



GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN WEST AFRICA: AN EMPIRICAL INVESTIGATION

James Francis Davis

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**UNIVERSITAT
ROVIRA i VIRGILI**

**GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN WEST AFRICA:
AN EMPIRICAL INVESTIGATION**

JAMES FRANCIS DAVIS

**TESI DOCTORAL – TESIS DOCTORAL- DOCTORAL THESIS
2024**

UNIVERSITAT ROVIRA I VIRGILI

GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN WEST AFRICA: AN EMPIRICAL INVESTIGATION

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Title: Government Expenditure and Economic Growth in West Africa: An Empirical
Investigation

Doctoral Thesis

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**UNIVERSITAT
ROVIRA i VIRGILI**

Tarragona, Spain

2024



STATEMENT OF SUPERVISION

I STATE that the present study, entitled “Government Expenditure and Economic Growth in West Africa: An Empirical Investigation”, presented by JAMES FRANCIS DAVIS for the award of the degree of Doctor, has been carried out under my supervision at the Department of ECONOMICS of this university.

Reus, 18 de Junio 2024

Doctoral Thesis Supervisor/s

Bernd Theilen

ACKNOWLEDGEMENTS

Firstly, I would like to acknowledge the tireless efforts of Dr. Bernd Georg Theilen, Full Professor, Department of Economics, Universitat Rovira i Virgili, who patiently mentored and supervised my research works and provided solid and insightful guidance that improve my research abilities. I greatly appreciate his hard work, dedication, patience and moral support which enabled me to reach thus far.

I want to thank the entire faculty at the Department of Economics for their support, mentorship and guidance which helped developed my intellectual skills and abilities. The instructions, teaching and academic feedback I received from the faculty sharpened my research skills and abilities to undertake independent research.

I would like to take this opportunity to thank my children, James Francis Davis, Jr., Jamael Levi Davis, Jameson Valentino Davis, and Jane Francilia Davis, who could not get adequate time, support and attention from me, as a father, due to my commitment to academic works. I am also extremely grateful to guardians of my children, Ms. Magdalene Miller, and Ms. Caroline Flowers, who provided support and care to the during the periods of my absence. I love my children and owe them tons of support and attention.

Lastly, I am extremely grateful to my parents, Mr. Charles Davis, and Mrs. Helena Davis, for their unwavering support and love shown me during my academic journey. The story of Joseph and other bible and real-life stories they told me motivated my desire to seek quality higher education that will enable me to improve the living standards of my family members and others in societies. I am extremely grateful to them and owe them a great depth of appreciation.

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THESIS SUMMARY

The impact of public expenditure on economic growth is an issue for analysis and debate, particularly in developing countries. A critical question is whether public expenditure increases the long-term steady-state growth rate of an economy. While the general consensus is that public expenditure, particularly physical infrastructure or human capital, can be growth-enhancing, although the financing of such expenditures can also be growth-retarding due to disincentive effects associated with taxation (Kweka and Morrissey, 2000), the exact effects of public expenditure on growth is still contentious.

Numerous studies have examined the relationship between public expenditure and economic growth. While some authors point to a positive relationship (Ram, 1986; Holmes and Hutton, 1990; Aschauer, 1989; Devarajan et al. 1996; Saez and Garcia, 2006; Taiwo, 2011), other empirical research finds that public expenditure has a negative impact economic growth (Grier and Tullock, 1989; Barro, 1990; Miller and Russek, 1997; Ramayandi, 2003). The mixed findings regarding the effects of public expenditure on economic growth suggest the need for deeper research and analysis to uncover the main drivers of public expenditure efficiency.

Chapter one this thesis conducts an empirical investigation of the effects of public expenditure on economic growth in West Africa, taking into consideration the impact of institutional quality and conflict on government spending, covering the period 1985-2019. As government spending covers both consumption and investment activities, government expenditure was divided into consumption and investment expenditure and their differential impacts on growth are investigated along with other growth determinants including population growth, initial real Gross Domestic Product (GDP) per capita, trade openness and current balance.

Ordinary Least Square (OLS) regression analysis was employed to investigate the determinants of economic growth. Constructing the dependent variable as a five-year forward moving average introduced serial correlation in the country-specific error terms such that, despite of being consistent, the standard errors of the Ordinary Least Square (OLS) estimator are biased. Therefore, as an alternative estimation method that addresses this problem, Seemingly Unrelated Regression (SUR) was used (Zellner, 1962).

The results show that government consumption expenditures undermine per capital growth in West Africa during the study period while investment expenditure positively contributes to economic growth. Institutions matter for economic growth as the estimations indicate that strong and good institutions have positive effects on per capita growth in West Africa. Therefore, to improve economic performance, fiscal authorities in West Africa must prioritize spending on productive economic activities over consumption activities. While investment in capital formation is paramount, such investment could be undermined by weak institutional quality. The empirical estimations show that stronger institutions are essential for economic growth. It is therefore important that significant investments are made in strengthening institutional quality. Finally, as improvement in trade openness and international trade are essential for economic growth in West Africa, governments in West Africa are encouraged to take advantage of the African Continental Free Trade Area (AfCFTA), which present enormous opportunities for expanding trade across Africa.

Foreign aid is considered as a critical capital to close the savings and investment gap and promote economic growth in low-income countries, especially in Sub-Saharan Africa. By so doing, foreign aid plays an essential role by complementing domestic revenue and increasing the investment and capital needed for growth in poor countries. Foreign aid therefore

becomes an essential external capital that is expected to substantially contribute to economic recovery and growth in low-income countries.

The economic impacts of foreign aid expenditure in developing countries remain also a debatable topic in economics. Although extensive research has been conducted on this topic, no theoretical or empirical conclusion has been reached. Empirical studies conducted on this topic mostly suffer from endogeneity problems and failed to capture the effects of armed conflict on the efficiency of aid expenditure. To date, there is no research that critically examines the growth impacts of aid expenditure in West Africa, and knowledge in this area is very important for development planning and financing. Therefore, chapter two of this thesis intends to fill the gap in the scholarly literature on aid expenditure and economic development by examining the relationship between aid expenditure and economic growth in West Africa taking into consideration the effects of armed conflict and institutional quality on the effectiveness of aid expenditure.

Using Fixed Effect Method and Instrumental Variable technique to address problems of endogeneity, chapter two assesses the effects of aid expenditure on economic growth in West Africa while controlling for institutional quality and armed conflict. Data was obtained for the period 1985-2019. The study finds aid expenditures to have a positive and significant effect on economic growth while conflict retards growth and undermines aid efficiency in West Africa. Institutional quality matters for economic growth as the empirical estimations show that strong institutions enhance the efficiency of aid expenditure and spur growth in West Africa.

The analysis yields the following conclusions. Aid expenditure is necessary for closing the fiscal gaps in West African countries and enhancing economic development. This suggests that efforts on the part of West African countries to attract larger aid will be critical for enhancing growth. In order to attract aid and enhance the efficiency of aid expenditure, strong institutions are required. Strong institutions will create the enabling environment for the efficiency of aid expenditure while at the same attracting foreign investment.

Lastly, in chapter three, an empirical investigation on the evolution of poverty and inequality in West Africa is conducted. The academic literature remains inconclusive as to whether poverty drives inequality or vice versa. While the debate on the poverty and inequality nexus deepens, an essential variable, economic growth, has been added to the debate. The inclusion of economic growth has deepened the controversies and discussions regarding the interrelationship between poverty, inequality and economic growth. Understanding the interplay between poverty, inequality and growth is even more critical for countries in Sub-Saharan Africa as poverty presents a huge challenge for their economic development.

The Kuznets hypothesis, coined after its author, was developed in 1955 in his article 'Economic Growth and Income Inequality' and has influenced economic research on inequality and growth over the years. Kuznets (1955) argued that as economies grow, inequality will initially rise and subsequently fall after a turning point, in line with the progress achieved through the stages of economic development. This inverted U-shaped curve with inequality plotted against income per capita was reflected in the limited data available at that time. Subsequent studies have disputed Kuznets' empirical findings (Ravallion, 1995; Deininger and Squire, 1997), casting doubt on the inevitability of the inverted U-shaped relationship between income and inequality.

Understanding the effects of inequality and poverty on economic growth is cardinal in West Africa where poverty and inequality present significant development challenges. Despite the decline in poverty, economic growth measured by GDP per capita is sharply declining in West Africa. Using recent yearly data covering 1980-2022 and applying multilevel modeling techniques (fixed effects and random effects models), chapter three of this thesis empirically investigates the effects of inequality and poverty on per capita growth in West Africa. The

empirical estimates reveal that economic growth matters for both inequality and poverty reduction. Per capita growth reduces income inequality as well as the incidence and intensity of poverty in West Africa. Importantly, the regressions show that increases in crop production reduces poverty and inequality; hence, improvement in agricultural production is critical for enhancing growth in West Africa. The findings suggest that inclusive policies and programs that reduce inequality and poverty are essential for boosting economic growth in West Africa.

The thesis, encompassing three key research articles, provides a deep examination of the core variables affecting growth, poverty and inequality in West Africa over the last four decades. Using appropriate econometric techniques, the thesis investigates the effects of government expenditure on economic growth, the impacts of foreign aid on growth and the determinants of poverty and inequality, among which economic growth, in West Africa. The findings from the articles comprising this thesis are very relevant for governments and development institutions working in West Africa. The findings of the thesis are expected to shape government's interventions and development policies in West Africa now and in the future. As West Africa grapples with the damaging effects of the recent health pandemics (Ebola and Covid-19), the findings and timing of this thesis is right as it provides solid empirical evidence upon which essential growth policies can be developed and implemented.

ORGANIZATION OF THE THESIS

This thesis is a combination of research articles, which have been published in internationally recognized peer-review journals. The thesis is organized into four chapters. The first chapter is a research paper published in the *International Journal of Economics, Commerce and Management*, Volume 12, Issue 1, 2024. The study conducts an empirical investigation of the effects of public expenditure on economic growth in West Africa, taking into consideration the impact of institutional quality and conflict on government's spending, covering the period 1985-2019. As government's spending covers both consumption and investment activities, government expenditure was divided into consumption and investment expenditure and their differential impacts on growth investigated. The results show that government consumption expenditures undermine per capital growth in West Africa during the study period while investment expenditure positively contributes to economic growth. Institutions matter for economic growth as the estimations indicate strong and quality institutions have positive effects on per capita growth in West Africa.

Chapter two of the thesis contains a research study which delves deeper into the economic impacts of a critical source of government expenditure and public finance in West Africa, foreign aid. The paper was published in Volume 16, Issue 1, 2024 of the *Journal of African Studies and Development*. The research analyzes the economic impacts of foreign aid expenditure in developing countries. Although extensive research has been conducted on this topic, no theoretical or empirical conclusion has been reached. Empirical studies conducted on this topic mostly suffer from endogeneity problems and failed to capture the effects of armed conflict on the efficiency of aid expenditure. Using Seemingly Unrelated Regression and Instrumental Variable technique to address problems of endogeneity, the study assesses the effects of aid expenditure on economic growth in West Africa while controlling for institutional quality and armed conflict. Data was obtained for the period 1985-2019. The study finds aid expenditures to have a positive and significant effect on economic growth while conflict retards growth and undermines aid efficiency in West Africa. Institutional quality matters for economic growth as the empirical estimations show strong institutions enhance the efficiency of aid expenditure and spur growth in West Africa.

Still assessing determinants of growth in West Africa, the third chapter of the thesis presents an empirical study which examines the evolution of poverty and inequality on growth in West Africa. This paper is also published in the *International Journal of Advances in Management and Economics*, Volume 13, Issue 3, 2024. Although the effects of inequality and poverty on growth have been extensively debated in the literature, the findings remain inconclusive and conflicting. Hence, understanding the effects of inequality and poverty on economic outcomes is pivotal especially in West Africa where inequality is rising while growth is declining. Despite the decline in poverty, economic growth measured by GDP per capita is sharply declining in West Africa. Using recent yearly data covering 1980-2022 and applying multilevel modeling techniques (fixed effects and random effects models), this paper empirically investigates the determinants of inequality and poverty in West Africa. The empirical estimates reveal that economic growth matters for both inequality and poverty reduction. Per capita growth reduces income inequality as well as the incidence and intensity of poverty in West Africa. Importantly, the regressions show that increases in crop production reduces poverty and inequality; hence, improvement in agricultural production is critical for enhancing growth in West Africa. The findings suggest that inclusive policies and programs boosting economic growth are essential to reduce inequality and poverty in West Africa.

The last chapter of the thesis elaborates the general conclusions from the three research articles and highlights key areas for future research.

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GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN WEST AFRICA: AN EMPIRICAL INVESTIGATION

James Francis Davis

CHAPTER ONE

Government Expenditure and Economic Growth: An Empirical Investigation of the Public Expenditure and Economic Growth Pattern of West African Countries

ABSTRACT

The effect of public expenditure on economic growth remains debatable in the literature. This paper conducts an empirical investigation of the effects of public expenditure on economic growth in West Africa, taking into consideration the impact of institutional quality and conflict on government's spending, covering the period 1985-2019. As government's spending covers both consumption and investment activities, government expenditure was divided into consumption and investment expenditure and their differential impacts on growth investigated. The results show that government consumption expenditures undermine per capital growth in West Africa during the study period while investment expenditure positively contributes to economic growth. Institutions matter for economic growth as the estimations indicate strong and quality institutions have positive effects on per capita growth in West Africa.

1.1 INTRODUCTION

The impact of public expenditure on economic growth is an issue for analysis and debate, particularly in developing countries. A critical question is whether public expenditure increases the long-term steady-state growth rate of an economy. While the general consensus is that public expenditure, particularly physical infrastructure or human capital, can be growth-enhancing, although the financing of such expenditures can also be growth-retarding due to disincentive effects associated with taxation (Kweka and Morrissey, 2000), the exact effects of public expenditure on growth is still contentious.

Numerous studies have examined the relationship between public expenditure and economic growth. While some point to a positive relationship (Taiwo, 2011; Saez and Garcia, 2006; Devaranjan et al., 1996; Holmes and Hutton, 1990; Aschauer, 1989; Ram, 1986), other empirical research finds that public expenditure has a negative impact on economic growth (Ramayandi, 2003; Miller and Russek, 1997; Barro, 1990; Grier and Tullock, 1989). The mixed findings regarding the effects of public expenditure on economic growth suggest the need for deeper research and analysis to uncover the main drivers of public expenditure efficiency.

The efficiency of public expenditure and its impact on economic growth is affected by strong economic and governance institutions. Research has shown that good institutions are important determinants of economic growth (Buckiewicz and Yannikaya, 2011; Acemoglu et al. 2008; Barrios and Schaechter, 2008; Torsten and Tabellini, 2007; Williamson, 2000; Barro, 1999; Hall and Jones, 1999; North, 1990). La Porta et al. (1997,1998) found that countries with a strong legal system providing proper protection to investors against expropriation by entrepreneurs are likely to have well-developed financial markets. With respect to the African continent, Collier (2006), Ndulu (2006) and International Monetary Fund (2003) made parallel arguments, which indicate that, to accelerate Africa's economic performance, the quality of institutions should be made robust, reliable and sustainable.

Cross-countries studies (Easterly and Levine, 1997) find that the conventional factors of growth such as labour and capital accumulation, do not fully explain Africa's experience and have switched to an institutional explanation (Aron, 2000). In view of the aforementioned, this paper examines the relationship between public expenditure and economic growth in West Africa taking into consideration the effects of institutional quality. An empirical analysis of seven five-year periods is undertaken to examine the pattern of public expenditure and economic growth over the period 1985-2019 in West Africa and identify components of expenditure that are growth-enhancing and growth-retarding.

This paper further analyzes the effects of institutional quality on the efficiency of public expenditure in West Africa. As several parts of West Africa experienced armed conflicts during the estimation period, the analysis also considers the effects of conflict on growth. Government expenditures are divided into two categories: consumption expenditure and investment expenditure. Other growth determinants include population growth, initial real Gross Domestic Product (GDP) per capita, trade openness, and the current.

1.2 LITERATURE REVIEW

This part of the first chapter of the thesis reviews the key academic literature on government expenditure and economic growth. To deepen the understanding of the literature, the review takes into account the theoretical literature as well as the empirical literature on public expenditure and economic growth.

1.2.1 Review of the Theoretical Literature

The effect of government expenditure on economic growth is still debatable amongst economists, policy makers and politicians. The contentious issue is whether the impact of government size on economic growth is positive, negative or insignificant. Different schools of thought have different conclusions on this contentious issue; hence, several theories have emerged that attempt to explain the relationship between expenditure and economic growth. The key theories are briefly discussed in this section.

The Keynesian Theory

The Keynesian theory indicates that during economic recession, a policy of budgetary expansion should be undertaken to increase the aggregate demand in the economy thus boosting the GDP. The theory considers public expenditures as an exogenous factor which can be utilized as a policy instrument to promote economic growth (Guandong and Muturi, 2016). Taking on the perspective of the Keynesian theory, an increase in government consumption is likely to lead to an increase in employment, profitability and investment through multiplier effects on aggregate demand. Hence, government expenditure increases aggregate demand, which provokes an increased output depending on expenditure multipliers (Guandong and Muturi, 2016).

