Governance and Health in Ecowas: Examining the Impact of Institutional Quality on Maternal Mortality and Healthcare Disparities

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Abstract

This study investigates the relationship between governance quality and health outcomes in the Economic Community of West African States (ECOWAS), focusing on maternal and infant mortality and healthcare access disparities. Utilizing a panel dataset spanning 2001 to 2024 with two (2) different advanced econometric techniques: Heteroskedasticity Panel Corrected Standard Error (HPCSE) and Feasible Generalized Least Squares (FGLS), for the analysis, the analysis highlights the critical role of quality governance (regulatory quality, government effectiveness, control of corruption, and rule of law). The findings reveal that governance quality significantly impacts health outcomes, with improvements in governance associated with reductions in maternal mortality rates across the ECOWAS region. Moreover, the study demonstrates that the rule of law is a critical factor in moderating the adverse effects of income inequality on healthcare accessibility, underscoring its role in promoting equitable healthcare delivery. The findings of this study emphasize that strengthening the governance system is essential in addressing healthcare inequities and improving health outcomes across the region. The study therefore suggests enhancing governance efficiency, increasing public health expenditure, and implementing anti-corruption measures to ensure equitable resource distribution and improve health outcomes. The study contributes to the field of health economics by integrating governance factors and robust econometric modeling to provide actionable insights for policymakers across the ECOWAS region.

Keywords: Governance, Health Outcomes, Ecowas, Maternal Mortality, Healthcare Disparities

1. Introduction

The Economic Community of West African States (ECOWAS), consisting of 15 countries, has diverse social, environmental, and health differences. The region is ranked as one of the highest in terms of Maternal mortality rate in the world, and infant survival suffers as well. The ECOWAS maternal mortality ratio is more than 500 deaths per 100,000 live births, with some countries, including Nigeria and Sierra Leone, having more than 800 deaths per 100,000 live births. Infant mortality rates are among the highest globally. Similarly, infant mortality rates are close to 64 deaths per 1,000 live births worldwide. These alarming statistics result from the public health system's need for urgent regional reforms. ECOWAS countries have a wide disparity in life expectancy based on the disparities in access to good and quality healthcare services. Countries like Sierra Leone have an exposure to life expectancy of less than 55 years, which

contrasts with nations like Cabo Verde that have lifespans of over 70 years. Several socioeconomic issues caused all these challenges, including a widespread poverty rate, unequal distribution of healthcare systems, poor institutions, and a poor healthcare system. A weak and poor governance system has been identified as one of the key determinants of health outcomes. This numerical figure, called Maternal and Infant Mortality Rates in ECOWAS Countries, highlights that investments and reforms in high-mortality ECOWAS countries are required in areas of healthcare to reduce these complex challenges and achieve healthier outcomes across the region. Figure 1 below is the Maternal and Infant Mortality Rates in ECOWAS Countries, which underscores the critical need for targeted healthcare investments and governance reforms to address these disparities and improve health outcomes across the ECOWAS region [1-4].
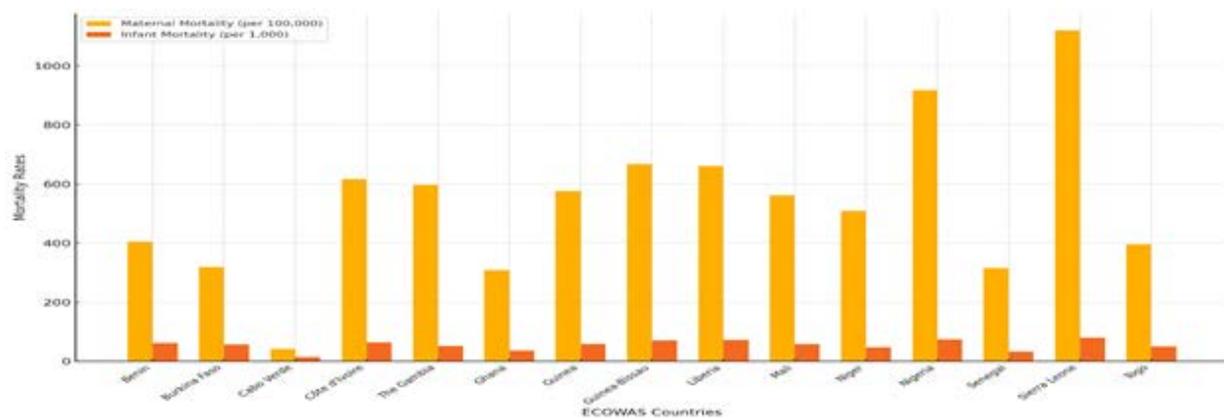
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Figure 1: ECOWAS Maternal Mortality and Infant Mortality Rates

