationship consistently demonstrates a positive association in the WAMZ region, irrespective of the estimation technique utilized. However, one should note that only the outcomes obtained through the DOLS estimator achieve statistical significance at the accepted level. These divergent outcomes indicate the presence of distinct economic dynamics within the two sub-blocs, resulting in minimal and negligible effects on unemployment. While the bond linking government investment expenditure and unemployment may vary across two regions, the potential benefits of such investments in fostering job creation remain significant within the ECOWAS region.

According to all three estimation methods, the association between foreign direct investment (FDI) and unemployment manifest in ECOWAS appeared to be a negative trend. However, the significance of the coefficients differs among the methods. Only the FMOLS results exhibit significant negative nexus at the 1% level. On the other hand, DOLS and CRR estimations do not provide sufficient evidence of significance. The discoveries imply that even though FDI can aid in lessening unemployment in the ECOWAS area, its influence on the unemployment rate needs to be more substantial to yield a significant impact. Similar patterns are observed within the WAEMU and WAMZ sub-regions, where the negative relationship exists but lacks overall significance. Therefore, the analysis proves that although FDI could affect unemployment, its importance and magnitude in reducing unemployment rates are limited within the ECOWAS region and in the individual WAEMU and WAMZ sub-regions.

The relationship between unemployment and inflation in the ECOWAS region exhibits mixed outcomes. While the DOLS estimation reveals a significant negative relationship, the FMOLS and CRR estimations contradict it, although they are not statistically significant. The DOLS estimation aligns with the theoretical concept of the Phillips curve, which suggests a reverse association as far as inflation and unemployment are concerned. However, FMOLS and CRR regressions challenge this notion by indicating a positive relationship but lacking statistical significance. This inconclusive nature of the relationship is also observed within the WAEMU and WAMZ regions. While two out of three estimation methods for WAEMU suggest that positive relation exists regarding unemployment inflation, two for WAMZ indicate a negative relationship. These contrasting results underscore the intricate association between inflation and unemployment for ECOWAS and its sub-blocs.

The nexus of GDP per capita and unemployment in the ECOWAS presents inconclusive findings. Although all three estimation methods indicate a negative relationship, none could be significant. While economic growth can potentially decrease unemployment in West African countries, the impact is insignificant and negligible. However, when examining the findings for the two sub-regions, WAEMU demonstrates a significant negative relationship, whereas WAMZ shows a negative association that is not statistically significant. Furthermore, the lack of significance in the WAMZ region outweighs that of the WAEMU, resulting in an overall lack of importance for the link between GDP per capita and the unemployment rate in ECOWAS.

In ECOWAS, the expected positive association between the population growth rate and the unemployment rate is confirmed. Two out of three estimation methods demonstrate a robust positive relationship, indicating that as the population grows, the likelihood of the unemployment rate is much high. However, when comparing WAEMU and WAMZ regions, the results are inconclusive. While only the DOLS estimator shows a robust negative connection surrounding the unemployment rate and population growth rate in WAEMU, two out of the three estimators in WAMZ reveal a negative and statistically significant relationship. These contrasting findings among the estimators within the WAEMU and WAMZ regions highlight the complex relationship between the population growth rate and unemployment in this sub-region.

6.2. Recommendation and Policy Implication

Several vital variables affect the unemployment rate in the ECOWAS region. Accordingly, policymakers should prioritize redirecting unnecessary government consumption spending towards labor-reliant public investments and underline the attraction of foreign direct investment while implementing measures to control inflation. It is evident that undisciplined government expenditure, particularly in non-labor-driven areas, will exacerbate the unemployment rate in the region. Therefore, governments within the ECOWAS region should strongly consider reducing the size of their government as a crucial mechanism for addressing the unemployment challenge. Additionally, it is imperative for governments to actively pursue strategies aimed at promoting investment in vital areas of the economy, like infrastructure and education, as they play an essential function in mitigating escalating rates of unemployment in the long run. Strategic investments in sectors that bolster economic growth and create employment opportunities will undoubtedly influence addressing the unemployment challenges in ECOWAS.

Furthermore, it becomes essential for the government to adopt measures to reduce general government consumption expenditure, as excessive spending in inappropriate sectors can impose significant restrictions on economic growth and impede employment opportunities. By implementing a comprehensive approach that includes efforts to strengthen economic growth, aiming government and foreign direct investments, and responsible consumption expenditure, governments in the region can pave the way for a more viable labor force, ultimately contributing to the lessening of unemployment in the region.