The Classical, Neo-classical and Public Choice Theory

Opposed to the Keynesian theory, classical, neo-classical and public choice theorists claim that government expenditure is bad for economic growth as a result of the crowding-out effect, because government spending displaces critical investments by the private sector due to resource constraints. Hence, the relationship between the two is negative (Lowenberg, 1990). Public choice theorists argue that as government size increases, and given the distortionary effects of taxation, government levels of inefficiencies are bound to increase. Hence, government spending is more likely to reduce economic growth.

Wagner's Law of Increasing State Activities

Adolph Wagner articulated his "law of rising public expenditures" by analysing trends in the growth of public expenditure and in the size of public sector. Wagner (1912) argues that economic growth is the fundamental for public expenditure growth. The theory posits that there is a long-run relationship between economic growth and public expenditure. Wagner (1912) emphasizes that as income increases; there is a tendency for public expenditure to rise. Wagner (1912) further noted that there is a direct relationship from economic growth to public expenditure.

Rostow - Musgrave Theory

Musgrave framework states that fiscal policy influences economic growth through its impact on allocation efficiency, the stability of the economy and the distribution of income (Guandong and Muturi, 2016). Musgrave (1999) undertook research on growth of public expenditure and

concluded that, at the early stages of economic development, the rate of growth of public expenditure will be very high because government provides the basic infrastructural facilities (social overheads). The theory argues that, given that projects undertaken by the government are capital intensive, government expenditure will increase rapidly. Investment in health, education and other social infrastructures become essential to move the economy to a take-off stage of economic development.

1.2.2 Review of the Empirical Literature

Several studies on the relationship between public expenditure and economic growth have been conducted within and across countries. While some studies find a positive relationship, several others have uncovered a negative relationship between public expenditure and economic growth. A brief review of the empirical literature is provided in this section.

Table 1 summarizes the relevant studies that find a positive relationship between public expenditure and economic growth. There are strong similarities in the findings and variables used to assess the effects of public expenditure on economic growth. The studies indicate that components of public expenditure have different effects on economic growth. Expenditures on health, education, transport and communication and housing sector expenditure have positive growth effects in developing countries (Alshahrani and Alsadig, 2014; Nurudeen and Usman, 2010; Ghosh and Gregoriou, 2008). These findings are consistent with the Keynesian Theory which considers public expenditure as a key fiscal policy tool that can be used to foster economic growth (Guandong and Muturi, 2016).

Table 1: Positive estimation of the relationship between public expenditure and economic growth

Study	Estimation Period	Estimation Approach	Dependent Variables	Key Independent Variables
Mazorodze (2018)	1979-2017	ARDL, DOLS, CCR	GDP	INV, CON
Abdieva, Baigonushuva and Ganiev (2017)	2000-2013	Engle-Granger Cointegration	GDP	GE
Kimaro et al. (2017)	2002-2015	GMM	GDP	GE
Leshoro (2017)	1976-2015	ARDL	GDP	INV, CON
Muyaba (2016)	1991-2015	ARDL	GDP	GE
Guandong and Muturi (2016)	2006-2014	Regression Model	GDP Per capita	GE
Al-Fawwaz (2016)	1980-2013	OLS	GDP	GE, CON
Alshahrani and Alsadig (2014)	1969-2010	Regression Model	GDP	HE, HSE, INV
Attari and Javed (2013)	1980-2010	Time Series Analysis	GDP	INV, CON
Egbetunde and Fasanya (2013)	1970-2010	ARDL	GDP	INV, CON
Wahab (2011)	1960-2004	Regression Model	GDP	INV, CON
Nurudeen and Usman (2010)	1979-2007	Regression Model	GDP	INV, CON, ED, HE, TCE
Ghosh and Gregoriou (2008)	1972-1999	GMM	GDP	INV, CON, HE, ED
Jiranyakul and Brahmasrene (2007)	1993-2006	Co-integration Analysis	GDP	GE
Bose, Hague and Osborn (2007)	1970-1980	Regression Model	GDP	INV, CON, ED

ARDL=Autoregressive Distributed Lagged, DOLS=Dynamic Ordinary Least Square, CCR=Canonical Cointegrating Regression, GMM=General Moment Model, OLS=Ordinary Least Square, INV=Investment

Expenditure CON=Consumption Expenditure GE=Government Expenditure, HE=Health Expenditure, HSE=Housing Sector Expenditure, TCE=Transport and Communication Expenditure.

Other studies find a negative and significant effect of public expenditure on economic growth. In Table 2 several studies that find negative growth effects of public expenditure are summarized. While several studies used general government expenditure as the key independent variable (Oloaye and Oladipo, 2019; Saez et al. 2017; Muyaba, 2016; Chirwa and Odhiambo, 2016; Ndambiri et al. 2012), few studies controlled for components of public expenditure, such as education expenditure, health expenditure and social security expenditure (Guandong and Muturi, 2016; Nurudeen and Usman, 2010). Studies that separated public expenditure into components find that consumption expenditure and public spending on recurrent costs have stronger negative effects on growth than public expenditure in general.

The results of the studies documented in Table 2 are not consistent with the Keynesian Theory. However, the results indicate and validate that public expenditure do matter for economic growth. The results suggest that fiscal policy influences economic growth and support the Musgrave argument which states that fiscal policy affects allocation efficiency and economic growth (Musgrave, 1999).

Table 2: Negative estimation of the relationship between public expenditure and economic growth

Study	Estimation Period	Estimation Approach	Dependent Variables	Key Independent Variables
Oloaye and Oladipo (2019)	1986-2016	VECM	GDP	GE
Radhi (2018)	1990-2014	ARDL	GDP	CON, INV
Saez et al. (2017)	1994-2012	Panel data Analysis	GDP	GE
Guandong and Muturi (2016)	2006-2014	Regression Model	GDP	SSE, GE, ED, HE
Muyaba (2016)	1991-2015	ARDL	GDP	GE
Guangdon and Muturi (2016)	2006-2014	Regression Model	GDP Per capita	GE
Chirwa and Odhiambo (2016)	1970-2013	ARDL	GDP	GE
Hasnul (2015)	1970-2014	OLS	GDP	INV, CON
Ndambiri et al. (2012)	1982-2000	GMM	GDP	GE
Butkiewicz and Yanikkaya (2011)	1970-1999	SUR	GDP per Capita	CON, P, TRD, INS,
Taban (2010)	1987-2006	ARDL	GDP	INV, CON
Nurudeen and Usman (2010)	1979-2007	VECM	GDP	INV, CON, ED, HE, TCE

VECM=Vector Error Correction Model, ARDL=Autoregressive Distributed Lagged, OLS=Ordinary Least Square, GMM=General Moment Model, SUR=Seemingly Unrelated Regression, VECM=Vector Error Correction Model, INV=Investment Expenditure CON=Consumption Expenditure GE=Government Expenditure, HE=Health Expenditure, HSE=Housing Sector Expenditure, TCE=Transport and Communication Expenditure SSE=Social Services Expenditure P=Population, TRD=Trade which is the sum of imports and exports, INS=Institutional Quality

In Table 3, studies that assessed the growth effects of institutional quality are summarized. The findings of the studies point to a positive relationship between institutional quality and other growth variables such as trade and human capital. The studies further show that institutional quality has long-run growth effects in both developed and developing countries.

Table 3: Estimations of institutional quality on public expenditure and economic growth

Study	Estimation Period	Estimation Approach	Dependent Variable	Key Independent Variables
Rizvi (2019)	1995-2017	Regression Model	GDP	HE, P, ED, INS
Maruta et al. (2019)	1980-2016	Regression Model	GDP	AID, INS,
Nguyen et al. (2018)	2002-2015	SGMM	GDP	INS, FDI, TRD
Asghar et al. (2015)	1990-2013	ARDL	GDP	INS
Mobarak and Karshanasan (2012)	1996-2007	Panel data analysis	GDP	INS
Valeriani and Peluso (2011)	1950-2009	Pool Regression	GDP	INS
Cooray (2009)	1996-2003	Regression Model	GDP	GE, INS
Ulubasoglu and Doucouliagos (2004)	1990-1999	Regression Model	GDP	INS
Adkins et al. (2002)	1982-2000	Stochastic Frontier Analysis	Economic Freedom	INS
Vijayaraghavan and Ward (2001)	1975-1990	SUR	GDP	INS
Grogen and Moers (2001)	1990-1998	Regression Model	FDI	INS
Ali and Crain (2002)	1975-1998	Regression Model	GDP	INS

ARDL=Autoregressive Distributed Lagged, SGMM=Special General Moment Model, SUR=Seemingly Unrelated Regression, INV=Investment Expenditure CON=Consumption Expenditure GE=Government Expenditure, HE=Health Expenditure, HSE=Housing Sector Expenditure, TCE=Transport and Communication Expenditure SSE=Social Services Expenditure P=Population, TRD=Trade which is the sum of imports and exports, INS=Institutional Quality AID=Foreign Aid FDI=Foreign Direct Investment

1.3 METHODOLOGY

1.3.1 Model and Estimation Technique

Regression analysis is a common method used to evaluate the determinants of economic development, including both short and long-term factors. This approach draws on several growth theories, including the Harrod-Domar, neo-classical, and endogenous growth theories, which emphasize the significance of capital, public policy, and investment in driving economic growth.

To investigate the relationship between government quality and the effects of public expenditure on long-run growth, the following econometric model is specified:

$$\Delta \text{GDP}_{i,t} = \alpha + \beta \text{GDP}_{i,t} + \gamma \mathbf{G}_{i,t} + \delta \mathbf{X}_{i,t} + \varepsilon_{i,t}.$$

$\Delta \text{GDP}_{i,t}$ is the real per capita GDP growth rate in country i in period t ; $\text{GDP}_{i,t}$ is the initial GDP per capita; $\mathbf{G}_{i,t}$ is a vector of variables related to government expenditure; and $\mathbf{X}_{i,t}$ is a vector of other explanatory variables that have been found to be key determinants of GDP growth. The analysis is based on data from West African countries over the period 1985-2019. Variables are measured as the five-year moving average, except for $\text{GDP}_{i,t}$ which is the GDP per capita value at the beginning of each five-year period. Constructing the dependent variable as a five-year forward moving average introduced serial correlation in the country-specific error terms such that, despite of being consistent, the standard errors of the Ordinary Least

Square (OLS) estimator are biased. Therefore, as an alternative estimation method that addresses this problem, Seemingly Unrelated Regression (SUR) is used (Zellner, 1962).

The SUR model proposed by Zellner (1962), is a collection of two or more regression equations which can be analyzed under a broad range of conditions. By jointly analyzing a set of regression equations, the SUR has the potential to provide more precise estimates and predictions (Zellner, 2006). An essential feature of the SUR model is that disturbances are assumed independent. Barro and Lee (2005) argue that SUR technique is more useful for time-series data analysis than the General Moment Method (GMM) because fixed-effect and first-differenced GMM estimates eliminate time-persistent cross-section information.

1.3.2 Data Description

Data for the growth of real GDP per capita are from the Maddison Project Database (2018) developed at the University of Groningen in the Netherlands. The vector $G_{i,t}$ comprises two government expenditure categories: Government consumption expenditure (CON) and government investment expenditure (INV). Data on government's expenditure is obtained from the World Development Indicators and measured as percentage of GDP. Other explanatory variables include the population growth rate (P), the current balance (CB) and trade (TRD). CB and TRD are measured as a share of GDP. As a further variable that influences GDP growth, a measure of Institutional quality (INS) is included. Data on institutional quality is based on the governance database compiled by Kaufmann, Kraay and Mastruzzi (2006). This data does not cover the whole sample period but ranges from 1996 to 2019.

Finally, as countries in the West African region have experienced different episodes of internal and external armed conflicts, a variable that measures periods of conflict (CONFLICT) is included in the estimation. The data on armed conflicts is obtained from the Uppsala Conflict Data Program (UCDP) at the Uppsala University and the Centre for the Study of Civil War at the Peace Research Institute Oslo (PRIO). The data stems from the latest version and covers the whole sample period, i.e., 1985-2019. The dataset is further described in Gleditsch et al. (2002).

Five-year moving averages were calculated for each variable. There are seven five-year periods for the data covering 1985-2019, beginning 1985-1989 and subsequently following. For institutional data covering 1996-2019, there are four five-year periods and one four-year period.

Table 4: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
GDP Per Capita	0.940	1.723	-2.87	6.64
CON	12.595	5.151	1.14	29.05
INV	19.659	10.324	2	50.62
P	2.652	0.641	-0.04	4.64
CB	-11.495	14.043	-75.73	9.82
TRD	62.248	23.068	5	123.69
CONFLICT	0.293	0.455	0	1
INS	-0.553	0.4868	-1.59	0.67

Source: Author's calculation from data

This chapter uses data on real GDP per capita to represent economic growth while government expenditure is divided into two categories, consumption expenditure and investment expenditure. The data on real GDP per capita growth rate (%) was obtained from the Maddison Project Database (2018) developed at the University of Groningen in the Netherlands. Data on government's expenditure was obtained from the World Development Indicators. This paper uses total consumption expenditure (% of GDP), while gross fixed capital formation (% of GDP) represents investment expenditure. Data on population growth rate (%), trade (% of GDP) and current balance (% of GDP) were also obtained from the World Development Indicators. The aforementioned data covered the period 1985-2019 for all West African countries.

Several variables to represent institutional quality were used in previous studies (Kaufman et al. 2009; Acemoglu et al. 2005; La Porta et al. 2002; Djankov et al. 200; Botero et al. 2004). They include democracy, autocracy, rule of law, government effectiveness, regulatory quality, control of corruption, voice and accountability, political instability, ease of doing business, etc. This paper uses the aforementioned indicators of institutional quality constructed by Kaufman et al. (2009). Data on institutional quality was obtained from the governance database compiled by Kaufmann, Kraay and Mastruzzi (2006) covering the period 1996-2019.

Some studies (Collier et al., 2003; Gleditsch et al., 2002) find conflicts to have a negative relationship with economic growth. Given the vulnerability of the West African region to armed conflict, data on both internal and external armed conflicts in West Africa was obtained from the Uppsala Conflict Data Program (UCDP) at the Uppsala University and the Centre for the Study of Civil War at the Peace Research Institute Oslo (PRIO) covering 1985-2019.

1.4 EMPIRICAL ANALYSIS AND RESULTS

OLS regression is employed to estimate the basic model. This technique analyzes the relationship between several independent variables and a dependent variable and produces consistent and optimal results. OLS regression is useful for analyzing patterns and relationship using time-series data.

1.4.1 Estimations using OLS

Table 5 displays the results from a range of estimations conducted on the growth effects of public expenditure using OLS regression. The table is divided into four (4) columns, each containing results from an estimation of the effects of government expenditure on Real GDP Growth.

In column 1, the effect of expenditure on growth using OLS regression is captured. From 1985-2019, government consumption expenditures have a negative and significant effect on per capita economic growth while investment expenditures have a positive effect on per capita economic growth for the same period. The growth effect of population, current balance and trade are 2.83%, -0.01% and 0.01% respectively. Population growth has the most significant and positive effect of per capita growth in West Africa of all the growth variables for the same period.

The estimates reported in column 2 show that consumption expenditures have negative and significant growth effect while investment expenditures have positive growth effect despite the inclusion of conflict in the model. Contrary to the theoretical prediction of the damaging effect of conflict on growth, conflict is reported to have a positive but insignificant effect on economic growth in West Africa during the period 1985-2019. Population growth and trade also have a

positive growth effect while the current balance negatively impacted on growth in West Africa between 1985 and 2019.

To assess the quality of government expenditure on growth, a variable that captures institutional quality of public expenditure on growth was included in the model covering the period 1995-2019 for all West African countries. With the introduction of institutional quality in the model, the negative effect of government expenditure on growth increases, the growth effect of current balance becomes positive and the positive impact of trade increases and becomes significant while population growth has a positive and significant effect. Particularly, the estimation shows that an increase in institutional quality leads to a 1.57% increase in per capita growth in West Africa during the period 1995-2019.

Column 4 captures the combined effect of conflict and institutional quality on GDP growth in West Africa between 1995 and 2019. The positive growth effect of both conflict and institutional quality increases when combined while investment expenditure, population, current balance, and trade have a positive effect. Consumption expenditure has a negative and significant effect on per capita growth.

Table 5: Effects of Government Expenditure on Growth-OLS Estimations

	Column 1		Column 2		Column 3		Column 4	
Number of Observations	112		112		80		80	
Number of Countries	16		16		16		116	
Time Period	1985-2019		1985-2019		1996-2019		1996-2019	
	OLS	P-Value	OLS with Conflict	P-Value	OLS with INS	P-Value	OLS With Conflict and INS	P-Value
CON	-0.27***	0.00	-0.27***	0.00	-0.35***	0.00	-0.35***	0.00
INV	0.03	0.36	0.03	0.34	0.01	0.88	0.01	0.87
P	2.83***	0.00	2.84***	0.00	4.15***	0.00	4.13***	0.00
CB	-0.01	0.64	-0.02	0.59	0.04	0.28	0.04	0.29
TRD	0.01	0.74	0.01	0.49	0.04*	0.07	0.04*	0.07
CONFLICT			0.34	0.65			0.18	0.85
INS					1.57	0.11	1.63	0.11

OLS-Ordinary Least Square; SUR-Seemingly Unrelated Regression; Real GDP Per Capita is the dependent variable; *** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level.