Source: World Development Indicators (WDI), 2025

Access to healthcare services has been attributed to many factors, such as financial constraints, inadequate health facilities, and poor medical staff. The majority of the population from the villages and rural areas face a severe shortage of health facilities and inadequate physicians or medical experts (doctors), which are considered below the standard of the World Health Organization's recommendation of at least one doctor per thousand people. Healthcare remains a fundamental human right, but unfortunately, the majority of the population in the ECOWAS region are facing challenges in accessing their right due to inequality, financial challenges, and high costs of treatment, as out-of-pocket payment for services contributes tremendously to overall healthcare expenditures in most of these nations [5,6].

Income and wealth differentials across the ECOWAS countries also compound health inequities. Income inequality is very striking, where countries like Nigeria and Guinea-Bissau are among the most unequal nations in the region. These inequities hinder fair provision of health care services and therefore create a significant discrepancy in the health status of the populace, the rich, and the poor. Several studies argued that income inequality worsens the inequities in the delivery of health care services and impacts the needy population, especially those in rural areas,One of the critical and amazing ways of resolving these challenges lies in a sound and workable governance system. Good governance includes regulatory quality, government effectiveness, the rule of law, and control of corruption; these are key players that can be used in addressing the healthcare challenges and achieving better health outcomes across the region. This could help in formulating and implementing workable healthcare policies, further encourage the equal distribution of healthcare resources, lessen the rate of corruption, and ensure optimum budgetary allocation into the sector, which will make healthcare accessible and achieve better healthcare outcomes. However, weak governance creates inefficiencies, prolongs inequality, and exacerbates numerous health challenges by denying many citizens access to good medical care. These studies highlighted and established the relationship between good governance and health outcomes in the ECOWAS region. More specifically, countries with higher governance scores, such as Ghana and Cabo Verde, tend to demonstrate better health outcomes, which is observed via lower mortality and longer life expectancy. Meanwhile, nations with poor governance structures, like Liberia, Nigeria, and Guinea-Bissau, have less success in improving public health indicators [7-12].

Maternal and infant mortality and life expectancy are universally viewed as the cornerstone indicators of how a nation's health system functions and how that nation's socio-economic development is progressing. In addition to evaluating the effectiveness of healthcare services, these indicators serve as important markers of other broader systemic factors, such as governance quality, economic conditions, or social equity. These indicators are significant in the ECOWAS region. Several studies have measured and conceptualized these differently; a direct measure of accessible and quality maternal healthcare is maternal mortality, defined as the death of a woman during pregnancy, at childbirth, or within 42 days following termination of pregnancy. Severe deficiencies in the healthcare infrastructure are reflected in high maternal mortality rates in ECOWAS countries (often more than 500 deaths per 100,000 live births), such as maternal deprivation, including the lack of access to skilled birth attendants and emergency obstetric care. Additionally, maternal mortality relates to governance quality. This shows that efficient regulatory frameworks and good governance are necessary for the equitable allocation of resources, the training of medical personnel, and the implementation of therapeutic programs or interventions, including prenatal care and safe delivery. These studies underscored the role of governance in addressing the healthcare challenges and achieving better health outcomes across the ECOWAS region [13-16]

Maternal mortality is more than just an indicator of health for an individual due to its multiplying effect on families and the community at large. This could happen when mother lose their children during childbirth and further impose a high risk of malnutrition, poor health outcomes, and even death. Consequently, addressing maternal mortality is vital for enhancing global societal health and fulfilling all the sustainable development goals. Infant mortality rate accounts for child health and wellbeing and is also the

number of deaths of children less than one year of age per 1,000 live births. The infant mortality rate is over 64 deaths per 1,000 live births around the world, far exceeding the global average of 29, although some countries across the globe skew that average. This metric summarizes the effects of health care quality, nutrition status, socioeconomic status, and environmental factors. Poor sanitation, poor vaccination programs, and limited access to basic health services are often signaled by high infant mortality rates in any given nation (20). Additionally, Life expectancy summarizes total health repercussions and possibilities influenced by disease factors, the healthcare system, and lifestyle measures. These highlighted the factors that determine the good and the bad of the health outcomes of a nation [17-22].