REFERENCES

Abouelfarag, H. A., & Qutb, R. (2021). Does government expenditure reduce unemployment in Egypt? *Journal of Economic and Administrative Sciences, 37*(3), 355–374. https://doi.org/10.1108/JEAS-01-2020-0011

Abrams, B. A. (1999). The effect of government size on the unemployment rate. In *Public Choice* (Vol. 99).

Abrams B., & Wang S. (2006). *"The Effect of Government Size on the Steady-State Unemployment Rate: An Error Correction Model," Working Papers 07-14, University of Delaware, Department of Economics.*

Abubakar, A. B. (2016). Dynamic effects of fiscal policy on output and unemployment in Nigeria: An econometric investigation. In *CBN Journal of Applied Statistics* (Vol. 07, Issue 2). http://hdl.handle.net/10419/191690

Adamu, P., Ranjanee Kaliappan, S., Bani, Y., Norashidah, A., & Nor, M. (2018). Impact of Globalization on Unemployment in Sub-Saharan African (SSA) Countries. In *International Journal of Economics and Management Journal homepage* (Vol. 12, Issue S2). http://www.ijem.upm.edu.my

Adom, P. K., Amakye, K., Barnor, C., & Quartey, G. (2015). The long-run impact of idiosyncratic and common shocks on industry output in Ghana. *OPEC Energy Review*, *39*(1), 17–52. https://doi.org/10.1111/opec.12039

Afonso, A., Sen, H., Kaya, A., Şen, H., & Kaya, A. (2018). *Government Size, Unemployment, and Inflation Nexus in Eight Large Emerging Market Economies. Research in Economics and Mathematics (REM), Working Paper Series 038-2018.*

Agbola, F. W. (2013). Does human capital constrain the impact of foreign direct investment and remittances on economic growth in Ghana? *Applied Economics*, *45*(19), 2853–2862. https://doi.org/10.1080/00036846.2012.676735

Alalawneh, M., & Nessa, A. (2020). The impact of foreign direct investment on unemployment: Panel data approach. *Emerging Science Journal*, *4*(4), 228–242. https://doi.org/10.28991/esj-2020-01226

AMARAWICKRAMA, H., & HUNT, L. (2008). Electricity demand for Sri Lanka: A time series analysis. *Energy*, *33*(5), 724–739. https://doi.org/10.1016/j.energy.2007.12.008

Anayochukwu Ozurumba Benedict. (2012). Fiscal Deficits And Inflation In Nigeria: The Causality Approach. *International Journal of Scientific and Technology Research*, *1*, 6–12.

Anjande, G., & Ushahemba Ijirshar, V. (2020). *ASYMMETRIC IMPACT OF GOVERNMENT SPENDING BEHAVIOUR ON NATIONAL INCOME AND UNEMPLOYMENT IN AFRICA The Sustainability of World Banks Fadama III project in Benue State-Nigeria View project Articles View project*. https://www.researchgate.net/publication/343917875

Aysu, A., Dökmen, G., Hacmi, K., İlişki, İ. A., Bir, Ü., Oecd, İ. :, & Örneği, Ü. (2011). *An Investigation on the Relationship between Government Size and Unemployment Rate: Evidence from OECD Countries. Sosyoekonomi, 16 (16), - Retrieved from https://dergipark.org.tr/en/pub/sosyoekonomi/issue/21076/226916*.

Barker F. Scott. (2007). The South African labor market : theory & practice. *Pretoria: Van Schaik Publishers. , 5th Ed.*

Barro, R. J. (1989). The Ricardian Approach to Budget Deficits. *Journal of Economic Perspectives*, *3*(2), 37–54. https://doi.org/10.1257/jep.3.2.37

Barro, R. J. (1990). Government Spending in a Simple Model of Endogenous Growth. *Journal of Political Economy*, *98*(5, Part 2), S103–S125. https://doi.org/10.1086/261726

Bashier, A.-A., & Siam, A. J. (2014). Immigration and Economic Growth in Jordan: FMOLS Approach. In *International Journal of Humanities Social Sciences and Education (IJHSSE)* (Vol. 1, Issue 9). www.arcjournals.org

Blomquist, J., & Westerlund, J. (2013). Testing slope homogeneity in large panels with serial correlation. *Economics Letters*, *121*(3), 374–378. https://doi.org/10.1016/j.econlet.2013.09.012