1.4.2 Estimations using SUR

OLS regression was used to estimate the basic models which contain 5 years average data for seven periods, covering 1985-2019. The OLS estimates could suffer cross-equation correlation of the disturbances. Therefore, Seemingly-Unrelated Regression was used to address the inefficiencies of OLS.

Table 6 show results of estimations conducted using SUR technique for the same data covering the same period, 1985-2019, for West Africa.

Using SUR technique, column 1 shows the results of the effect of expenditure on per capita growth. Between 1985 and 2019, government consumption expenditures have a negative and significant effect on per capita economic growth while investment expenditures have a positive effect on growth. While current balance has a negative impact of growth, population growth and trade positively impacted on growth in West Africa during the same period. With SUR estimations, the p-values of all variables improved. The improvement in the P-values of all variables is a reflection of the precision power of SUR technique.

Column 2 show the effect of conflict on growth in West Africa during the period 1985-2019. During this period, nine (9) out of the sixteen (16) countries covered in this research experienced armed conflict. Despite the inclusion of conflict, consumption expenditure remains negative and significant to per capita growth in West Africa. Population growth and trade have positive effects on growth. Consistent with the initial finding, conflict is positive but insignificant to growth in West Africa. With the use of the SUR technique, the P-values of all variables increased which reflects the robustness and efficacy of the SUR technique.

The effect of institutional quality on the effectiveness of government expenditure in West Africa between 1995 and 2019 is shown in column 3. Institutional quality is seen to have a positive and significant effect on growth while consumption expenditures have negative and significant growth effects. Trade, population growth and current balance have positive impacts on growth in West Africa for the same period. The estimations suggest that institutional quality matters for economic growth in West Africa. The results confirm a wide body of theoretical and empirical studies that find poor institutional quality such as corruption to be inimical to growth (United Nations Development Programme, 2011; World Economic Forum, 2008; Gray and Kaufman, 1998). The overall estimation is relevant and useful as shown by improvements in the P-values of all variables.

Column 4 captures the combined effect of conflict and institutional quality on public expenditure and growth in West Africa for the period 1995-2019. When combined, the magnitude of the growth effect of both conflict and institutional quality increases. Consumption expenditures have negative and significant growth effect while investment expenditures, population growth, trade and current balance have positive effects on per capita growth for the same period. While the estimated growth effect of conflict is inconsistent with previous studies (Collier et al., 2003; Gleditsch et al., 2002), the conflict coefficient is not significant. Importantly, unlike the basic model, the precision of the model improved as a result of improvements in the P-values of all variables.

Table 6: Effects of Government Expenditure on Growth-SUR Estimations

	Column 1		Column 2		Column 3		Column 4	
Number of Observations	112		112		80		80	
Number of Countries	16		16		16		16	
Time Period	1985-2019		1985-2019		1996-2019		1996-2019	
	SUR	P-Value	SUR with Conflict	P-Value	SUR with INS	P-Value	SUR With Conflict and INS	P-Value
CON	-0.27***	0.00	-0.27***	0.00	-0.35***	0.00	-0.35***	0.00
INV	0.03	0.34	0.03	0.32	0.01	0.87	0.01	0.87
P	2.83***	0.00	2.84***	0.00	4.16***	0.00	4.13***	0.00
CB	-0.01	0.63	-0.02	0.58	0.04	0.25	0.04	0.25
TRD	0.01	0.49	0.01	0.47	0.04**	0.05	0.04**	0.05
CONFLICT			0.34	0.64			0.18	0.84
INS					1.57*	0.08	1.63*	0.09

OLS-Ordinary Least Square; SUR-Seemingly Unrelated Regression; Real GDP Per Capita is the dependent variable; *** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level.

1.5 DISCUSSIONS OF THE RESULTS

The empirical estimates indicate that public expenditure affects real GDP growth. The composition of public expenditure is essential as different types of expenditure have differential impacts on growth. The estimations show that investment expenditure has a positive, though non-significant effect on real GDP growth, while consumption expenditures have detrimental effects on GDP growth. The results are consistent with earlier studies (Saez et al. 2017; Guandong and Muturi, 2016; Hasnul, 2015) and theoretical predictions.

The results indicate institutional quality matters for economic growth including the efficiency and magnitude of public expenditure. Institutional quality has a positive and significant effect on real GDP growth in West Africa and the result is consistent across all estimations. After controlling for institutional quality in the estimation, the significance level of public expenditure increases while the magnitude of the effect of consumption expenditure increases. The finding validates previous studies which show that indicators of lower institutional quality such as corruption and lack of accountability undermine economic growth and development (Olken and Pande, 2011; Sequeira and Djankov, 2010; Olken, 2009, Mauro, 1995), and also confirms earlier findings that strong institutional quality positively affects growth (Valeriani and Peluso, 2011; Cooray, 2009; Adkins et al. 2002; Grogen and Moers, 2001).

Conflict is reported to insignificant effects on economic growth. This is inconsistent with earlier findings (Collier et al. 2003; Glidtsch et al. 2002) that indicate that conflicts undermine growth. Other growth determinants, population growth, trade, and current balance have positive growth effects. The result is consistent across all estimations regardless of the estimation technique used.

The growth effect of population growth is positive, significant and contrary to the theoretical predictions of the Solow-Growth Model. While the Solow-Growth predicts an inverse relationship between population growth and economic growth, the results indicate that an increase in the population growth rate is associated with an uptake in per capita economic growth in West Africa between 1985 and 2019. Trade openness and enhanced international trade are expected to foster economic growth through growth in foreign reserves, employment and income.

1.6 CONCLUSIONS

In order to improve economic performance, fiscal authorities in West Africa must prioritize spending on productive economic activities over consumption activities. The investigation in this chapter shows that consumption expenditure has a negative effect on growth, whereas investment expenditure has a positive, albeit non-significant, growth effect. Taking into account the tight resource envelope of several countries in West Africa, significant investment in capital formation will not only expand the resource envelope in the medium to long-term but will positively contribute to economic growth.

While investment in capital formation is paramount, such investment could be undermined by weak institutional quality. The empirical estimations show that stronger institutions are essential for economic growth. It is therefore important that significant investments are made in strengthening institutional quality. In particular, reducing corruption and enhancing accountability will yield significant positive growth effects. Strong institutions will create the enabling environment for investment and private sector development while at the same time enhancing the efficiency of public expenditure. Without strong institutions, the positive impacts of investment expenditure will be moderated.

Improvement in trade openness and international trade are essential for economic growth in West Africa. As the international trade system improves and opportunities are accorded to low-income and developing countries to effectively participate in international trade, efforts to improve trade openness and the contribution of low-income economies to international trade will yield positive growth dividends. The African Continental Free Trade Area (AfCFTA), currently underway in Africa, presents enormous opportunities for countries in West Africa to expand and benefit from increased international trade. However, as several economies in West Africa are still struggling to develop their domestic productive capacity and have weak institutions, they risk losing out on the benefits and opportunities offered by AfCFTA.

Although the estimations reveal positive growth effects of population growth, it must be noted that the data did not take into account the characteristics of the population. The characteristics of the population are fundamental in determining the growth effects of population growth. In a study conducted by Agell, Lindh and Ohlsson (1997), the authors find that the inclusion of a measure of demographic structure, namely, the percentage of non-working age population, changes the estimated growth effects from negative and significant to positive and significant. The current study did not control for population characteristics and, therefore, additional analysis is required to adequately assess the effects of population growth on GDP growth.

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UNIVERSITAT ROVIRA I VIRGILI

GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN WEST AFRICA: AN EMPIRICAL INVESTIGATION

James Francis Davis

CHAPTER TWO

Assessing the Economic Impacts of Foreign Aid Expenditure in West Africa: An Empirical Analysis of the Effects of Aid Expenditure on Economic Growth

ABSTRACT

The economic impacts of foreign aid expenditure in developing countries remain a debatable topic in economics. Although extensive research has been conducted on this topic, no theoretical or empirical conclusion has been reached. Empirical studies conducted on this topic mostly suffer from endogeneity problems and failed to capture the effects of armed conflict on the efficiency of aid expenditure. Using Fixed Effect method and Instrumental Variable technique to address problems of endogeneity, this paper assesses the effects of aid expenditure on economic growth in West Africa while controlling for institutional quality and armed conflict. Data was obtained for the period 1985-2019. The study finds aid expenditures to have positive and significant effect on economic growth while conflict retards growth and undermines aid efficiency in West Africa. Institutional quality matters for economic growth as the empirical estimations show strong institutions enhance the efficiency of aid expenditure and spur growth in West Africa.

Key Words: Foreign aid expenditure, economic growth, institutional quality, conflict, West Africa

2.1 INTRODUCTION

Foreign aid is considered as a critical capital to close the savings and investment gap and promote economic growth in low-income countries, especially in Sub-Saharan Africa. By so doing, foreign aid plays an essential role by complementing domestic revenue and increasing the investment and capital needed for growth in poor countries. Foreign aid therefore becomes an essential external capital that is expected to substantially contribute to economic recovery and growth in low-income countries.

The Organization for Economic Cooperation and Development (OECD) defines Official development assistance (ODA) as technical aid, official grants, or loans having flexible terms, with a grant element of at least 25% aim at enhancing economic development (OECD, 2022). The ODA definition excludes grants, loans and credits for military purposes. The Development Assistance Committee (DAC) has been using ODA since 1969 as its standard for foreign aid.

The lack of economic development despite the release of foreign aid to developing countries motivated a substantial amount of empirical research seeking to assess the relationship between foreign aid and domestic savings. This group of studies found that the relationship between foreign aid and domestic savings in less developed countries is not as straight-forward as had been previously reported. Despite efforts made to address this issue from a range of different directions, no consensus was reached as these studies led to conflicting results. Recent studies also report inconclusive results, where some findings suggest that foreign aid has an impact on economic growth while others do not. Dambisa Moyo (2009) asserts that while development aid has risen in Africa, real per capita income has been on the decline.

However, the debates on the effectiveness of aid expenditure—that is, whether aid actually promotes economic growth, remains unsettled (Nissanke, 2013 and Rajan, 2005). Interests in the aid and economic growth debate have grown as huge amount of aid to underdeveloped countries have been recommended as a mechanism for reducing poverty and spurring economic growth (Minoiu & Reddy, 2009 and Sachs *et al.*, 2004). The debate has also been heightened by results from cross-country studies which have provided mixed outcomes on the effect of aid on economic development (Trinh, 2014). Yet, others have argued that the provision of foreign aid does not stimulate or contribute to economic growth of poor countries. Easterly (2007) maintained that foreign aid has been largely ineffective in promoting growth in poor countries. Still, others argued that aid contributes to economic growth but only under specific circumstances such as good macroeconomic policies and good governance (Burnside & Dollar, 2000).

The amount of foreign aid provided to West Africa has increased significantly in recent years. The OECD noted that ODA received as a percentage of government expenditure amounted to 31% in Cote d' Ivoire, 38% in Ghana, 73% in Gambia, 80% in Senegal, 91% in Guinea, 150% in Sierra Leone, 221% in Guinea Bissau and 771% in Liberia (OECD, 2008). Despite the massive aid expenditure in West Africa, recent data from the World Development Indicators shows that real GDP growth in West Africa is declining. Between 2015 to 2019, real GDP growth rate in West Africa plummeted from 2.17% in 2010 to 0.82% in 2019 whilst net aid received increased from US\$71 Billion in 2010 to US\$80.8 Billion in 2019. This trend is likely to continue as the recent global economic shocks occasioned by the Covid-19 is having significantly adverse effects on the economies of West Africa.

To date, there is no research that critically examines the growth impacts of aid expenditure in West Africa, and knowledge in this area is very important for development planning and financing. Therefore, this research fills the gap in the scholarly literature on aid expenditure and economic development by examining the relationship between aid expenditure and economic growth in West Africa taking into consideration the effects of armed conflict and institutional quality on the effectiveness of aid expenditure.

2.2 LITERATURE REVIEW

This section reviews the academic literature on the aid and economic growth relationship. The review takes a survey of the theoretical literature as well as the empirical literature. The sections that follow discuss the theoretical and empirical literature examining the aid and economic growth relationship.

2.2.1 Review of the Theoretical Literature

Several theoretical predictions have surfaced in the aid-economic growth literature which tends to explain the relationship between aid expenditure and growth. A review of the key theoretical arguments is provided.

The Savings and Investment Gap

The savings and investment gap theory argues that foreign aid is important to close the resource and financing gap created by low savings in poor countries so as to facilitate the movement of people out of poverty (Sachs, 2005). Proponents believed that foreign aid would supplement the domestic savings in the less developing countries and lead to more capital formation and investment that produces economic growth. Friedman (1958) was the first Economist who predicted that 'new aid programs would not lead to economic growth'. The argument of the gap models that foreign aid results to an increase in saving was later rejected by Griffin and Enos (1970).

Foreign Exchange Earning-Expenditure Gap Approach

Mckinnon (1964) and Chenery and Strout (1966) averred that aid is likely to have a substantial positive effect on growth of poor countries if it is used for the purchase of goods and services produced internationally and which are essential for economic growth. This is very important as the economies of underdeveloped countries are unable to operate at the optimum level due to the lack of essential goods and services and the insufficiency of foreign exchange reserves to finance the importation of these goods and services. Additionally, underdeveloped countries lack the capacity to improve foreign exchange income due to a decline in the trade of raw materials and an inelastic domestic supply condition. In order to attain sustainable growth, Prebisch (1964) argued for the transition of underdeveloped countries from primary commodity production to import substitution with the help of foreign aid.

Capital Absorptive Capacity Approach

Capital absorptive capacity is considered as limitations to the amount of capital that can be used to generate returns. It has been argued that low-income countries have limited capital absorptive capacity which undermines the efficient utilization of resources. However, with the help of foreign aid, specifically targeted towards programs such as skills development, human capital formation, establishment of technical institutions and training of managerial and technical personnel, underdeveloped countries can enhance their growth rate provided other conditions are appropriate. Chenery and Strout (1966) believed that developing countries have a shortage of technological abilities and managerial skills useful for producing essential goods and services. Hence, foreign technical aid is required to reduce this insufficiency (Burke & Estafahami, 2006).

Fiscal Deficit Approach

Developing countries have mostly faced difficulties in raising the needed revenue to meet the demands of the economy. In most developing countries, revenue generation constraints undermine the provision of essential services and hence, economic growth. The increasing expenditure pressures on governments in developing countries amidst inadequate revenue generation presents a critical development challenge for poor countries.

In order to address the aforementioned gap, foreign aid has been considered an important capital injection capable of closing the fiscal gap in developing countries. The three-gap model was added to the literature and contends that developing countries also lack an efficient source of revenue which further undermines the expenditure capability of developing countries (Bacha, 1990; and Taylor, 1990). This weakness was considered as fiscal deficit by Bacha (1990) and Taylor (1990) who believed that foreign aid is an important tool for supporting poor countries by providing capital that closes the fiscal gap and enabling developing countries to invest in productive activities.

2.2.2 Survey of the Empirical Literature on Aid and Economic Growth

The empirical literature on the relationship between aid expenditure and economic growth revealed mixed and inconclusive findings. A summary of the key studies is presented here.

Research conducted in the 1950's analyzed the context of the two-gap model of aid. The studies generally concluded that foreign aid contributed positively to economic growth. A number of subsequent studies confirmed this result in a variety of contexts. Building on earlier work, Chenery and Shout (1966) also reported that foreign aid increases economic development.

Levy (1988), followed by Gomanee, Girma and Morrissey (2005) and Ekanayake and Chatrna (2010), presented evidence that foreign aid has contributed positively to growth in Sub-Saharan African countries through the channel of funding public investment. Walt Rostow (1990) concluded that foreign aid is a recipe for development in developing countries and argued that developed countries should provide aid to poor countries in order to improve the economic conditions of recipients. Burnside and Dollar (2000) used a standard cross-country panel regression model and reported that foreign aid increases growth in an improved macro policy environment.

Clemens *et al* (2004) undertook a study that assessed the effects of aid allocated to support the budget and balance of payments commitments, infrastructure development, agricultural

development and private sector growth. The researchers find that foreign aid allocated to the aforementioned areas will positively affect growth in the short-run while aid targeting improvement in democracy, environment, health and education will have a positive long-term effect on growth. Similarly, Hatemi and Irandoust (2005) investigated the relationship between aid and growth among the six major recipients of aid from Sweden between 1974 to 1996 and concluded that foreign aid positively contributed to the economic growth experienced by those countries.

Karras (2006) investigated the relationship between foreign aid and per capita GDP growth. The researcher used annual data from 1960 to 1997 for a sample of 71 aid recipients. The author concluded that foreign aid has a positive and significant effect on growth. Similar research conducted by Gomanee, Girma and Morrissey (2005), using data from a sample of 25 Sub-Saharan countries covering the period 1970 to 1997, found that foreign aid has a significant positive effect on development. The researchers further identified investment as the most significant growth-enhancing transmission mechanism.

Andrews (2009) recognized the need for foreign aid flow to developing countries. He realized that the huge budget deficits, import-export gap and compounding investment problems in poor countries have ignited the flow of foreign aid from developed countries to poor countries. However, the researcher found evidence which suggest that despite the large amount of aid received by African countries, their economic conditions remain the same (Andrews, 2009).