The stated healthcare challenges could be addressed via good and robust institutions. Numerous scholars have established a significant relationship between these challenges and the quality of governance. For instance, stability and absence of corruption in the healthcare system help make immunizations and other better health interventions available and accessible in the health systems, where citizens will experience equal resource distribution. Reducing the mortality rate saves lives and positively impacts societal development, in which the healthy population can be more productive and further contribute to the nation's growth, as evidenced by. Others argued that the quality of governance and the stated health challenges are linked together, as good governance tracks improvements in the efficiency of resource allocation and the functioning of health system reforms. Countries with high scores in government effectiveness, regulatory quality, and control of corruption tend to exhibit better life expectancy performances. Sound health and political leadership guarantee that interventive initiatives, disease control measures, and cost-effective health care delivery systems are coherently put in place and continuously followed [23-26].

Maternal and infant mortality and life expectancy are intricately related. This was especially so when the changes in maternal mortality influenced the infant mortality in the same proportion, because healthy mothers are more able to take good care of their newborn babies than those who have died during childbirth. Likewise, enhancements of the expectations of living in infancy are another reason behind the hike in life expectancy. These revealed that governance quality is a common factor to all the healthcare challenges highlighted across the ECOWAS nations. Without doubt, the ECOWAS region presents and continues to present significant challenges in the field of health, maternal mortality, infant mortality, and life expectancy. As of 2020, the United Nations estimates that more than 500 women die during childbirth, giving a ratio of 1/100,000 live births, while the annual child mortality rate is more than 64 deaths per 1,000 live births—that is still relatively high compared to the global rates. These unpleasant consequences are accompanied by unequal health treatment, especially in rural and village areas with low health facility density, poor access to health services, and excessive cost of health treatment. These challenges highlight poor governance through weak regulatory quality,

poor government effectiveness, bribery, and corruption, which affect fair resource distribution and efficient health care service delivery. Other scholars argued that Income inequality is also a factor that speeds up these disparities, where people experiencing poverty cannot afford to seek medical assistance. As a result, their poor health status and poverty continue to increase. The ECOWAS region demonstrated the relationship between socioeconomic and institutional factors that have affected the health status of every individual. In the ECOWAS context, several studies have pointed out governance quality as one of the key predictive factors of public health; however, limited studies link health outcomes and the quality of governance. These identified gaps need to be filled, as this was also supported by several scholars who stated that there is a need to comprehensively study the relationship between the governance structure and health [27-32].

Based on these issues across the ECOWAS region, this study examines governance quality and health outcomes in the ECOWAS countries, considering the complex interplay between governance and health. Particularly, it looks at how the quality of governance affects overall health; this is about how good governance can improve the quality of health and facilities for the people. Moreover, the research explores how certain aspects of governance (Government effectiveness, regulation quality, and corruption) and their impact on the availability and inequity of health care in ECOWAS nations, and as such, underscore the structural dynamics that underlie the inequity of health care within these nations. This paper contributes to the existing literature and signifies the role of governance in addressing healthcare issues across the region by examining the individual governance role on healthcare in the ECOWAS region. The study also analyses the mediating role of the rule of law in reducing income inequality in the region. This study thus fills an important gap in the literature by affirming an evidence-based analysis of comprehensive institutional quality to offer implementable recommendations that would enhance the health of the public in the ECOWAS region.

The paper is organized as follows: the first section delved into the study's introduction, while the second part was on the relevant literature that explored the governance and health-related studies. The research methodology was well dealt with in the third section, while the results and findings were discussed in the fourth section. The last section focused on the study's conclusion, implications, and limitations.

2. Literature Review
2.1 Theoretical Framework
The study employed two different theories to build a theoretical framework to underpin the study. The relationship between governance quality and health is strongly tied to the institutional economics theory. This theory offers a rich conceptual toolkit for analyzing how governance structure impacts factors related to supply, demand, and delivery of healthcare equipment and services. According to institutional economics, institutional endowment is a significant economic and social development determinant.