Breusch, T. S., & Pagan, A. R. (1980a). The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics. *The Review of Economic Studies*, *47*(1), 239. https://doi.org/10.2307/2297111

Breusch, T. S., & Pagan, A. R. (1980b). The Lagrange Multiplier Test and its Applications to Model Specification in Econometrics. *The Review of Economic Studies*, *47*(1), 239. https://doi.org/10.2307/2297111

Buti, M. B. A. F. D. (2001). *The stability and growth pact: the architecture of fiscal policy in EMU* (A. Brunila, M. Buti, & D. Franco, Eds.). Springer. https://doi.org/10.1057/9780230629264

C. Onuoha, F., & Agbede, M. O. (2019). Impact of Disaggregated Public Expenditure on Unemployment Rate of Selected African Countries: A Panel Dynamic Analysis. *Journal of Economics, Management and Trade,* 1–14. https://doi.org/10.9734/jemt/2019/v24i530175

Christopoulos, D. K., Loizides, J., & Tsionas, E. G. (2005). The Abrams curve of government size and unemployment: Evidence from panel data. *Applied Economics*, *37*(10), 1193–1199. https://doi.org/10.1080/00036840500109274

Christopoulos, D. K., & Tsionas, E. G. (2002). Unemployment and government size: Is there any credible causality? *Applied Economics Letters*, *9*(12), 797–800. https://doi.org/10.1080/13504850210129432

Coddington, A. (1976). American Economic Association Keynesian Economics: The Search for First Principles. In *Source: Journal of Economic Literature* (Vol. 14, Issue 4).

Cunningham, S. R., & Vilasuso, J. (1994). Is Keynesian Demand Management Policy Still Viable? *Journal of Post Keynesian Economics*, *17*(2), 187–210. https://doi.org/10.1080/01603477.1994.11490023

Devries, P., Freedman, C., Guajardo, J., Laxton, D., & Pescatori, A. (2010). *Will it hurt? Macroeconomic effects of fiscal consolidation. International Monetary Fund (IMF). World Economic Outlook: Recover, Risk and Rebalancing.*

Enyoghasim, M. O., Ogwuru, H. O. R., Agu, G. C., & Igbinedion, A. E. (2022). The Impact of Fiscal Policy on Unemployment in Nigeria. *Saudi Journal of Economics and Finance*, *6*(8), 272–280. https://doi.org/10.36348/sjef.2022.v06i08.003

Falade, O. E., & Folorunso, B. A. (2015). Fiscal and Monetary Policy Instruments and Economic Growth Sustainability in Nigeria. *American Journal of Economics, 2015*(6), 587–594. https://doi.org/10.5923/j.economics.20150506.04

Faujas Alain. (2012, January). Africa: Why Francophones are lagging behind Anglophones. *The Africa Report*. https://www.theafricareport.com/7810/africa-why-francophones-are-lagging-behind-anglophones/

Feldmann, H. (2006). Government size and unemployment: Evidence from industrial countries. *Public Choice*, *127*(3–4), 451–467. https://doi.org/10.1007/s11127-005-9003-y

Folawewo, A. O., & Adeboje, O. M. (2017). Macroeconomic Determinants of Unemployment: Empirical Evidence from Economic Community of West African States. *African Development Review*, *29*(2), 197–210. https://doi.org/10.1111/1467-8268.12250

Fosu, G. A. (n.d.). *Government Expenditure and Unemployment: Empirical Government Expenditure and Unemployment: Empirical Investigation of Sub-Saharan African (SSA) Countries Investigation of Sub-Saharan African (SSA) Countries*. https://thekeep.eiu.edu/theses

Gideon, H. E. (n.d.). *AMERICAN UNIVERSITY OF NIGERIA DEPARTMENT OF ECONOMICS IMPACT OF POPULATION GROWTH ON UNEMPLOYMENT IN NIGERIA Senior Research Project*.

Hashem Pesaran, M., & Yamagata, T. (2008). Testing slope homogeneity in large panels. *Journal of Econometrics*, *142*(1), 50–93. https://doi.org/10.1016/j.jeconom.2007.05.010

Hemming, R., Kell, M., & Mahfouz, S. (2002). *MF Working Paper The Effectiveness of Fiscal Policy in Stimulating Economic Activity-A Review of the Literature I N T E R N A T I O N A L M O N E T A R Y FUND The Effectiveness of Fiscal Policy in Stimulating Economic Activity-A Review of the Literature 1*.