Using cointegration and error correction mechanism, Bhattarai (2009) investigated the correlation between aid and per capital real GDP in Nepal during the period 1983-2002. The research included policy variables including macroeconomic stability, financial sector development and openness in an extended model. The results show that foreign aid has a positive and statistically significant effect on per capita real GDP in the long-run. More importantly, aid effectiveness improves in good policy environment. In support of Rostow's argument, Tadesse (2011) contended that foreign aid is essential because of its potential to finance investment gaps and its ability to enhance economic development in poor countries.

Clemens *et al* (2012) analyzed the aid data taking into consideration time effects of aid. The research shows that increases in aid is associated with rise in investment and growth. The result indicates that aid yields a certain level of growth in poor economies. Although the magnitude of the relationship is small, the effect differs greatly across countries and vanishes at high levels of aid.

Other studies on the aid expenditure and growth nexus found a negative relationship. Hayter (1971) viewed foreign aid as a form of modern imperialism that does not contribute to growth. Hayter (1971) argued that the intended benefits of foreign assistance may not be achieved due to damaging consequences of aid.

Boone (1996) reinvigorated the aid effectiveness debate in the mid 1990's. He used a panel of 91 developing countries covering the period 1971 to 1990 to investigate the effect of foreign aid on investment, consumption, and measures of well-being in less developed countries and concluded that foreign aid leads to an increase in government consumption rather than increasing investment or growth. Brautigam and Knack (2004) reported that foreign aid may actually increase corrupt activities in the recipient countries because of the presence of more resources for the interested people to fight over. Kasper (2006) argued that despite receiving over US\$1 trillion in aid over the past 50 years, it has not produced any significant impact on the economic growth of Sub-Saharan countries. The author attributes the poor performance of aid in Sub-Saharan

countries to corruption which has hindered growth in the most aid-recipient countries in Sub-Saharan Africa.

In an attempt to identify reasons why the literature had been so inconclusive, Doucouliagos and Paldam (2006) averred that much of the differences between studies are a result of data and specification differences. Kourtellos, Tan and Zhang (2007) and Alvi, Mukherjee and Shukralla (2008) argued that the impact of foreign aid on growth differs among previous studies due to existing endogeneity resulting from the exclusion of important control variables. They also argued that the relationship between aid and growth is non-linear. In other studies, Headey (2007) contended that bilateral aid did not have an impact on growth during the Cold War period because such aid served the geopolitical interests of donors. The study used a dataset of 56 countries covering the period 1970 to 2001 and found that multilateral aid flows were more effective than geo-politically driven bilateral aid flows during the Cold War period. On the other hand, Headey (2007) found that bilateral aid has a positive and large growth effect in the post-Cold War era.

Rajan and Subramanian (2007) examined the effects of aid on growth in cross-sectional and panel data and found little robust evidence of the relationship between aid inflows into a country and its economic growth. The research also found no evidence that aid is more effective in better policy or geographical environments, or that certain forms of aid work better than others. In another study, Rajan and Subramanian (2008) provide evidence that total aid is ineffective and does not promote growth.

An examination of the effect of aid on six of the poorest African countries was conducted by Mallik (2008). Using co-integration methods, the results showed that there was a negative relationship between foreign aid and economic growth in the long run for most of the countries, while there was no significant effect of aid on growth in the short-run.

Ekanayake and Chatrna (2010) found mixed effects of foreign aid on economic development in their study of 85 developing countries, covering Asia, Africa, Latin America and the Caribbean over the period spanning 1980 to 2007. They found that foreign aid positively impacted Sub-Saharan countries but negatively affected other regions of the world.

Nissanke (2013) examined the multilateral aid allocation mechanism and system. The researcher examined the debt sustainability framework and analysis of the World Bank and the International Monetary Fund which has become the leading analytical tool for determining the right mix of aid allocation to low-income countries. The researcher identified several problems with the debt sustainability framework and analysis including the inability of the framework to consider country-specific structural handicaps as a reflection of the characteristics of low-income countries, the lack of objectivity in the measurement of country policy and the institutional environment, the inability of the framework to capture the dynamic interactions and relationships between macroeconomic variables and all sectors of an economy. These problems negatively affect aid allocation decisions for low-income countries as well as the efficacy of aid in low-income countries.

Phiri (2017) investigated the impact of aid on the economic outputs of 12 least developed countries in Sub-Saharan Africa over a period of 20 years. The researcher used a fixed effects instrumental variable approach and the results imply that aid has a statistically insignificant negative growth effect. The researcher concluded that aid is ineffective in promoting growth, perhaps due to misallocation of aid or inefficient use.

2.3 METHODOLOGY

In order to adequately examine the aid-economic growth relationship, the sources of growth need to be identified. For the purposes of this research, growth is measured by GDP per capita (in constant prices and PPP adjusted) as the best indicator of economic growth as it has a critical role in human development. It is expected that once the income level of residents of a country is high, there is a strong likelihood that the standards of living are also higher (Abouraiia, 2014). Higher standards of living increase the chances of residents to afford adequate health care, food and education. Anand and Ravallion (1993) found positive correlations between GDP and human development indices. GDP growth may result in a decrease of poverty rates and an increase in private expenditure thereby stimulating further growth and development.

The appropriate function relevant for identifying growth factors is the production function. Hence, this paper uses the Cobb-Douglas aggregate function to identify key growth determinants best suited for the econometric model. The aggregate Cobb-Douglas function can be represented as follow:

$$Y = A K^\alpha H^\beta = A K^\alpha (h*L)^\beta$$

where Y is Gross Domestic Product (GDP); A is total factor productivity (TFP); K is fixed capital inputs; H represents human capital which is the product of labor force (L) and human capital index (h); α and β represent national income share accrued to fixed capital and human capital, respectively.

An analysis of the data and literature led to the selection of the following key growth determinants: population growth, trade openness measured as the sum of exports and imports, the current balance and institutional quality. Population growth is expected to slow economic growth according to the Solow-Growth model while improvements in trade openness and the current balance are good for long-term economic growth. Effective institutions are expected to improve the efficiency of aid expenditure resulting in more economic growth. Studies show that aid is effective in enhancing growth in good policy environment as compared to environments with ineffective policies and/or institutions (Burnside & Dollar, 2000 and Collier & Dollar, 2001; 2002).

2.3.1 Estimation Model and Technique

The econometric analysis evaluates both short and long-term determinants of economic development and is based on several theories including the Harrod-Domar, neoclassical and endogenous growth theories. Hence, this paper uses the below formula to facilitate the examination of the impacts of aid expenditure on economic growth in West Africa:

$$\Delta \ln(gdp_pc)_{t,i} = \beta_0 + \beta_1 \ln(gdp_pc)_{t-1,i} + \beta_2 \ln(ODA)_{t,i} + \beta_3 P_{t,i} + \beta_4 CB_{t,i} + \beta_5 TRD_{t,i} + \beta_6 INS_{t,i} + \beta_7 Conflict_{t,i} + \theta_i + \varepsilon_{t,i}$$

where gdp_pc is the per capita gross domestic product growth rate serving as a proxy for economic growth; ODA represents foreign aid and denotes the ratio of ODA to GDP; P represents the population growth rate; CB represents current balance and is measured as a share of GDP; TRD represents trade and is measured as a share of GDP; INS is institutional quality; and CONFLICT is a variable that capture the impacts of armed conflict and is of particular relevance to the context of the research. CONFLICT undertakes the value of 1 during periods of armed

conflict and 0 during periods of non-armed conflict. Considering that several countries in West Africa experienced armed conflict during the research period, and its likely influence on the effects of aid expenditure on economic growth, it is of utmost importance to include CONFLICT as an explanatory variable in the model. Lastly, θ_i indicates country fixed effects and ε represents the error term of the model.

The inclusion of ODA and investment in the econometric model can be problematic and can cause biasness in the results. The formula above includes ODA and excludes investment as there could be a problem of double counting given that some elements of investments might be financed by foreign aid (Feeny, 2005). Although other researchers may choose to use ODA and investment in the model, doing so will result in model misspecification and undermine the very purpose of the research (Fenny, 2005 and Gomanee *et al.*, 2002).

With the use of time-series data across several countries and to eliminate time-persistent cross-section information, Ordinary Least Square(OLS) method is used to estimate the basis model.. As OLS estimation might yield biased estimates, fixed-effects regression is also used to assess the effects of aid expenditure on growth over the period 1985-2019. The fixed effects model is essential for controlling for unobserved individual-level differences that may be correlated with the response variable.

In order to check for potential endogeneity between foreign aid and other explanatory variables in the model, this paper uses instrumental variables regression. This method has been recognized in the econometric literature as a useful approach for handling endogeneity issues while providing precise estimates for informed policy analysis.

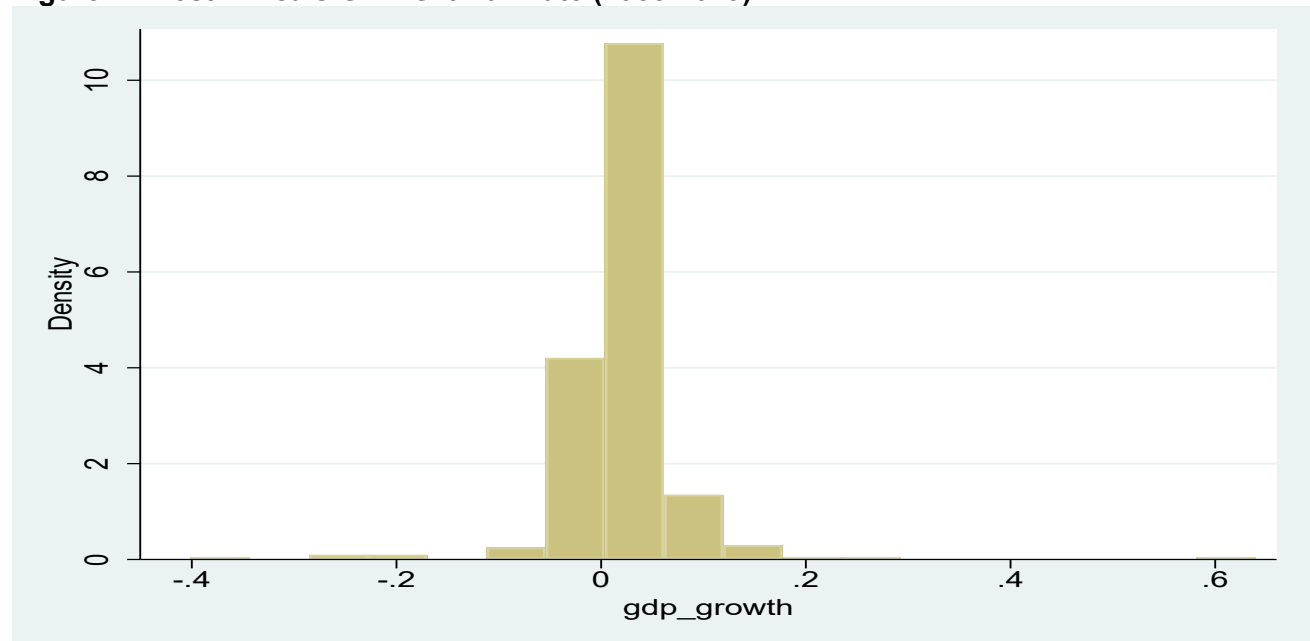
2.3.2 Data Description

The current research employed real GDP per capita to represent economic growth. ODA is used in this paper to represent foreign aid. Additional data include population growth rate, trade, and current balance and conflict. Yearly data for the aforementioned variables were obtained from 1985 to 2019.

Real GDP per capita growth data were obtained from the Madisson Project Database (2018) developed at the University of Gronigen in the Netherlands, while data on ODA are from the OECD database. Data on population growth rate (%), trade (% of GDP), and current balance (% of GDP), were obtained from the World Development Indicators Database. Given the importance of institutional quality to growth and aid effectiveness, data on institutional quality was obtained. This paper uses the indicators of institutional quality constructed by Kaufman *et al* (2009). Unlike other variables, data on institutional quality covered 1996-2019.

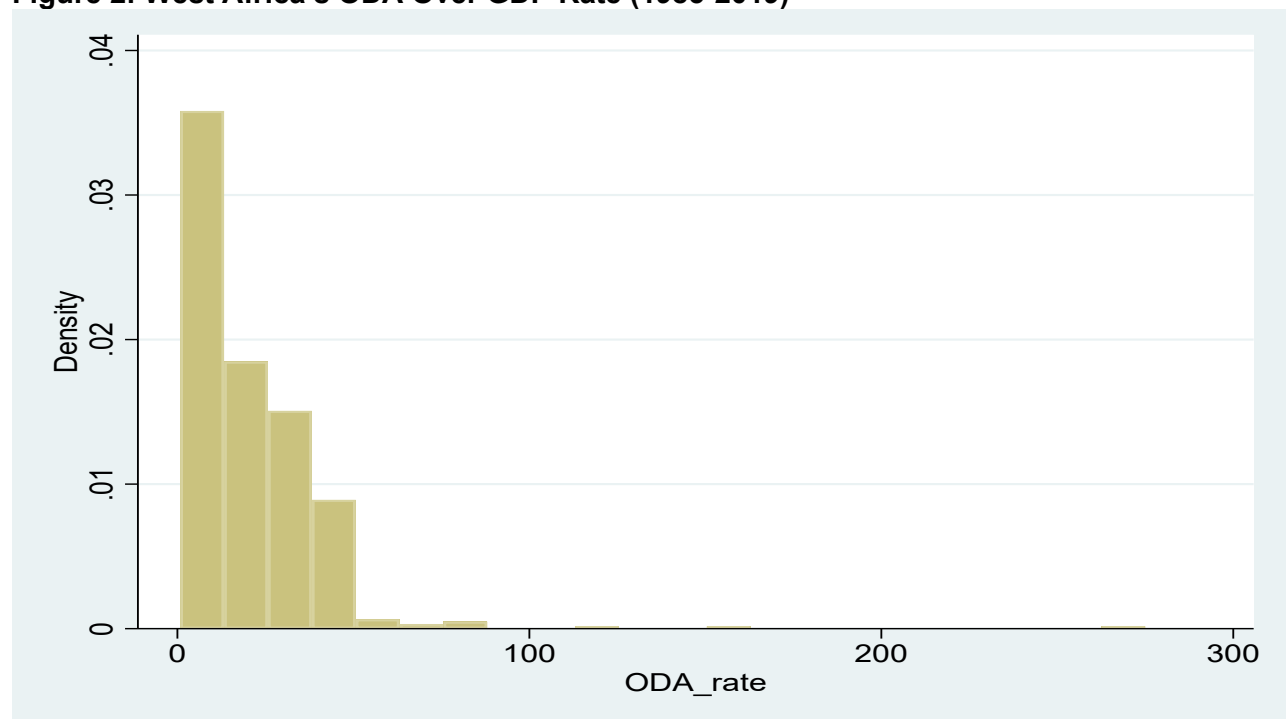
Figures 1 and 2 show the distribution of GDP and ODA in our sample. To guard the results to the impact of outliers, the sample is restricted to observation of GDP growth between -5% and +5% and ODA of less than 100% of GDP. After data trimming, the analysis is based on 282 observations from 15 countries. The summary statistics of the data are displayed in Table 6.

Figure 1: West Africa's GDP Growth Rate (1985-2019)



Source: Author's construction based on GDP data obtained

Figure 2: West Africa's ODA Over GDP Rate (1985-2019)



Source: Author's construction based on aid data obtained

Considering that conflict impacts on growth, the model uses data on armed conflicts, which include both internal and external armed conflicts experienced by the different countries in the West African region. The data on armed conflicts is obtained from the Uppsala Conflict Data Program (UCDP). The data is the latest version and covered the period 1985-2019. The dataset is further described in Gleditsch, *et al.* (2002).

Table 6: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
GDP growth	0.013	0.022	-0.046	0.049
ODA	18.745	14.707	0.807	79.566
P	2.673	0.555	1.06	4.63
CB	-12.609	16.374	-152.18	23.05
TRD	63.738	25.805	20.72	270.36
INST	-3.349	2.806	-8.97	3.62
CONFLICT	0.142	0.350	0	1

The number of observations is 282.

2.3.3 Correlation Analysis

In order to check the relationship between the independent variables for potential collinearity, the Pearson Correlation Coefficient was employed. The Pearson Correlation Coefficient is a measure of the linear association between two variables. It has a value between -1 and 1 where: -1 indicates a perfectly negative linear correlation between two variables; 0 indicates no linear correlation between two variables; and 1 indicates a perfectly positive linear correlation between two variables. Table 7 shows the correlation matrix for the independent variables:

Table 8: Correlation Matrix of Independent Variables

	ODA	P	CB	TRD	INS	Conflict
ODA	1					
P	0.05	1				
CB	0.11	0.03	1			
TRD	-0.03	-0.00	-0.70	1		
INS	-0.01	-0.16	0.06	-0.09	1	
Conflict	-0.07	-0.11	0.16	-0.21	-0.17	1

The data in Table 7 show that that there is no strong correlation between any of the independent variables considered in this study. For example, the correlation coefficients between ODA and population growth and current balance are 0.05, and 0.11, respectively, indicating that these variables are basically not correlated. There is a negative correlation between ODA and trade, institutional quality and conflict. Also, the correlation coefficient between population growth and current balance is 0.03 indicating they are not correlated while there is a negative correlation between population growth and trade, institutional quality and conflict. Overall, Table 6 shows that there is no correlation between the independent variables considered in this study.