According to North (1990), institutions are objective and exogenous constraints that frame or anchor human social interactions. These can be composed of established formal and informal rules and policies. Robust governance guarantees efficient resource use, has less transaction cost, and provides stability for development. This theory shows its practicality and applicability to health outcomes, suggesting that governance quality determines the efficiency and equity of the delivery of health care systems and, therefore, public health interventions. Regulatory quality also guarantees that the policies of different healthcare systems are well developed and effectively implemented. Government effectiveness captures the ability to deliver care and control corruption, avoiding wastage, ensuring healthcare funds benefit the targeted end-users. However, the theory acknowledged that poor governance has the capability and potential of hindering the free flow of resources, creates avenues for corruption, hence inefficiency, and inequality in resource distribution compromises the health status of a given population. This theory shows the critical role of good institutions in addressing healthcare affairs and further equips society with better health outcome. The study also considers the Social Determinants of Health (CSDH) framework, which was developed by the World Health Organization (WHO), which emphasizes the social, economic, and political factors that determine the health of a particular population. These theories revealed the connectivity between the socioeconomic and political factors regarding access to health care, reduction of unfair disparities, and preventive care [33-36].

2.2 Governance and Healthcare Factors
The employed theory has grounded the relationship between governance and healthcare factors well, and several scholars have established a strong relationship. For instance, good governance will help to increase the proportion of deliveries attended by skilled birth attendants, availability of emergency obstetric care, and use of organized vaccination campaigns. On the other hand, poor institutions could be attributed to weak healthcare systems, poor delivery of services, and high out-of-pocket expenditure that reinforce health inequalities where vulnerable populations are concerned. Governance facilitates a person's health impact by providing opportunities and platforms for people to access the necessary services and equal resource distribution. Governance significantly shapes health outcomes by enhancing access to necessary services and resources. Freedom from unfairness and bias in the provision of health services is achieved through the effective rule of law. It enhances community faith in institutions, promoting health service use. Good governance can mitigate the effects of inequality by effectively distributing public health services and providing essential services to citizens. For instance, a well-governed healthcare system can ensure that resources are allocated based on need, not wealth, reducing health disparities [37-41].

Figure 2 illustrates the state of the ECOWAS nations regarding the regional governance turbulence, which was sourced from the World Governance Indicators, 2024. The consistent lowering of these four (4) governance indicators (Regulatory Quality, Rule of Law, Control of Corruption, and Government Effectiveness) showcases systemic issues in most nations, which are critical in addressing regional healthcare challenges. This agreed with several studies and the institutional theory that poor governance hinders equitable resource distribution and effective healthcare delivery (Nigeria and Sierra Leone), and the theory supported that good governance helps mitigate the socioeconomic challenges and achieve healthcare delivery.
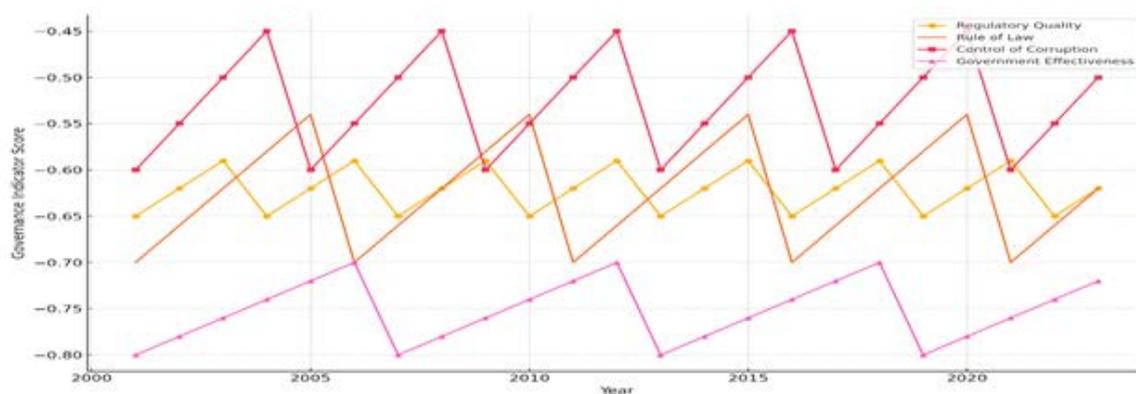