Herzer, D. (n.d.). *Export-Led Growth in Chile: Assessing the Role of Export Composition in Productivity Growth*. http://hdl.handle.net/10419/19813

Holden, S., & Sparrman, V. (2011). *Do Government Purchases Affect Unemployment?* www.RePEc.org

Ibrahim, A. (2020). France and The New Francophone – Anglophone divide in West Africa. *Encyclopedia Geopolitica*.

Kao, C. (1999). Spurious regression and residual-based tests for cointegration in panel data. *Journal of Econometrics*, *90*(1), 1–44. https://doi.org/10.1016/S0304-4076(98)00023-2

Karimov, M., Parádi-Dolgos, A., & Pavlin, R. K. (2020). An Empirical Analysis of the Relationship between Foreign Direct Investment and Unemployment Rate: Evidence from Turkey. In *European Research Studies Journal: Vol. XXIII* (Issue 1). http://www.invest.gov.tr/en-US/Pages/Home.aspx

Kasseh, P. A. (2018). The Relation between Inflation and Unemployment in the Gambia: Analysis of the Philips Curve. *Journal of Global Economics*, *06*(02). https://doi.org/10.4172/2375-4389.1000294

Kebalo, L., & Zouri, S. (2022). Monetary Agreements Reform and Issue of the Key Fiscal Convergence Criterion in the West African Economic and Monetary Union (WAEMU). *Journal of Economic Integration*, *37*(1), 30–53. https://doi.org/10.11130/jei.2022.37.1.30

Keynes, J. M. 1883-1946. (1936). The general theory of employment, interest and money. *London: Macmillan,*

Korkmaz, S., & Abdullazade, M. (2020). The Causal Relationship between Unemployment and Inflation in G6 Countries. *Advances in Economics and Business*, *8*(5), 303–309. https://doi.org/10.13189/aeb.2020.080505

Kurozumi, E., & Hayakawa, K. (2009). Asymptotic properties of the efficient estimators for cointegrating regression models with serially dependent errors. *Journal of Econometrics*, *149*(2), 118–135. https://doi.org/10.1016/j.jeconom.2008.11.003

Magazzino, C. (2016). Fiscal variables and growth convergence in the ECOWAS. *African Journal of Economic and Management Studies*, *7*(2), 147–163. https://doi.org/10.1108/AJEMS-03-2015-0032

Manasse, P., Manmohan Kumar, S., De Broeck, M., Drazen, A., Jeanne, O., Kumar, M. S., Ley, E., Missale, A., Rebucci, A., & Turrini, A. (2005). *Deficit Limits, Budget Rules, and Fiscal Policy Authorized for distribution*.

Meyer, D. F., & Sanusi, K. A. (2019). A Causality Analysis of the Relationships Between Gross Fixed Capital Formation, Economic Growth and Employment in South Africa. *Studia Universitatis Babes-Bolyai Oeconomica*, *64*(1), 33–44. https://doi.org/10.2478/subboec-2019-0003

Monacelli, T., Perotti, R., & Trigari, A. (2010). *Unemployment Fiscal Multipliers*.

Nagel, K. (2015). Relationships between unemployment and economic growth-the review (results) of the theoretical and empirical research. In *Journal of Economics and Management* (Vol. 20, Issue 2).

Nepram, D., Singh, S. P., & Jaman, S. (2021). The Effect of Government Expenditure on Unemployment in India: A State Level Analysis. *Journal of Asian Finance, Economics and Business*, *8*(3), 763–769. https://doi.org/10.13106/jafeb.2021.vol8.no3.0763

N'GUESSAN Coffie Francis José. (2017). Threshold Effect of Government Consumption on Employment: Evidence from African Countries. *Journal of Economics and Development Studies*, *5*(1). https://doi.org/10.15640/jeds.v5n1a2

Nwosa P.I. (2014). Government expenditure, unemployment and poverty rates in Nigeria. *Journal of Research in National Development*, *12*(1), 77–84.