2.4 EMPIRICAL ANALYSIS AND RESULTS

2.4.1 Estimations using OLS

In Table 9, the results from several empirical estimations using OLS on the effects of foreign aid on economic growth in West Africa are outlined. The table has 3 columns, each containing results from the different estimation stages of the model. The last column includes the estimates from IV estimation.

The first column captures the effect of foreign aid expenditure on growth in West Africa while controlling for the growth effects of population and trade openness between 1985-2019. During the period 1985-2019, the estimation shows that an increase in aid expenditures result in a 0.022% increase in GDP growth, population growth increases GDP growth by 0.058% while the current balance, trade and conflict have negative growth effects. Only the growth effects of population growth and conflict turn out to be significant. These results confirm the findings of Collier *et al.* (2003) who obtain that civil wars/conflict have negative consequences to economic growth.

To assess the efficiency of aid expenditure on growth, institutional quality was included in the model and the results of the estimations are outlined in the second column of the table. With the introduction of institutional quality in the model, the effect of trade on growth becomes positive but insignificant while the growth effect of aid expenditures and population growth remains positive but insignificant. Specifically, the estimations show that institutional quality has positive and significant growth effect in West Africa while conflict reduces growth by 0.051%. This result confirms the conclusions that aid expenditure can be effective in expanding growth in good policy environments (Burnside & Dollar, 2000 and Collier & Dollar, 2001; 2002). This finding also confirms the results of earlier studies (Gray & Kaufman, 1998; UNDP, 2011 and WEF, 2008) which find that high corrupt practices undermine economic growth and development.

The third column shows the results of a Two-stage Least Square Instrumental Variable regression. Instruments for ODA, GDP-loglagged, population growth, current balance, trade, conflict and institutional quality. The estimation shows that an increase in aid expenditure have positive and significant effect on growth while population, trade balance and conflict show negative growth effect. The estimation further indicates that current balance has positive but insignificant growth effect during the period 1985-2019.

In order to conduct the tests of endogeneity, null and alternative hypothesis were created. The null hypothesis states that foreign aid is exogenous and is represented by the equation: $H_0: ODA=EXO$; while the alternative hypothesis states foreign aid is not an exogenous variable and is represented by the equation: $H_1: ODA \neq EXO$. As shown in the table, both Durbin and Wu-Hausman statistics have very smaller p-values; hence, the null hypothesis that foreign aid is exogenous is rejected. Therefore, the econometric model was right in treating foreign aid as an endogenous variable.

Table 9: Effects of Foreign Aid Expenditure on Economic Growth-OLS Estimations and Instrumental Variable Regression

	Column 1		Column 2		Column 3	
Number of Observations	282		282		282	
Number of Countries	15		15		15	
	OLS without INS	P-Value	OLS with Conflict and INS	P-Value	IV Regression	P-Value
ODA	0.0022	0.111	0.0016	0.246	0.0230**	0.015
GDP-Loglagged	0.0093***	0.008	0.0038	0.344	0.0162***	0.004
P	0.0058*	0.082	0.0044	0.182	-0.0061	0.376
CB	-0.0001	0.320	-0.0000	0.786	0.0000	0.829
TRD	-0.0000	0.934	0.0000	0.783	-0.0001	0.515
CONFLICT	-0.0085**	0.037	-0.0051	0.222	-0.0277***	0.006
INS			0.0015***	0.006		
R ²	0.04		0.07			
F-test	2.04*	0.060	2.88	0.006***		
Durbin Chi(2)1					9.26	0.00
Wu-Hausman					9.31	0.00

OLS Regression; *** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level.

2.4.2 Fixed Effects Model

As the data has panel structure, fixed-effects regression is also used to assess the effects of aid expenditure on growth over the period 1985-2019. The fixed effects model is essential for controlling unobserved individual-level differences that may be correlated with the response variable. Further, the fixed-effect method produces consistent estimates of the coefficients even in the presence of correlation between the explanatory variables and the individual-specific effects. Unlike OLS and other linear regressions methods, fixed-effect method limits the sources of bias to time-varying variables that correlate with the treatment as well as with the outcome over time (Brüderl and Ludwig, 2015). Table 9 presents the estimation results using fixed-effect method.

Column 1 in Table 10 reveals the effect of foreign aid expenditure on growth in West Africa employing fixed-effect regression. The results indicate that an increase in foreign aid expenditure reduces growth rate in West Africa during the period 1985-2019 while population growth and trade have positive growth effect during the same period. The results further show that current balance has negative but insignificant effect on growth while conflict has negative and significant effect on growth during the period 1985-2019. The result further confirms that conflict undermines growth as noted in the findings of Collier *et al.* (2003)

Column 2 in Table 10 shows the results of a Two-stage Least Square Instrumental Variable regression used to determine possible collinearity between foreign aid and other independent variables, GDP-loglagged, population, current balance, trade, conflict and institutional quality. The estimation shows that an increase in aid expenditure increases GDP significantly by 0.023%, while current balance and trade have no significant impact on GDP growth. The estimation further indicates that conflict reduces growth by 0.06% and is significant at the 5% level. This finding is consistent with earlier research works (Collier *et al.* 2003 and Glidtsch *et al.* 2002) which found armed conflicts to have negative effects on economic growth. Armed conflicts create significant negative economic shocks which undermine productive economic activities and hence, economic growth.

First-stage instrument variable estimation indicates that lack of institutional quality undermines the efficiency of aid expenditure on growth, whereas foreign aid is larger in periods of conflict. In order to assess the validity of the instruments, two tests were conducted, an underidentification and an overidentification test of all variables. While underidentification is rejected with high significance, overidentification cannot be rejected. These results suggest that the instruments for ODA are valid. Overall, both OLS and fixed effects estimation that treat ODA as an endogenous variable that has to be instrumented, show that ODA has had a significant impact on GDP growth in West African countries over the last decades.

Table 10: Effects of Foreign Aid Expenditure on Economic Growth-Fixed Effects Estimations and Instrumental Variable Regression

	Column 1		Column 2	
Number of Observations	282		282	
Number of Groups	15		15	
	FE Without INS	P-Value	IV Regression	P-Value
ODA	-0.0002	0.943	0.0230**	0.015
GDP Loglagged	0.0000	0.997	0.0162***	0.004
P	0.0119**	0.024	-0.0061	0.376
CB	-0.0000	0.917	0.0002	0.829
TRD	0.0003	0.148	0.0001	0.515
CONFLICT	-0.0066*	0.090	-0.0277***	0.0006
ADDITIONAL INSTRUMENTAL VARIABLE TESTS				
			Coefficient	Chi-sq(2) P-Vale
Underidentification Test(Anderson Canon. Corr. LM Statistic)			10.694***	0.0048
Sargan Statistics(Overidentification Test of all Instruments)			0.156	0.6930

Fixed Effects Regression; *** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level.

2.5 CONCLUSIONS

The economic impacts of foreign aid expenditure in developing countries remain a debatable topic in economics. The present study reexamines the impact of foreign aid on economic growth in West African countries over the period 1985-2019. The empirical results of both OLS and fixed effects estimation indicate that ODA must be considered an endogenous variable. Instrumental variable estimation in both cases indicates that ODA has had a significant impact on GDP growth in West African countries over the last decades.

Aid expenditure is necessary for closing the fiscal gaps in West African countries and enhancing economic development. This suggests that efforts on the part of West African countries to attract larger aid will be critical for enhancing growth. While heavy reliant on aid is counterproductive, efficient use of aid can unleash economic opportunities, address development challenges and put countries on the right development trajectory. Given the huge fiscal gaps in West African countries, aid will be critical to enhancing government expenditures that contribute to development.

In order to attract aid and enhance the efficiency of aid expenditure, strong institutions are required. The empirical estimations confirm that better institutional quality is essential for obtaining foreign aid and, thus, for economic growth. Considering that institutional quality is declining in West Africa, it is therefore important that significant investments are made in strengthening institutional quality. In particular, reducing corruption and enhancing accountability will yield significant positive growth effects. Strong institutions will create the enabling environment for the efficiency of aid expenditure while at the same attracting foreign investment.

Some limitations of the present study should be kept in mind. The current study did not capture the effects of different aid modalities and different aid expenditure on growth. While the overall effect of aid expenditure is positive and significant for economic development, differences in aid delivery modality and types of aid expenditures could have differential effects on growth. Further analysis on the effects of aid delivery mechanisms and the types of aid expenditure on economic growth will be required. Finally, the study also did not capture the effect of human capital which could have differential growth effects. Hence, the population growth effect on economic growth must be read with caution as further analysis is required to fully capture the growth effects of population.

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UNIVERSITAT ROVIRA I VIRGILI

GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN WEST AFRICA: AN EMPIRICAL INVESTIGATION

James Francis Davis

CHAPTER THREE

Evolution of poverty, inequality and economic growth in West Africa: An Empirical Investigation

ABSTRACT

The effects of inequality and poverty on growth have been extensively debated in the literature with studies providing conflicting results. However, understanding the effects of inequality and poverty on economic growth is cardinal for informing development policies in West Africa where poverty and inequality present significant development challenges. Despite the decline in poverty, economic growth measured by GDP per capita is sharply declining in West Africa. Using recent yearly data covering the period 1980-2022 and applying multilevel modeling techniques (fixed effects and random effects models), this paper empirically investigates the effects of inequality and poverty on per capita growth in West Africa. The empirical estimates reveal that economic growth matters for both inequality and poverty reduction. Per capita growth reduces income inequality as well as the incidence and intensity of poverty in West Africa. Importantly, the regressions show that increases in crop production reduce poverty and inequality; hence, improvement in agricultural production is critical for enhancing equality in West Africa. The findings suggest that policies and programs boosting economic growth in West Africa may also allow to reduce inequality and poverty.

3.1 INTRODUCTION

There is an ongoing debate in the academic literature on the determinants of poverty and inequality in developing countries. The inclusion of economic growth has deepened the controversies and discussions regarding the interrelationship between poverty, inequality and economic growth. Understanding the interplay between poverty, inequality and growth is even more critical for countries in Sub-Saharan Africa as poverty presents a huge challenge for their economic development.

The relationship between poverty and inequality is not straightforward (Beteille, 2003). While the concept of income inequality focuses on the distribution of monetary well-being, poverty only focuses on the lower end of the distributional spectrum (McKay, 2002). Inequality describes the differences in living standards and well-being of humans and affects development, democratic life, and social structures in societies (UNDP, 2013). Economic inequality often correlates with social inequalities, such as inequality of ethnicity, religion, gender or language, and political inequality, creating mutually reinforcing forces of marginalization. Inequality can be viewed as two highly interrelated concepts: inequality of outcomes and inequality of opportunities (UNDP, 2013). Inequality of opportunity stems from the background or conditions that shape an individual's ability to achieve matters, such as access to education. Inequality of outcomes is, on the other hand, measured as results, such as income earned.

The Kuznets hypothesis, coined after its author, was developed in 1955 in his article 'Economic Growth and Income Inequality' and has influenced economic research on inequality and growth over the years. Kuznets (1955) argued that as economies grow, inequality will initially rise and subsequently fall after a turning point, in line with the progress achieved through the stages of economic development. This inverted U-shaped curve with inequality plotted against income per capita was reflected in the limited data available at that time. Subsequent studies have disputed Kuznets' empirical findings (Ravallion, 1995; Deininger and Squire, 1997), casting doubt on the inevitability of the inverted U-shaped relationship between income and inequality.

Bourguignon (2004) developed the poverty–growth–inequality triangle to highlight that the differences in absolute poverty in a country reflects the change in growth and inequality in that country. In the poverty-inequality-growth triangle thesis, Bourguignon (2004) explains how the changes in absolute poverty can be attributed to changes in income growth and income inequality. Changes in poverty can be seen as a function of growth in the mean income and changes in the distribution of the relative income. Following the work of Bourguignon (2004), numerous theoretical and empirical studies have emerged examining the relationship between poverty, inequality and economic growth.

Three key results have emerged from studies on the poverty-inequality and growth nexus (Ravallion and Chen, 1997; Dollar and Kraay, 2002). The first result suggests that economic growth and changes in inequality are statistically uncorrelated. This leads to the rejection of the Kuznets hypothesis at least regarding the two decades preceding the 2000s. Despite inequality and economic growth appear to be uncorrelated on average, inequality seems to play a crucial role in the relationship between growth and poverty reduction. The second result indicates that poverty declines as the economy grows. The level of inequality in a country determines the responsiveness of poverty reduction to economic growth and is a mediating factor in the relationship. The third result espoused by Ferreira (2010) indicates that the absolute value of the poverty–growth elasticity falls with inequality, meaning that the poverty reduction response to economic growth is stronger among low-inequality countries (Fosu, 2017; Kwasi, 2010).

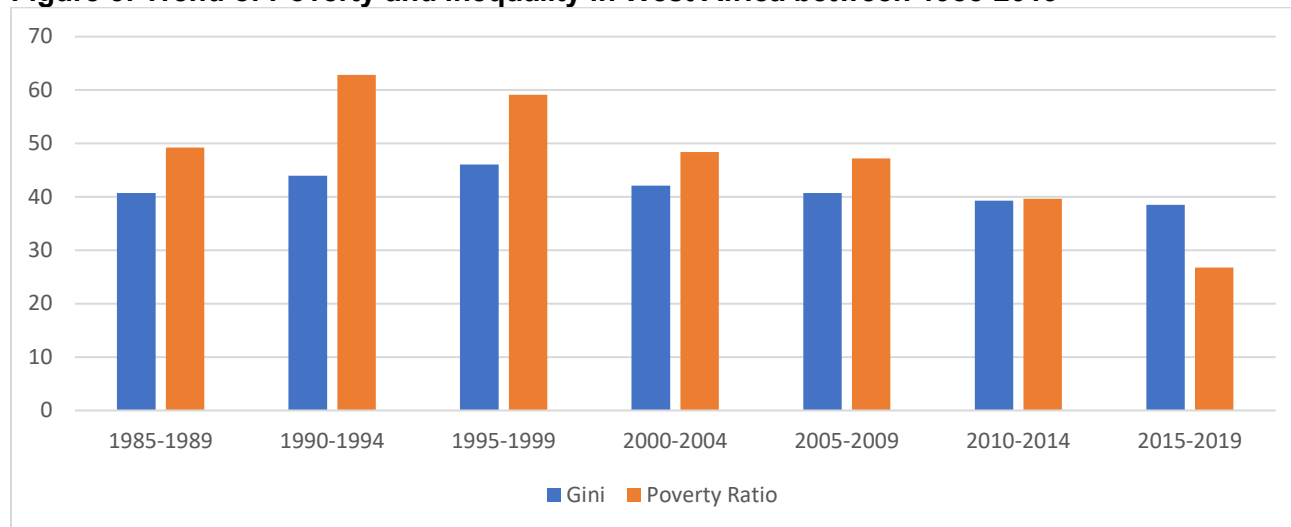
Accordingly, various studies find that there is large variation in the transformation of economic growth into poverty reduction across countries.

The poverty, inequality and growth nexus has been investigated in the literature with some studies indicating that economic growth can lead to higher incomes for people experiencing poverty through the “trickle-down” effect (Dollar and Kraay, 2002). However, when economic growth primarily benefits the wealthy, inequality can worsen, and poverty may persist (Nindi and Odhiambo, 2015). While many developing countries have experienced economic growth, this has yet to translate into reductions of poverty and inequality due to domestic policies and weak governance mechanisms (World Bank, 2022). Significant contributions to the debate include studies by Ali and Yao (2004) and Banerjee and Duflo (2011), who emphasized the importance of inclusiveness in reducing poverty and inequality.

The global financial crisis and the devastating economic and social impact of the COVID-19 pandemic have engendered renewed interest in investigating the relationship between poverty, inequality and economic growth. Although the empirical findings continue to inform ongoing discussions on poverty and inequality in the developing world, the empirics are complex and contentious. This has generated heated debates on effective strategies for addressing rising poverty and inequality in developing countries, especially those in Sub-Saharan Africa.

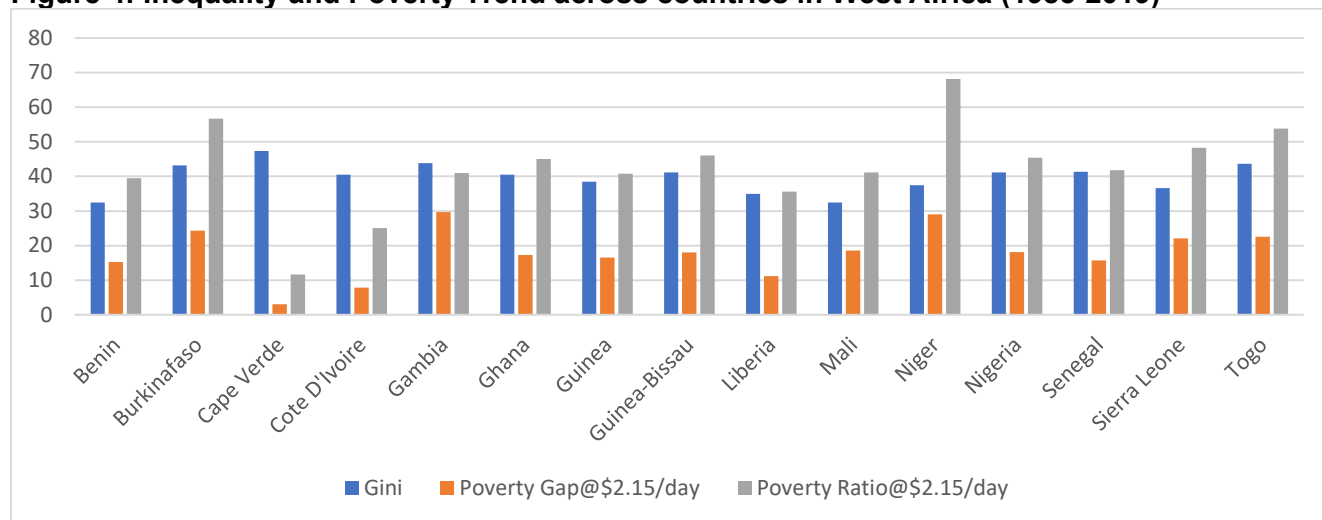
Although studies have been conducted to investigate the effect of inequality and poverty on growth, there is no research using recent data that analyses the effects of inequality and poverty on growth in West Africa. Figures 3 and 4 below show the trend of poverty and inequality in West Africa and its countries between 1985-2019. The figure reveals that the poverty ratio in West Africa is declining in West Africa while inequality remains nearly constant and high relative to the poverty ratio in the last 10 years.