Figure 2: Governance Indicators Over Time

Source: World Governance Indicators (WGI), 2025

2.3 State of Healthcare Across the Ecowas Nations
The reality reflection of healthcare across the ECOWAS region revealed numerous challenges and ongoing efforts to combat the current challenges and improve health outcomes. Several studies revealed that all fifteen ECOWAS nations have failed in meeting the target standard of a 15% health priority index for government expenditure on healthcare. These show that the government expenditure across this region is far below the recommendations, which underscore the challenges of underfunding in the healthcare sector. Where Ghana, Cabo Verde, and Burkina Faso show their significant effort in meeting the standard, but unfortunately, they are all found at the average spending nearly 8%, Guinea, Liberia, and Guinea-Bissau with less than 4% of their budgets allocated

to healthcare as against the 15%. Another significant challenge many ECOWAS nations face is poor access to healthcare due to widespread income and wealth inequity. This shows the wide disparities in issues like neonatal, maternal, and child health outcomes, and many others. For instance, a country like Sierra Leone, leading the rate of maternal mortality rates across the globe, underscores the healthcare challenges and serves as a signal that the region is struggling with inadequate skilled healthcare personnel and poor health infrastructure. On the other hand, a few of these countries have recorded a positive impact via the regional initiatives (West African Health Organization (WAHO)) and the adoption of the One Health approach, which is a collaborative, multisectoral, and transdisciplinary approach that recognizes the health of humans is closely connected to the health of animals and the environment. This approach helps address cross-border health threats. However, numerous issues remain unaddressed, ranging from inadequate healthcare financing, unequal accessibility of healthcare services, and fragmented health policies, which continue to limit the region's progress regarding the healthcare system. These showcase the challenges and the way forward in overcoming these challenges and advancing healthcare outcomes across ECOWAS nations.

2.4 Good Governance as A Tool for Healthcare Challenges

Numerous studies argue that robust institutions could be a perfect tool in curbing healthcare challenges and achieving better health outcomes in the ECOWAS region. For instance, research has established that improved governance often lowers mortality rate and increases life expectancy via efficient healthcare spending, involvement of government effectiveness, and absence of corruption. There is a strong relationship between governance quality and health outcomes and demand institutional changes in the ECOWAS, as evidenced by Governance effectiveness is a core feature of any health outcome system and reduces the rate of all healthcare challenges by mitigating social determinants of health. This study offers a perspective on the impact of governance quality on health outcomes across the ECOWAS region. Numerous studies have explored how governance affects both international and regional public health outcomes, where evidence shows that good governance is associated with better health outcome, where the regulatory quality is high, the health policies effectively work due to wasted resources and control of corruption, which often justifies using resources. In contrast, other scholars argued that high public expenditure on health is associated with high government effectiveness, and thus, better health outcomes in countries with good governance. Moreover, it is necessary and possible to reduce the social determinants of health, depriving people of substantial opportunities for wellness, considering good governance. Despite this milestone marked by the previous studies, evaluating the socio-economic, health care systems, governance structure, and their specific examination across ECOWAS remains underexplored. Additionally, there is a lack of research on the moderating roles of governance on healthcare inequalities due to income differences, which have become more important in the ECOWAS region. This study closed the identified gaps via

the proper and adequate understanding of how governance plays a crucial role and the mediating role of the rule of law in addressing inequality to ascertain the health outcomes across the region [42-48].

3. Methodology

This study employs two econometric models to analyze the relationship between governance quality, disparity, and health outcomes in the ECOWAS region. The study considers the use of secondary data. The data from two (2) different dependent variables were employed for the study: Maternal mortality ratio (MMR), which is an indicator that measures the state of health in the country. Healthcare Access was proxied by physician density (PHC) with several numbers of independent and control variables, which are regulatory quality (RGQ), Government effectiveness (GVE), Control of corruption (COC), and rule of law (ROL), all of which represent the state of governance quality, and with government health expenditure (GHE) and GDP Per Capita growth (GPCG), which represent the state of economic capacity across the study area. All these data were sourced from recognized databases (World Development Indicators and World Governance Indicators, 2025). The data covered 24 years (2001 – 2024) for all the fifteen ECOWAS countries to have sufficient and adequate data for the study, due to the nature of the study, which reflects the panel data analysis. In actualizing the study's objective, two models were developed, and all the variables used were selected based on their relevancy and significance to the study based on the previous scholars ' research regarding the study at hand. The first model examines the direct impact of governance quality on health outcomes using the following equation: The dependent variable in the above model, is Maternal mortality ratio (MMR), which is an indicators that measures the state of the health in the country with several numbers of independent variables regulatory quality (RGQ), Government effectiveness (GVE), Control of corruption (COC), and rule of law (ROL) all these represent the state of the governance quality and with government health expenditure (GHE) and GDP Per Capital growth (GPCG) which represent the state of economic capacity across the study area. The model was adapted from the [48].