Okunola, A. O. (2021). Employment dynamics and fiscal policy in ECOWAS: A panel data analysis. *Journal of Accounting and Taxation*, *13*(4), 283–290. https://doi.org/10.5897/jat2021.0497

Onodugo, V. A., Obi, K. O., Anowor, O. F., Nwonye, N. G., & Ofoegbu, G. N. (2017). Does public spending affect unemployment in an emerging market? *Risk Governance and Control: Financial Markets and Institutions*, *7*(1), 32–40. https://doi.org/10.22495/rgcv7i1art4

Park, J. Y. (1992). Canonical Cointegrating Regressions. *Econometrica*, *60*(1), 119. https://doi.org/10.2307/2951679

Pasara, M. T., & Garidzirai, R. (2020). Causality affects gross capital formation, unemployment and economic growth in South Africa. *Economies*, *8*(2). https://doi.org/10.3390/ECONOMIES8020026

Pedroni, P. (1999). Critical Values for Cointegration Tests in Heterogeneous Panels with Multiple Regressors. *Oxford Bulletin of Economics and Statistics*, *61*(S1), 653–670. https://doi.org/10.1111/1468-0084.61.s1.14

Pesaran, M. H. (2003). *Estimation and Inference in Large Heterogeneous Panels with Cross Section Dependence*.

Pesaran, M. H. (2004). *General Diagnostic Tests for Cross Section Dependence in Panels*.

Pesaran, M. H. (2007). A simple panel unit root test in the presence of cross-section dependence. *Journal of Applied Econometrics*, *22*(2), 265–312. https://doi.org/10.1002/jae.951

Phillips, P. C. B., & Hansen, B. E. (1990). Statistical Inference in Instrumental Variables Regression with I(1) Processes. *The Review of Economic Studies*, *57*(1), 99. https://doi.org/10.2307/2297545

Population Growth and Unemployment in Nigeria. (2020). *Journal of Economics and Sustainable Development*. https://doi.org/10.7176/jesd/11-2-10

Ramey, V. A. (2012). *NBER WORKING PAPER SERIES GOVERNMENT SPENDING AND PRIVATE ACTIVITY Government Spending and Private Activity*. http://www.nber.org/papers/w17787

Saka, J. O., Onafowokan, I. A., & Adebayo, A. A. (2015). Analysis of Convergence Criteria in a Proposed Monetary Union: A Study of the Economic Community of West African States. *International Journal of Economics and Financial Issues*, *5*(1), 230–239. www.econjournals.com

Saraireh, S. (2020). The Impact of Government Expenditures on Unemployment: A Case Study of Jordan. *Asian Journal of Economic Modelling*, *8*(3), 189–203. https://doi.org/10.18488/journal.8.2020.83.189.203

Schiller, B. R. (2008). *The Economy Today, Eleventh Edition* (11th Edition). McGraw-Hill/Irwin.

Stock, J. H., & Watson, M. W. (1993). A Simple Estimator of Cointegrating Vectors in Higher Order Integrated Systems. *Econometrica*, *61*(4), 783. https://doi.org/10.2307/2951763

Swamy, P. A. V. B. (1970). Efficient Inference in a Random Coefficient Regression Model. *Econometrica*, *38*(2), 311–323. https://doi.org/10.2307/1913012

Walterskirchen, E. (1999). The Relationship between Growth, Employment and Unemployment in the EU. In E. Walterskirchen (Ed.), *European Economist for an Alternative Economic Policy (TSER Network)*.

WAMA. (2022). *ECOWAS Macroeconomic Convergence Report for 2021*.

Westerlund, J. (2005). New Simple Tests for Panel Cointegration. *Econometric Reviews*, *24*(3), 297–316. https://doi.org/10.1080/07474930500243019

CURRICULUM VITAE

Name and Surname:

Salim Saidy

Education:

2017 – 2021	BSc Mathematics, Bolu Abant Izzet Baysal University, Türkiye
2019 – 2022	BSc Business Administration, Anadolu University, Türkiye
2021 – 2023	MA Economics, Ibn Haldun University, Türkiye

Experience:

05/2013 – 08/2013	Asst. News Editor, Today Newspaper, Gambia
02/2015 – 10/2015	Comm. Officer, ACE Communications Executive, Gambia
09/2015 – 07/2021	Editor and Correspondent, Eye Africa TV, Gambia
06/2019 – 06/2021	Vice President, African Students Union in Bolu, Turkey
09/2021 – 02/2023	Teaching Fellow, Ibn Haldun University, Turkey
05/2022 – Present	President, African Students Affairs (YDV), Turkey
11/2022 – Present	Communication Director, African Youths Architects, Morrocco