Figure 3: Trend of Poverty and Inequality in West Africa between 1985-2019



Source: Author's construction based on data obtained

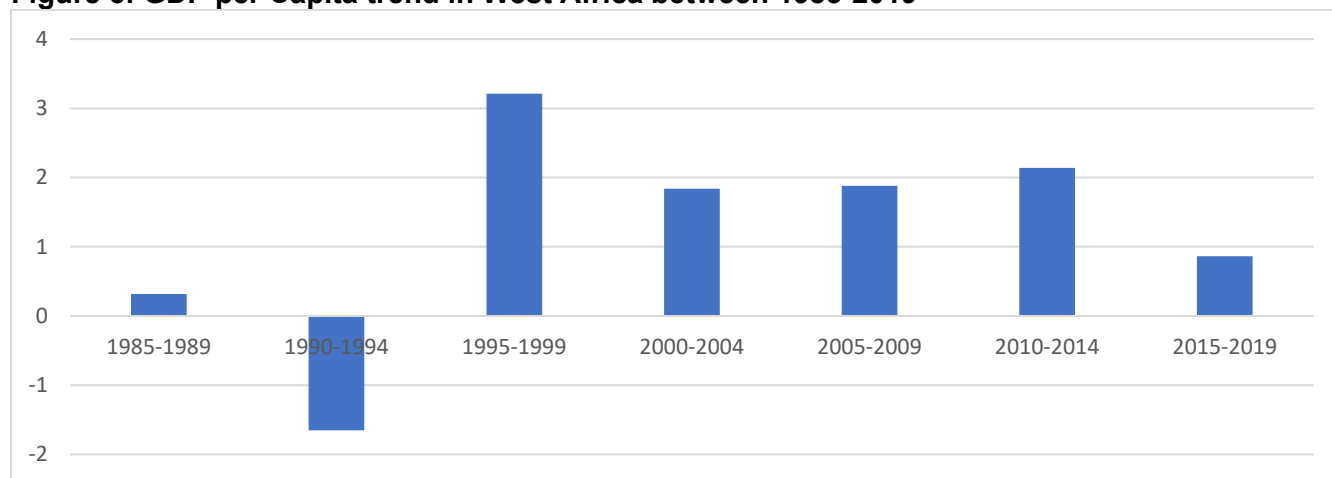
Figure 4: Inequality and Poverty Trend across countries in West Africa (1985-2019)



Source: Author's construction based on data obtained

Analyzing and understanding the relationship between poverty, inequality and growth in West Africa is of outmost importance. While Figure 3 shows high inequality but modest decline in poverty in West Africa during the period 1985-2019, Figure 5 reveals a sharp decline in GDP per capita in West Africa during the same period. The aforementioned data highlights the need for delving more into the interrelationship between poverty, inequality and economic growth in West Africa.

Figure 5: GDP per Capita trend in West Africa between 1985-2019



Source: Author's construction based on data obtained

Given the decline in GDP per capita in West Africa and the challenges that inequality and poverty pose to growth, this study extends the existing literature by providing new empirical evidence on the effects economic growth on inequality and poverty in West Africa. Understanding these interrelationships are important. Despite the decline in the poverty ratio, West Africa is experiencing a sharp decline in GDP per capita. The literature review reveals that no recent study has investigated the effects of inequality and poverty on growth in West Africa under recent

changing economic conditions. This paper therefore aims to close the aforementioned gaps in the literature.

3.2 LITERATURE REVIEW

Considering the plethora of theoretical models and empirical studies, the review of the literature discusses both the theoretical literature and the empirical literature. A review of both the theoretical and empirical literature in separate sub-sections will provide a comprehensive insight into the academic literature on the poverty-inequality and economic growth relationship.

3.2.1 Review of the Theoretical Literature

The literature contains several theoretical models that discuss poverty, inequality and economic growth. Discussing the core theoretical frameworks and arguments will provide the basis and rationale behind the empirical literature. Hence, the key theoretical frameworks are briefly reviewed in this part of the paper.

Poverty Traps-Theoretical Models

Banerjee and Duflo (2011) argued that poverty traps exist whenever the scope for growing income or wealth at a very fast rate is limited for those who have too little to invest but expands dramatically for those who can invest a bit more. Poverty traps are characterized by the need for significant investment to escape poverty. When individuals lack this capital, they may also find it difficult to acquire it, creating a self-reinforcing cycle of poverty.

Studies by Banerjee and Duflo (2011) and Dutt and Tseling (2019) identified a range of factors that drive poverty traps, including malnutrition, health, education, productivity, knowledge, and financial risk. Childhood malnutrition and health issues are essential challenges because of their long-term effects through educational attainment and future income through productivity. Spending priorities, lack of knowledge, under-utilized preventive care, and lagged outcomes are, however, some of the causes of why the issues are difficult to handle (Banerjee and Duflo, 2011).

Banerjee and Duflo (2011) indicated that the poor are generally more risk-averse due to the higher impact of losses on their lives. This is interconnected with the lack of available insurance and the inadequately adapted credit markets for the poor. Thus, the poor have to take the risk themselves to a higher degree and are therefore less likely to take larger risks. The risk-averse behaviour diminishes their possibilities of achieving greater success. Not only does this lead to a lower chance of escaping the poverty trap, but it also contributes to a lower level of investments in the aggregate economy.

An essential avenue for escaping poverty is human capital, as argued by Lucas (1988) in his endogenous growth models. However, human capital development is often hindered by the quality of education, high drop-out rates and credit constraints (Galor and Zeira, 1993). Credit constraints also present additional hindrance to escaping poverty. Financial markets are incentivized to create credit constraints and unfavorable process for the poor because of the large, fixed costs and higher risk in financial services (Banerjee and Duflo, 2011). Furthermore, a functioning socio-economic environment is essential for efficient educational attainment and productive use of the acquired human capital (Banerjee and Duflo, 2011). This includes better urban planning and the construction of safety nets that facilitate migration to urban employment. Credit constraints are a central growth-reducing mechanism recognized in both poverty and inequality theories. Overall, Banerjee and Duflo (2011) emphasized the role of manpower and

knowledge for economic growth, and hence advocate for education, security, and nutrition as a foundation for growth. Lack of knowledge and the responsibility to make the correct decisions for themselves are some of the reasons for the persistence of poverty amongst the poor.

The Neoclassical Growth Model

The standard theory that discusses economic growth is the neoclassical growth model (Solow 1956), in which output is a function of factors of production, including capital, labor, and total factor productivity. Investment leads to capital accumulation, which increases the marginal product of labor and the wage paid to workers. In addition, growth arising from increases in total factor production raises the marginal products of both capital and labor and, hence, the income payments that they receive. Higher investment and/or higher technological progress imply higher production and higher incomes for everyone in the economy. In addition, because of diminishing returns to capital, capital-poor countries are expected to grow faster and eventually converge to capital-rich countries.

Drawing on the neoclassical framework, Hausmann, Rodrik, and Velasco (2005) developed a general framework, "growth diagnostics," designed to inform policymakers on how to prioritize growth policies in a context of multiple distortions by targeting the most binding constraints. As in the neoclassical framework, with its emphasis on investment, economic growth depends on three elements: the returns to capital accumulation, their private appropriability, and the cost of financing capital investment. Distortions that can lower the return on capital include high taxes or expropriation risk, large negative externalities, low productivity, or insufficient investment in infrastructure or human capital. Distortions that increase the cost of financing investment include underdeveloped domestic financial markets due to lack of banking competition or a poor regulatory framework, and impediments to international financing due to high country-risk premium, excessive regulation of the capital account, or external debt vulnerabilities. However, the growth diagnostics analysis relies on a representative agent approach, which, like the Solow model, does not illuminate the distributional impacts of growth policies.

Savings and Incentives Theory

The effect of inequality on economic growth can be explained using the savings and investment analysis. According to this view, saving rates are increasing functions of wealth. Hence, rich people have a higher propensity to save than poorer people and accumulate larger savings. The larger savings of the rich allow for more investments in comparison to the poorer who can invest less. Overall, this increases the aggregate savings and the capital accumulation in the economy. Income inequality will, therefore, through an increase in the rate of capital investment result in higher economic growth and development. The model implies that the magnitude of the higher propensity to save of the rich is larger than the reduction in investments by the poor, which is identified as a hinder for growth in the models of credit constraints.

The differences in saving rate between rich and poor have effect of growth. Kaldor (1957) noted that since the richer save more of their income, higher income inequality can lead to a higher national savings rate, a higher investment rate, and greater accumulation of capital, and consequently, higher economic growth. Dynan, Skinner and Zeldes (2004) find evidence in the United States which supports the notion that both saving rates and the marginal propensity to save are positively correlated with the level of income, suggesting that higher income inequality can lead to a higher savings rate, consistent with Kaldor's hypothesis.

Inequality provides incentives to work, save, and invest—those who do will receive higher returns than those who do not. Differential returns incentivize good behaviors that promote growth. Milton Friedman based his opposition to redistributive policies aimed at reducing inequality of outcomes on the grounds of efficiency, arguing that they could distort incentives and induce an inefficient allocation of resources (Friedman, 1962; Friedman and Friedman, 1980). In a capitalist system, the distribution of income is consistent with the ethical principle, “To each according to what he and the instruments he owns produce.” This implies that in a free market economy, people should be rewarded according to their marginal productivity, resulting in some inequality of outcomes. Friedman emphasized that this inequality of outcomes could be necessary to provide incentives to perform certain types of tasks that could be risky or tedious (Friedman and Friedman, 1980). Moreover, compensation schemes that reward relative performance and thus generate inequality can provide incentives for workers to invest in skills and exert strong efforts (Lazear and Rosen, 1981).

Inequality and Growth-Imperfect Capital Market

The relationship between inequality and economic growth can be explained from using the imperfect capital market and political economy analysis. According to this theorem, inequality disincentivizes human capital investments and hence deters growth. This has been argued to take place through two mechanisms: imperfect capital markets (Galor and Zeira, 1993) and political economy channels (Alesina and Rodrik, 1994; Persson and Tabellini, 1994). The first mechanism of imperfect capital markets focuses on human capital as a source of growth while the political model, alike the classical approach, views physical capital as a driving force of economic growth.

When the financing of physical and human capital requires credit, the existence of credit rationing will hinder growth (Galor and Zeira, 1993). This mechanism relies on the assumptions of credit market imperfections and indivisibilities in human capital investments. When information is costly and imperfect, credit rationing will take place because of the asymmetric information between the parties. The poor often have less credibility to prove their ability to reimburse, which is why individuals born into families with less assets are less likely to access credit (Stiglitz and Weiss, 1981). Therefore, at a given level of per capita income, more unequal wealth distribution leads to a higher incidence of credit-constraint and lower growth (Galor and Zeira, 1993). The initial distribution of wealth is hence a decisive factor for the level of credit-constraint and consequently affects the aggregate level of investments in an economy. The level of credit-constraint not only has short-run but also long-run effects on investments and the skill level. The skill level is affected because of the indivisibility of human capital investments. A higher incidence of credit-constraint diminishes the possibilities for education, causing a lower level of human capital accumulation. The low level of human capital accumulation can have intergenerational effects, as those with a lower skill level often earn less and can therefore not invest in their children’s education. As human capital is an important source of growth, a lower aggregate level of human capital hinders economic growth. The differences in growth rates and steady states between countries can, therefore, be explained with differences in wealth distribution, where the more unequal countries lag behind. The more unequal countries have a higher share credit-constraint and consequently lower human capital accumulation.

Inequality-Political Economy Analysis

Alesina and Rodrik (1994) and Persson and Tabellini (1994) presented an alternative channel for the negative relationship between inequality and economic growth. They argue that the distribution of wealth and income affects economic growth through political channels. Higher

inequality causes conflict over the distributional assets, which can result in political instability and greater volatility in policies. These consequently hinder economic growth. Furthermore, the level of inequality affects the relative position of the median voter. In a more unequal society, the median voter is poorer and, therefore, prefers a higher tax burden. Capital owners, on the other hand, favor a lower tax burden, which is optimal for economic growth (Alesina and Rodrik, 1994). The median voter's preference incentivizes the government to increase the tax rates, which in turn decreases the rate of return on private assets and constrains capital accumulation. Thus, the median voter of an unequal society will make political decisions that hinder economic growth. Moreover, the level of inequality affects the possibilities for political lobbying and access to political markets. The rich have more political power through these channels and will take part in rent-seeking activities, which reduce the security of property rights (Persson and Tabellini, 1994). More unequal income distribution, therefore, causes slower economic growth.

Unemployment-Income Inequality

Economic recessions resulting from a variety of shocks, including financial distress and pandemics, can reduce long-term output and generate large spikes in unemployment and inequality and declines in capacity utilization (Heathcote, Perri, and Violante, 2020). Unemployment creates income losses in the short term, especially for those in lower-income groups such as people with lower educational attainment, ethnic minorities, and women (Hoynes, Miller, and Schaller, 2012). Unemployment often results in scarring effects on incomes over the longer term. As shown by Von Wachter, Song, and Manchester (2009), 15 to 20 years after a layoff, earnings can be depressed by as much as 20%, as workers' skill set becomes outdated, and they lose skills that are specific to the jobs lost in a specific industry. As described in Okun's law (Cerra et al., 2021), unemployment varies inversely with cyclical growth. Higher growth generates employment, which improves inclusion. In general, economic volatility is associated with both lower growth and higher inequality (Cerra et al., 2021).

3.2.2 Empirical Literature

This paper organizes the empirical literature into two core groups. The first group of literature reviews studies that examined the relationship from poverty to inequality and economic growth. The second strand of literature reviews studies that investigate the relationship from inequality to poverty and economic growth.

Review of studies examining the poverty-economic growth relationship

The controversy about the relationship between poverty, inequality and economic growth have triggered a range of empirical studies exploring their linkages. Dollar and Kraay (2002) investigated the systematic relationship between economic growth and poverty reduction for a sample of 92 countries from 1950 to 1999. These authors found a robust pattern across countries where the share of income of the first quintile of the population varies proportionally to average incomes. They uncovered a strong and positive relationship between these two variables, with a correlation coefficient that is not statistically different from one. Dollar and Kraay (2002) also evaluated the extent to which policies and institutions that have been identified in the literature as promoting growth can play a role in reducing poverty by increasing the share of income of the poorest quantile. The main conclusion of this analysis is that growth-enhancing policies and institutions do benefit the poor and the rest of the society in equal proportions.

Davis (1995) indicates that resource wealth – particularly mineral wealth –enhances the welfare of the poor. However, Ross (2003) finds that, after controlling for initial income, a state's dependence on mineral exports in 1970 is robustly associated with worsened conditions for the poor in the late 1990s. Other types of primary commodities are not linked to poverty. While both oil and nonfuel minerals are associated with poverty, the causal mechanisms are different (Rose, 2003). The research shows that states in Nigeria that are dependent on nonfuel minerals experienced slow growth whereas oil-dependent states experienced crowding-out of growth in the manufacturing sector and a lack of democracy.

Feldstein (1999) argues, with reference to the Pareto principle, that increased income of top earners does not make the poorer worse off and inequality is, therefore, not necessarily harmful. Increasing inequality is caused by returns to human capital, entrepreneurial activities, longer working hours, and capital, none of which harm the poorer. Policies should, therefore, shift towards a poverty reduction focus. Feldstein (1999) discusses the three sources of poverty to be long-run unemployment, lack of earnings ability, and individual choice. These causes should be prioritized in policymaking instead of inequality reducing aims, as they are harmful to all parties.

Aigbokhan (2000) analyzed poverty profile and the polarization of income distribution in the face of structural policy reforms. Using 1985/1986, 1992/1993 and 1996/1997 national consumer survey data, the author found evidence of increased poverty and inequality, particularly in the rural and northern part of the Nigeria and among male-headed households. Bello and Roslan (2010) shows an increase in per capita GDP increase poverty by 0.6%. Ichoku et al. (2012) find that income growth was not pro-poor due to the unsuitable income redistribution. Also, inequality increases GDP growth with consequential trickling down effect on poverty (Nkaku, 2015). Similarly, Edeme et al. (2017) examine the dynamic relationship between poverty and inequality using Nigeria microdata and find that present and past inequality levels significantly impact poverty.