$$MMR_{it} = \beta_0 + \beta_1\,RGQ_{it} + \beta_2\,GVE_{it} + \beta_3\,COC_{it} + \beta_4\,ROL_{it} + \beta_5\,GHE_{it} + \beta_6\,GPCG_{it} + \epsilon_{it} \dots\dots Eq. \qquad (1)$$

The second model to analyze how specific dimensions of governance quality influence disparities in healthcare access across ECOWAS nations using the following equation:

The above model is the expansion of the first model, where the dependent variable is Healthcare Access and was proxied by physician density (PHC), followed by the relevant independent and the control variables which includes regulatory quality, government effectiveness, rule of law, and control of corruption, and to measure the health disparities, the study consider the use of Gini index which measures the extent to which the distribution of income or consumption among individuals or households within an economy deviates from a perfectly equal distribution and this was further

interact with the rule of law in order to assess its moderating role, that is whether governance quality mitigates disparities caused by inequality in the healthcare.

$$PHC_{it} = \beta_0 + \beta_1 RGQ_{it} + \beta_2 GVE_{it} + \beta_3 COC_{it} + \beta_4 ROL_{it} + \beta_5 GIN_{it} + \beta_6 ROL_{it} * GIN_{it} + \beta_7 GPCG_{it} + \beta_8 GHE_{it} + \epsilon_{it} \dots \quad \text{Eq. (2)}$$

To empirically test the hypotheses, this study employs Heteroskedasticity Panel-Corrected Standard Errors (HPCSE) estimation for the primary analysis, given its robustness in addressing heteroskedasticity and cross-sectional dependence in panel data settings. HPCSE is particularly suited for studies involving heterogeneous panel structures, where traditional estimation techniques may yield biased standard errors due to panel-specific variances. Additionally, to validate and confirm the reliability and robustness of the initial findings, the study employs Feasible Generalized Least Squares (FGLS) estimation, which is effective in handling autocorrelation and heteroskedasticity in panel datase. This dual approach enhances the credibility

of the results, ensuring that the estimated relationships remain consistent and statistically sound across different estimation techniques [49-54].

3.1 Relationships Between Variables

Figure 3 showcases the scatterplot relationship between the variables considered for health outcome and the governance indicators to show the clear challenges in governance across ECOWAS nations, which was revealed from the negative association between (Regulatory Quality, Rule of Law) and (Maternal Mortality Rate and Physician Density) which are the variables used for the health outcomes. The scores below imply that poor governance is associated with higher maternal mortality and lower physician density, revealing the inefficiencies in healthcare delivery and resource allocation. These underscore the challenges of corruption and a weak governance system on health equity and outcomes, which still support the institutional theory and the challenges these countries face.
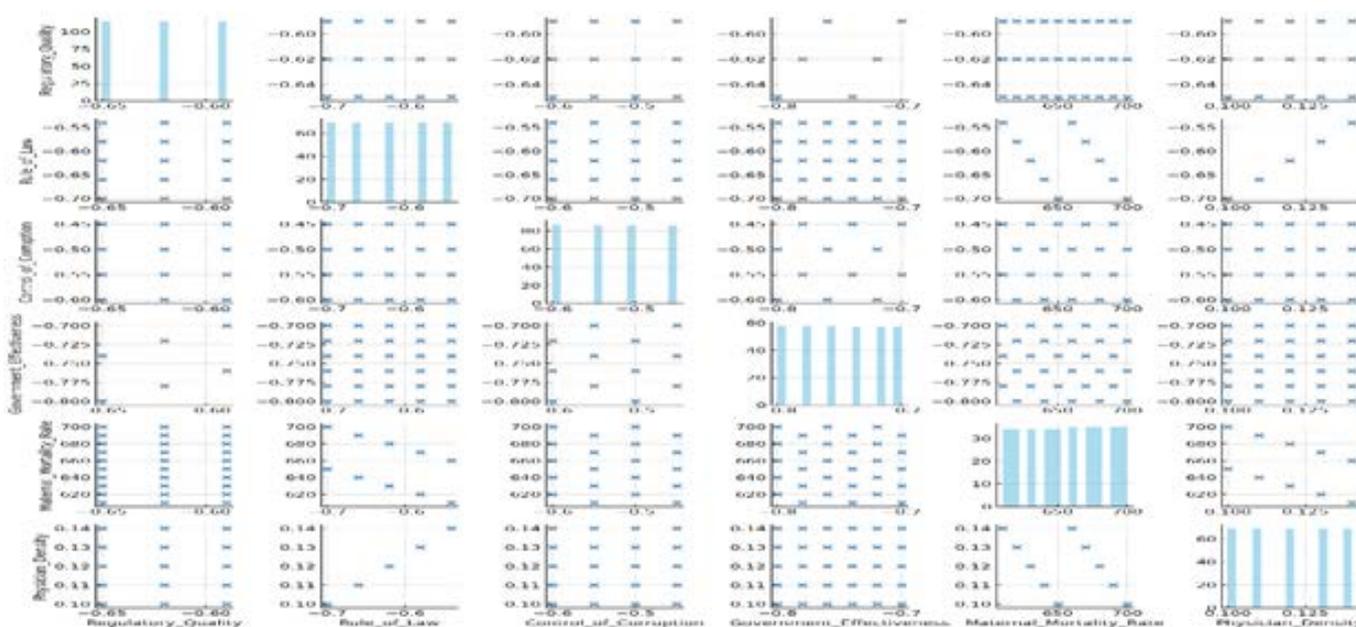