Ravallion (2001) found empirical evidence to show that economic growth tends to 'trickle down' to people experiencing poverty, thus reducing poverty. In response, Bourguignon (2004) proposed a framework to test the poverty-growth-inequality triangle hypotheses empirically and found that poverty is influenced by economic growth, distribution, and distributional changes. Notwithstanding, critics of the poverty-growth-inequality triangle argued that Bourguignon (2004) focused on aggregate concepts, which failed to capture the disaggregated nature of the interrelationships. Further, it is argued that economic growth and inequality are broad concepts that make tracing these relationships difficult.

Lopez and Servén (2009) investigate the role of poverty on economic growth using a sample of developing and developed countries between 1960 and 2000. They establish a negative impact of poverty on economic growth. The results are robust for various poverty line measurements, different sets of control variables, and estimation methods. High poverty levels are found to hamper growth through investments. This mechanism is found at low levels of financial development, which is contradicting to the results by Iradian (2005). Lopez and Servén (2009) discuss the level of financial development as a key mechanism in poverty traps through credit rationing. The findings indicate a 10% increase in poverty to cause a 0.8 to 1.1% reduction in annual per capita growth. Inequality is included as a controlling variable to ensure that the effect is driven by the bottom share of the income distribution and is found to be insignificant. Therefore, the paper advocates for poverty reduction policies as a mechanism to aid economic growth.

Adeyemi, Ijaiya and Raheem (2009) analyzed the determinants of poverty in Sub-Sahara Africa by using cross country data of 48 countries and find that increase in population causes increase

in the level of poverty in the sub-region. Klasen and Lawson (2007) find strong empirical evidence that the currently high population growth puts a considerable break on per capita growth prospects in Uganda. Moreover, it contributes significantly to low achievement in poverty reduction and is associated with households being persistently poor and moving into poverty. At the micro-level, the literature is also full of evidence that large households are associated with poverty (Lanjouw and Ravallion, 1994; Szekely, 1998).

Gries and Redlin (2010) examined the short-run and long-run dynamics of growth, inequality and poverty on a panel of 114 developing countries and six regional sub-panels for 1981–2005 and finds that in nearly all cases the variables exhibit a short-run and long-run relationship. The findings further reveal positive bi-directional causality between growth and inequality, inequality and poverty, and negative bi-directional causality between growth and poverty. Salvador and Diana's (2012) finding supports the assertion that growth causes unidirectional poverty reduction. Khan et al. (2014) examined growth-inequality-poverty triangle and found that poverty is increased by income inequality while growth reduces poverty.

Ormonde (2011) examines the question of whether mineral resource rents have helped to reduce poverty rates in countries with an extensive mineral base in a cross-country case study analysis involving Botswana, Nigeria, Zambia, Bolivia, Chile, and Venezuela. The results indicate that Chile and Botswana have managed to utilize mineral rents to propel strong economic growth and reduce poverty, but inequality levels remain high in both countries. Levels of poverty are noticeably the lowest in Chile while Nigeria and Zambia, which have been unable to capitalize on their extensive mineral bases to poverty rates, have the highest poverty rates among the countries. On the other hand, Venezuela and Bolivia have experienced both volatile economic growth and varied levels of poverty. Recently, Ulriksen (2012), using natural resource dependence, measured as natural resource exports as percentage of GDP, find that natural resource dependence has a significant positive effect on poverty in selected developing countries, including Botswana.

Ravallion (2012) finds initial poverty to have a negative effect on growth in developing countries, but only conditional on the controlling of the initial mean income distribution. High levels of initial poverty both hamper subsequent growth as well as reduce the effect of growth on poverty reduction. Furthermore, the initial inequality is only found to affect growth when it includes a high incidence of poverty. The results are, therefore, more applicable to developing countries where the poverty headcount ratio is likely larger than in developed countries.

McKay and Perge (2013) took a different approach in investigating the existence of poverty traps by measuring wellbeing with assets rather than consumption or income in order to achieve less volatile results. They aim to distinguish between the transient poor and chronic poor to understand the differing effects on growth. While they are unable to find evidence for multiple dynamic equilibria, the results cannot refute the existence of a static structural poverty trap at a low level of asset ownership. The accumulation of income and assets may create multiple equilibria due to obstacles that only allow a few to escape the traps (McKay and Perge, 2013). Similarly, Vijayakumar (2013) argues that the lack of social and economic participation can hamper economic growth, creating a cycle of poverty and deterioration. He finds a significant and positive relationship between the dependency ratio and poverty, and vice versa using cross-country data of Asia, Sub-Saharan Africa, and Latin America. The dependency ratio is a demographic measure of the dependent population, under the age of 14 or over the age of 65, to the working-age population. Furthermore, economic growth is negatively and significantly associated with the dependency ratio. Vijayakumar (2013) thus argues that increasing poverty increases the dependency ratio, which causes a negative spiral of the poverty trap over generations. He

mentions education, health, and awareness as key variables to reduce the dependency ratio and achieve growth.

Using panel data of 85 countries covering the period from 1960 to 2000, López and Servén (2015) find that a 10 percentage-point increase in the poverty rate reduces the GDP per capita growth rate by 1 percentage point. In particular, an increase in the poverty rate reduces the investment rate for countries with low levels of financial development. There is also evidence that the negative impact of poverty on growth depends on the initial level of poverty. In a sample of 156 countries covering the period from 1960 to 2010, Marrero and Servén (2018) find that for low levels of poverty (below the median), poverty has an insignificant impact on growth. In contrast, when the poverty rate is high, a 10 percentage-point decrease in headcount poverty is associated with an increase in economic growth ranging from 1% to 2% per year.

Dutt and Tsetlin (2019) compared the explanatory power of poverty and inequality for economic development. They used various machine learning approaches to predict and compare the explanatory powers of different measures of income distribution. The results indicate the poverty headcount ratio to be of higher significance for predicting schooling, institutional quality, and income per capita than the Gini index. The poverty headcount ratio is also more strongly correlated with the schooling and income per capita at the time, while neither poverty nor the Gini index are associated with contemporary institutional quality. The results question the strong focus on inequality in the literature and suggest that more attention should be directed towards the bottom of the income distribution.

Studies examining the income inequality-economic growth nexus

Alesina and Rodrik (1994) and Persson and Tabellini (1994) presented similar theoretical models in which the distribution of wealth and income affects economic growth negatively through political channels. Alesina and Rodrik (1994) tested their theory empirically using a sample of countries at various levels of development between 1960 and 1985. Their estimations indicate that both land inequality and the Gini index are significantly and negatively correlated with subsequent growth in the long run. Clarke (1995) confirms the findings for various measures of inequality and several regression specifications. He uses a sample that consists of both developing and developed countries between 1970 and 1988. Despite the significance of the results, the size of the effect is small, as a one standard deviation decrease of inequality below the mean increases annual economic growth between 1.3% and 2.5%. Likewise, Persson and Tabellini (1994) confirm the results using the initial relative position of the median income earner as a measure of inequality for both pre- and post-war data. The pre-war data consists of developed countries while the post-war sample includes both developed and developing countries. The negative effect of inequality is found to apply to both samples, but their findings are conditional on the presence of democracy in the countries. Inequality is only found to have a significant effect on economic growth in democratic countries. Thus, they suggest that the mechanism through which inequality affects growth could be political. The finding is, however, disputed by Alesina and Rodrik (1994), Clarke (1995), and Deininger and Squire (1998), where the first two do not find a difference in the relationship regarding democracy and the latter find contradicting results.

Galor and Tsiddon (1997) find that a concentration of high-skilled workers in technologically advanced sectors allows a higher rate of technological innovation, promoting higher growth rates but also increasing inequality. Using fixed effects panel data techniques, Cingano (2014) finds a negative effect of inequality on growth for a sample of 30 OECD countries for the period between 1970 and 2010. Berg et al. (2018) find that net inequality has a negative effect on growth in a

sample of advanced and developing countries, and moderate redistribution through taxes and transfers does not have statistically significant effects on growth.

Deininger and Squire (1998) find a negative relationship between initial asset inequality and long-term economic growth. The relationship is found to be robust for a sample of developing countries but becomes insignificant when only high-income countries are included in the sample. They discuss two possible theories for the negative relationship: credit rationing (Galor and Zeira, 1993) and political bargaining (Persson and Tabellini, 1994). However, the insignificant results for democratic countries counterprove the idea of the growth effects of political bargaining and voting mechanisms. More credible reasoning, according to Deininger and Squire (1998), is that credit rationing of indivisible investments excludes those with limited or no assets from making profitable investments. This is supported by the finding that initial inequality is found to be more harmful to the poor than the rich. Thus, their results challenge the political theories presented by Alesina and Rodrik (1994) and Persson and Tabellini (1994). Instead, the mechanism might operate at a lower level of inequality, suggesting that more focus should be placed on poverty. Deininger and Squire (1998) also tested the effect of initial income inequality on subsequent growth but did not find it to be significant. Furthermore, the significance of the initial asset inequality ceases when regional dummies are introduced, which causes the authors to question the robustness and validity of the results. These results suggest that regional-specific characteristics may instead be driving the relationship between initial asset inequality and economic growth.

Forbes (2000) and Iradian (2005) find a positive relationship between inequality and growth in the short to medium-term by using average three to seven-year panels. Forbes (2000) studies a data set of 45 countries between 1966 to 1995, limited to mainly developed countries. Both studies use the Gini index as a measure of inequality. The researcher finds a 10% increase in the Gini index to cause a 1.3% increase in average annual growth. The data is skewed towards developed countries due to data quality issues, which questions the applicability and robustness of the results for developing countries. The sample used by Iradian (2005), however, includes a higher share of developing countries between 1965 and 2003, and confirms the positive relationship also for developing countries. The positive relationship between inequality and growth is weaker in countries with more financially developed markets, suggesting that inequality drives growth through credit market imperfections (Iradian, 2005).

Based on African data, Ali and Thorbecke (2000) find that poverty is more sensitive to income inequality than it is to income. At the country level, a number of studies have found positive effects of inequality and income on poverty (Datt and Ravallion, 1992; Kakwani, 1993). Adams (2004) provides elasticity estimates showing that the growth elasticity of poverty is larger for the group with the smaller Gini coefficient (less inequality). More recently, Fosu (2008; 2009; 2010a, b) make similar observations for the Africa region. For example, Fosu (2010b) finds that the responsiveness of poverty to income growth is a decreasing function of inequality, and that the income elasticity of poverty is actually smaller than the inequality elasticity.

The impact of inequality on growth can also depend on the initial level of development. Barro (2000) estimates the impact of inequality on growth by splitting a sample of 100 countries into high- and low-income samples. In that specification, there is a negative relationship between inequality and growth for poor countries, while the relationship is positive for richer countries. The empirical results suggest that in the presence of credit constraints, inequality prevents low-income households from accumulating human and physical capital, resulting in lower growth in poor countries. On the other hand, the positive relationship observed in richer economies is consistent with the traditional growth-enhancing effects of inequality emphasized by Kaldor (1957).

Banerjee and Duflo (2003) find a nonlinear relationship between changes in inequality and growth. They argued that growth is an inverted U-shaped function of changes in inequality such that a change in the Gini coefficient in either direction is correlated with lower future growth. The outcome of their research rejects the standard linear specification of cross-country growth regressions and suggests an explanation for the seemingly contradictory results obtained in the literature. However, the non-linear relationship could also reflect omitted variables in the empirical model. For instance, Aiyar and Ebeke (2020) show that the negative effect of inequality on growth largely depends on the degree of intergenerational mobility. In countries with higher intergenerational mobility, the negative impact of income inequality can be more easily reversed because the poor have more opportunities to improve their living standards. In particular, they show that in their specification, the nonlinear term proposed by Banerjee and Duflo (2003) is not statistically significant, suggesting that intergenerational mobility could be capturing the nonlinear relationship between inequality and growth.

The effects of inequality on output might also differ across economic sectors. Erman and Te Kaat (2019) identified the effect of inequality on industry-level value added growth. The authors used a data set that included 22 industries in 86 countries for the period between 1980 and 2012. They find that higher income inequality increases the growth rates of industries that use physical capital intensively, while it decreases the growth rates of industries that use skilled labor intensively. Thus, the lower human capital stock associated with inequality drives its negative effect on growth. At the country level, these results are consistent with the theoretical predictions by Galor and Moav (2004).

Evidence from panel data studies also indicates that the effect of inequality on growth might depend crucially on the level of the development and the time horizon of the growth spells. Brueckner and Lederman (2018) find that income inequality may be beneficial for transitional growth in poor countries but becomes harmful for growth in economies with high average income, contradicting the results by Barro (2000). Regarding the time horizon, Halter, Oechslin, and Zweimüller (2014) find that higher inequality is beneficial for economic performance in the short term, but in the long term the net effect of the relationship tends to be negative. Inequality reduces the duration of growth spells (Berg, Ostry, and Zettelmeyer, 2012; Berg and Ostry, 2017), with most of the results coming from cross-country differences rather than changes over time.

Poverty hinders people from participating in the economy, consequently preventing them from contributing to economic growth (Lopez and Servén, 2009). The limited economic contributions by the poor can create a poverty trap, possibly with multiple equilibria, where poverty is self-reinforcing. Quah (1993; 1996; 1997) establishes theoretical and empirical “emerging twin peaks”, where countries cluster at the two ends of the income level spectrum. Thus, the evidence supports stratification and the convergence club theories instead of simple divergence or convergence theories. The stratification trends in the empirical evidence could be linked with the theory of social capabilities and conditional convergence by Abramovitz (1986), where the peaks represent different levels of social capabilities.

3.3 METHODOLOGY

To take into account the within and between effects of the different variables over time, the study adopted multilevel modelling techniques (fixed effects models and random effects models). The fixed effects model is essential for controlling for unobserved individual-level differences that may be correlated with the response variable. Further, the fixed-effect method produces consistent estimates of the coefficients even in the presence of correlation between the explanatory variables and the individual-specific effects. Unlike Ordinary Least Squares (OLS) and other linear regressions methods, fixed-effect method limits the sources of bias to time-varying variables that correlate with the treatment as well as with the outcome over time (Brüderl and Ludwig, 2015). On the other hand, a random effects model is useful in estimating the effect of one or more categorical variables on a continuous outcome variable, while accounting for the fact that the categorical variables are a random sample from a larger population. In a random effects model, the effect of the categorical variables is allowed to vary across the levels of the variable. The study contains yearly data covering the period 1980-2022 for West Africa.

An increasing number of researchers (Angrist and Pischke, 2010; Mood, 2010; Breen et al., 2018) have endorsed and recommended the use of linear fixed-effect models even for binary dependent variables because these models can provide unbiased and consistent estimates of average effects (Wooldridge, 2010). Hence, this study estimates the following equations:

$$Y_{i,t} = \alpha_i + X_{i,t} \beta + u_{i,t},$$

where $Y_{i,t}$ is either specified as: i) the Gini index ($Gini_{i,t}$) measured of inequality in country i in period t ; ii) the poverty rate ($POV_{i,t}$) or the poverty gap ($PG_{i,t}$). The Gini index is commonly applied as a measure of inequality. Instead, the poverty rate and the poverty gap focus on the bottom of the income distribution. While poverty headcount ratio provides information on the proportion of people in a population that are poor, it does not measure the depth and intensity of poverty within a population.

As explanatory variables $X_{i,t}$ includes: $GDP_{pc_{i,t}}$ is the GDP per capita growth in country i in period t ; $OIL_{i,t}$ is the oil rent obtained in country i in period t ; $DEBT_{i,t}$ is the total debt owed by country i in period t ; $FDI_{i,t}$ is the total foreign direct investment in country i in period t ; $CP_{i,t}$ is the total crops produced in country i in period t ; and $UNE_{i,t}$ is the unemployment rate in country i in period t . Lastly, α_i denotes country-fixed effects and $u_{i,t}$ represents the error term of the model.

3.3.1 Data Description

Yearly data for all the variables were obtained. The data covered the period 1980-2022 for countries in West Africa.

The study uses the poverty headcount ratio at US\$2.15 per day for measuring poverty rate in the population. It is expressed as a % of the population living below the US\$2.15 per day. The Gini index was used to represent inequality and measures the extent to which the distribution of income or consumption among individuals or households within an economy deviates from a perfectly equal distribution. A Gini index of 0 represents perfect equality, while an index of 100 implies perfect inequality. Unlike the poverty headcount ratio, the poverty gap examines the depth of poverty within the population, and it is also set at US\$2.15 per day. The poverty gap is the

mean shortfall in income or consumption from the poverty line \$2.15 a day (counting the nonpoor as having zero shortfall), expressed as a percentage of the poverty line. This measure reflects the depth of poverty as well as its incidence.

The annual variation of GDP per capita is used as a measure of economic. FDI measured in percentages of GDP are direct investment equity flows in an economy. Oil rents, measured in percentages of GDP, is used to capture the difference between the value of crude oil production at regional prices and total costs of production. Debt, measured in percentages of GDP, is the external debt stock.

Table 11: Descriptive Statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
GDP Per Capita	2611.692	1369.063	907.834	200.65
OIL	1.599	4.491	0	32.666
FDI	0.636	6.099	-32.233	89.233
DEBT	76.125	74.129	6.990	610.452
CP	67.268	31.452	13.26	200.65
Gini	40.497	5.143	29.6	54.1

Source: Author's calculations from data

Given the importance of agriculture to poverty reduction and inequality, a crop production index is considered. The crop production index shows agricultural production for each year relative to the base period 2014-2016. Unemployment is recorded as a percentage of the total labor force and refers to the share of the labor force that is without work but available for and seeking employment. All data are obtained from the World Bank Development Indicators database.

3.4 EMPIRICAL ESTIMATIONS AND RESULTS

The study uses both fixed effects models and random effects models to examine the effects of the interaction of the different variables discussed in the paper. The paragraphs that follow discuss the results obtained from the two regression models.

3.4.1 Fixed Effects Models

The study employed fixed effects model to consider the between and within effects. An essential benefit of this model is that it limits potential sources of biases in the estimations (Collischon and Eberl, 2020). Table 12 provides the estimation results for the variables considered in this study.

The first model examines the relationship between inequality and economic growth while controlling for other variables during the period 1980-2022 in West Africa. The result reveals an inverse relationship between growth and inequality suggesting that an increase in growth reduces inequality across the 18 countries in the study. The results further show that inequality has a negative relationship with crop production and unemployment. An increase in crops production reduces inequality by 0.03 while an increase in unemployment reduces inequality by 0.39. On the other hand, inequality has a positive relationship with FDI, the value of crude oil and debt

across the 18 countries during the same period. However, none of the estimates is significant at conventional levels.

The second model shows the estimations results for poverty. The relationship between poverty and GDP per capita growth is negative and significant. The estimates show that increases in the value of crude oil production and crop production significantly reduce poverty in West Africa during the period 1980-2022. Furthermore, the estimations indicate that poverty has a positive relationship with FDI suggesting, thus, that countries and periods with higher FDI are associated with greater poverty in West African during the same period.

The third model examines the effects of a range of predictable variables on the depth of poverty, i.e., the poverty gap, in West Africa during the period 1980-2022. The estimations show that GDP per capita growth reduces the poverty gap in West Africa significantly. The results further indicate that crops production reduces the poverty gap significantly, while larger FDI, again, is associated with greater poverty. The remaining parameter estimate turn out to be nonsignificant.

3.4.2 Random Effects Models

This study also employs random effects models to examine the determinants of inequality and poverty. As noted by Allison (2009), random effects models assume that the unobserved variables are correlated with or statistically independent of all observed variables. While fixed effects estimation captures the specific characteristics of variables that remain constant across observations, random effects account for variability between variables within a larger group.

Model four examines the between and within random effects of a number of predictable variables including GDP per capita, Oil rent, external debt, FDI, crop production and unemployment rate on income inequality in West Africa using yearly data from 1980-2022. The estimation reveals that GDP per capita growth has a positive but insignificant effect on income inequality. Crop production has a negative and significant relationship with income inequality in West Africa during the sample period. As in the case of the fixed effects estimation, all other variables, i.e., Oil rents, the external debt stock, FDI and unemployment are not significant.

The fifth model investigates the relationship between the poverty ratio and the explanatory variables. The results indicate that GDP per capita growth has a negative and significant relationship with the poverty ratio. More crop production reduces poverty, whereas high FDI is related to more poverty. Surprisingly, higher unemployment relates negatively with the poverty rate. There are different possible explanations for this finding. In West African countries, the informal sector, including street vending, artisanal production, and small-scale agriculture, plays a significant role in the economy. When formal employment is scarce, people often turn to informal work for income. Though it may lack stability, this informal economy helps many meet basic needs and lessen poverty. Additionally, the region benefits from remittances sent by its large diaspora communities in Europe and North America. These funds provide crucial support during times of high unemployment, assisting families in financial distress and bolstering household spending.

The last model uses the poverty gap as the dependent variable. As regards to the sign and significance of the estimates the results are identical to those in which the poverty ratio was the dependent variable. Therefore, similar conclusions apply in both cases.

Table 12: Estimation Results

	Model 1 (FE)	Model 2 (FE)	Model 3 (FE)	Model 4 (RE)	Model 5 (RE)	Model 6 (RE)
Number of Observations	81	82	82	81	82	82
Number of Countries	18	18	18	18	18	18
F-Statistics	0.00	0.00	0.00			
R² Within	0.23	0.61	0.49	0.18	0.58	0.48
R² Between	0.13	0.59	0.63	0.01	0.79	0.74
R² Overall	0.00	0.56	0.52	0.11	0.68	0.58
	Inequality as Response Variable	Poverty Ratio as Response Variable	Poverty Gap as Response Variable	Inequality as Response Variable	Poverty Ratio as Response Variable	Poverty Gap as Response Variable
GDPpc	-0.00	-0.01***	-0.01**	0.00	-0.01***	-0.00***
	(0.13)	(0.01)	(0.04)	(0.92)	(0.00)	(0.00)
OIL	0.16	-1.17***	-0.46	0.11	0.11	0.11
	(0.61)	(0.00)	(0.12)	(0.43)	(0.73)	(0.64)
DEBT	0.01	0.00	0.00	0.01	-0.02	-0.02
	(0.24)	(0.97)	(0.87)	(0.61)	(0.22)	(0.18)
FDI	0.03	0.76***	0.39**	0.07	0.73***	0.37***
	(0.78)	(0.00)	(0.02)	(0.65)	(0.00)	(0.00)
CP	-0.03	-0.31***	-0.20***	-0.06***	-0.38***	-0.23***
	(0.19)	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
UNE	-0.39	-0.37	-0.66	0.12	-0.89***	-0.49***
	(0.35)	(0.80)	(0.52)	(0.69)	(0.01)	(0.01)

*** Significant at 1% level; ** Significant at 5% level; *Significant at 10% level

3.5 DISCUSSION OF THE RESULTS

The estimations reveal a negative relationship between inequality and economic growth. Although there is positive relationship shown between inequality and growth by the random effects models, the relationship is statistically insignificant, and the coefficient is zero. Overall, an increase in per capita GDP growth is associated with a decline in inequality in West Africa over the period 1980-2022. This result confirms the findings of Alesina and Rodrik (1994), Deininger and Squire (1998), Cingano (2014) and Berg et al. (2018) who examined the inequality-growth nexus and concluded that growth reduces inequality.

The empirical results also indicate a negative correlation between poverty and economic growth in West Africa. Economic growth reduces the poverty headcount ratio. This result is consistent across all estimations in the current study. This finding supports earlier conclusions by Ravallion (2001), Dollar and Kraay (2002) and López and Servén (2015) who found that higher economic growth is associated with a decline in the poverty ratio. This finding also supports the argument that inclusive growth is essential for poverty reduction.

Given that poverty is a complex phenomenon, relying on a single measure of poverty limits understanding of the poverty situation. Thus, empirical investigations were conducted using the poverty gap index to assess the extent of poverty. The results suggest that per capita GDP growth reduces the poverty gap consistently across all models used in this study. The estimations indicate that economic growth reduces both the incidence and intensity of poverty across West Africa. As economic growth increases general income levels and improves the quality of health and education programs, it holds substantial potential for reducing poverty, as affirmed by the findings of this study.

The estimations reveal a positive relationship between inequality, the poverty ratio, and the poverty gap with Foreign Direct Investment (FDI). This suggests that an increase in FDI exacerbates inequality and raises poverty levels in West Africa. This positive correlation between FDI and poverty contradicts previous findings (Klein, Aaron and Hadjimichael, 2013; Magombeyi and Odhiambo, 2018), which suggest that FDI is essential for poverty reduction due to its positive impacts on employment and economic growth. However, if FDI is not properly managed and is invested in economies with weak institutions, it may indeed lead to an increase in poverty and inequality.

Interestingly, the empirical estimates reveal an inverse relationship between inequality, the poverty ratio, and the poverty gap with the level of unemployment in West Africa. The results suggest that a higher level of unemployment actually reduces poverty and inequality. This finding contradicts several studies (Hinteregger, 2017; Sambo, 2019) which argue that higher unemployment is typically associated with elevated levels of poverty and inequality due to income losses. Possible explanations are the large informal sector in West African countries which might gain importance in recessions helping to alleviate poverty. Additionally, remittances from diaspora communities in Europe and North America provide vital support during periods of high unemployment, aiding families in financial distress and boosting household spending.

An essential aspect of the findings is the impact of crop production on poverty and inequality. The estimations reveal a negative relationship between crop production and poverty as well as inequality in West Africa from 1980 to 2022. This implies that increasing the variety of crops produced in West Africa will decrease the poverty ratio and reduce inequality. This finding aligns

with the conclusions drawn by Mpundu and Biopape (2022), who emphasized the significance of food production in poverty reduction.

3.6 CONCLUSIONS

Per capita growth is essential for reducing inequality in West Africa. This finding can be explained from several dimensions. Increasing economic growth is associated with financial development thus providing access to finance to low-income households. Rising economic growth provides increased opportunities for human capital development which when properly exploited can yield reduction in inequality in an economy. Additional mechanisms through which growth reduces inequality include the provision of job opportunities for the poor thus enhancing their incomes and living standards. Hence, growth-enhancing policies are cardinal avenues for reducing the rising inequality in West Africa. Additionally, pursuing inclusive policies that tend to reduce inequality will increase the development impacts of growth.

Similar to inequality, economic growth is pivotal to reducing both the incidence and intensity of poverty in West Africa. Given the high rate of poverty in West Africa, accelerating economic growth is imperative. However, with growth declining in West Africa, and poverty on the rise, achieving poverty reduction requires the removal of significant structural barriers that impede economic growth. Additionally, increasing global economic uncertainties and weak institutions across West Africa present further economic recovery challenges. Therefore, structural reform programs that break the cycle of poverty and build strong institutions are essential for economic growth in West Africa.

Foreign direct investment deepens inequality and widens poverty in West Africa. Although West Africa's potentials to attract foreign direct investment are significant, the empirical evidence show that foreign direct investment adversely affect growth by increasing poverty and deepening inequality. Given the political economy of West Africa, weak institutions could be the key factor militating the effects of foreign direct investment on inequality and poverty. The potential misuse of foreign direct investment which benefits only the elites increases inequality between the elites and the poor while pushing additional people into poverty.

Crop production matters for poverty reduction and inequality in West Africa. As revealed in the estimations, increases in crop production reduce poverty and inequality in West Africa during the period 1980-2022. This finding highlights the importance of the agriculture sector in West Africa to reduce poverty and boost economic growth. Given West Africa's vast arable land and good climate suitable for crop production, significant investment in crop production is expected to enhance growth in Africa and reduce poverty as well as strengthen food security in the wake of rising food prices in the global market.

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UNIVERSITAT ROVIRA I VIRGILI

GOVERNMENT EXPENDITURE AND ECONOMIC GROWTH IN WEST AFRICA: AN EMPIRICAL INVESTIGATION

James Francis Davis

CHAPTER FOUR

General Conclusions and Future Lines of Research

4.1 INTRODUCTION

The impact of public expenditure on economic growth is an issue for analysis and debate, particularly in developing countries. A critical question is whether public expenditure increases the long-term steady-state growth rate of an economy. While the general consensus is that public expenditure, particularly physical infrastructure or human capital, can be growth-enhancing, although the financing of such expenditures can also be growth-retarding due to disincentive effects associated with taxation (Kweka and Morrissey, 2000), the exact effects of public expenditure on growth is still contentious.

Numerous studies have examined the relationship between public expenditure and economic growth. While some authors point to a positive relationship (Ram, 1986; Holmes and Hutton, 1990; Aschauer, 1989; Devarajan et al. 1996; Saez and Garcia, 2006; Taiwo, 2011), other empirical research finds that public expenditure has a negative impact economic growth (Grier and Tullock, 1989; Barro, 1990; Miller and Russek, 1997; Ramayandi, 2003). The mixed findings regarding the effects of public expenditure on economic growth suggest the need for deeper research and analysis to uncover the main drivers of public expenditure efficiency.

Foreign aid is considered as a critical capital to close the savings and investment gap and promote economic growth in low-income countries, especially in Sub-Saharan Africa. By so doing, foreign aid plays an essential role by complementing domestic revenue and increasing the investment and capital needed for growth in poor countries. Foreign aid therefore becomes an essential external capital that is expected to substantially contribute to economic recovery and growth in low-income countries.

The economic impacts of foreign aid expenditure in developing countries remain a debatable topic in economics. Although extensive research has been conducted on this topic, no theoretical or empirical conclusion has been reached. Empirical studies conducted on this topic mostly suffer from endogeneity problems and failed to capture the effects of armed conflict on the efficiency of aid expenditure. To date, there is no research that critically examines the growth impacts of aid expenditure in West Africa, and knowledge in this area is very important for development planning and financing. Hence, the thesis intends to fill the gap in the scholarly literature on aid expenditure and economic development by examining the relationship between aid expenditure and economic growth in West Africa taking into consideration the effects of armed conflict and institutional quality on the effectiveness of aid expenditure.

The academic literature remains inconclusive as to whether poverty drives inequality or vice versa. While the debate on the poverty and inequality nexus deepens, an essential variable, economic growth, has been added to the debate. The inclusion of economic growth has deepened the controversies and discussions regarding the interrelationship between poverty, inequality and economic growth. Understanding the interplay between poverty, inequality and growth is even more critical for countries in Sub-Saharan Africa as poverty presents a huge challenge for their economic development.

The Kuznets hypothesis, coined after its author, was developed in 1955 in his article 'Economic Growth and Income Inequality' and has influenced economic research on inequality and growth over the years. Kuznets (1955) argued that as economies grow, inequality will initially rise and subsequently fall after a turning point, in line with the progress achieved through the stages of economic development. This inverted U-shaped curve with inequality plotted against income per

capita was reflected in the limited data available at that time. Subsequent studies have disputed Kuznets' empirical findings (Ravallion, 1995; Deininger and Squire, 1997), casting doubt on the inevitability of the inverted U-shaped relationship between income and inequality.

4.2 GENERAL CONCLUSIONS

Government consumption expenditures undermine per capital growth in West Africa while investment expenditure positively contributes to economic growth. Institutions matter for economic growth as the estimations indicate that strong and good institutions have positive effects on per capita growth in West Africa. Therefore, to improve economic performance, fiscal authorities in West Africa must prioritize spending on productive economic activities over consumption activities. While investment in capital formation is paramount, such investment could be undermined by weak institutional quality.

The empirical estimations show that stronger institutions are essential for economic growth. It is therefore important that significant investments are made in strengthening institutional quality. Specifically, reducing corruption and enhancing accountability will yield significant positive growth effects. As improvements in trade openness and international trade are essential for economic growth in West Africa, governments in West Africa are encouraged to take advantage of the African Continental Free Trade Area (AfCFTA), which present enormous opportunities for expanding trade across Africa.

Aid expenditure is necessary for closing the fiscal gaps in West African countries and enhancing economic development. This suggests that efforts on the part of West African countries to attract larger aid will be critical for enhancing growth. Although significant reliant on aid is counterproductive, efficient use of aid can unleash economic opportunities, address development challenges and put countries on the right development trajectory. In order to attract aid and enhance the efficiency of aid expenditure, strong institutions are required. Strong institutions will create the enabling environment for the efficiency of aid expenditure while at the same attracting foreign investment.

Economic growth matters for both inequality and poverty reduction. Per capita growth reduces income inequality as well as the incidence and intensity of poverty in West Africa. Given the high rate of poverty in West Africa, accelerating economic growth is imperative. However, with growth declining in West Africa, and poverty on the rise, achieving poverty reduction requires the removal of significant structural barriers that impede economic growth. Importantly, the regressions show that increases in crop production reduces poverty and inequality; hence, improvement in agricultural production is critical for enhancing growth in West Africa. The findings suggest that inclusive policies and programs that reduce inequality and poverty are essential for boosting economic growth in West Africa.

4.3 FUTURE LINES OF RESEARCH

Although the estimations reveal positive growth effects of population growth, it must be noted that the data did not take into account the characteristics of the population. The characteristics of the population are fundamental in determining the growth effects of population growth. In a study conducted by Agell, Lindh and Ohlsson (1997), the authors find that the inclusion of a measure of demographic structure, namely, the percentage of non-working age population, changes the estimated growth effects from negative and significant to positive and significant. The current study did not control for population characteristics and, therefore, additional analysis is required to adequately assess the effects of population growth on GDP growth.

The current research grouped consumption expenditures and investment expenditures and did not decouple consumption expenditure and investment expenditure into their different types. As different types of consumption expenditures as well as investment expenditures might have differential effects on growth, it is therefore essential that future research takes into account the different types of consumption and investment expenditures and their impacts on economic growth in West Africa.

The current study did not capture the effects of different aid modalities and different aid expenditure on growth. While the overall effect of aid expenditure is positive and significant for economic development, differences in aid delivery modality and types of aid expenditures could have differential effects on growth. Further analysis on the effects of aid delivery mechanisms and the types of aid expenditure on economic growth will be required.

While assessing the impacts of institutions on a range of variables affecting economic growth in West Africa, the study did not capture the specific effects of the different elements of institutional quality. Kaufman et al. (2009), elaborated several indicators of institutional quality including democracy, autocracy, rule of law, government effectiveness, regulatory quality, control of corruption, voice and accountability, political instability, and ease of doing business. Additional analysis of the differential effects of the indicators of institutional quality on an array of growth variables will be useful.

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