Figure 3: Relationships Between Variables

Source: Generated by Author

4. Results and Discussion

4.1 Summary Descriptive Statistics

Table 1 provides a summary of descriptive statistics, which shows the trends in MMR and governance indices of ECOWAS nations. The coefficient of variation and a maximum of 1778 indicate considerable differences between countries that signify variations in the healthcare system. Concerning governance indicators such as Regulatory Quality (RGQ), Government Effectiveness (GVE), and Control of Corruption (COC), the resulting figures were negative.

All these negatives signify the poor governance structures throughout the region, affecting the health of citizens. GHE distribution is positively skewed. Physician density (PHC) shows the severity of healthy human resource shortages and highlights these disproportions. GIN indicates a moderate level of income disparity, and ROL*GIN presents a typical distribution pattern. Weak governance structures, low investment in healthcare, and inequalities jeopardize such outcomes of maternal health.

Variable	Variable Description	Obs	Mean	Std. Dev.	Min	Max	skewness	kurtosis
MMR	Maternal mortality ratio	360	692.86	328.43	9.00	1778.00	0.36	3.75
RGQ	Regulatory Quality	360	-0.65	0.37	-1.86	0.27	-0.08	2.61
GVE	Government effectiveness	360	-0.81	0.44	-1.81	0.34	0.35	2.49
COC	Control of Corruption	360	-0.59	0.53	-1.60	1.02	1.02	4.20
GHE	Govt. Expenditure on Health	360	1.16	0.68	0.42	2.95	1.30	4.11
PHC	Physician Density	360	0.13	0.12	0.03	0.49	1.68	4.84
ROL	Rule of law	360	-0.67	0.51	-1.63	0.66	0.38	2.78
GIN	Gini Coefficient	360	39.36	4.11	29.60	52.50	0.31	2.88
ROL*GIN	Rule of law * Gini Coefficient.	360	1.74	2.66	-4.20	6.38	-0.47	2.87
Source: Generated by Author								

Table 1: Summary Descriptive Statistics

4.3 Correlation

Table 2 presents the key findings of the correlation matrix, revealing strong relationships between MMR and various governance, health, and socio-economic factors in ECOWAS. The inverse relationships between MMR and (RGQ), (GVE), (COC), and (ROL) are all statistically significant at 1%, indicating that improvements in governance indicators are associated with reduced MMR. This underscores the importance of institutional quality for health. The statistically significant inverse relationship between PHC and MMR further emphasizes the role of governance in improving maternal health, physicians' density, and health expenditure.

	MMR	PHC	RGQ	GVE	COC	GPCG	GHE	ROL	GIN	ROL*GIN
MMR	1.000									
PHC	-0.315	1.000								
RGQ	-0.668	0.242	1.000							
GVE	-0.672	0.329	0.859	1.000						
COC	-0.686	0.399	0.800	0.846	1.000					
GPCG	-0.092	0.066	0.124	0.156	0.142	1.000				
GHE	-0.586	0.390	0.556	0.586	0.755	0.118	1.000			
ROL	-0.663	0.307	0.852	0.868	0.895	0.130	0.707	1.000		
GIN	-0.502	0.204	0.309	0.342	0.359	0.020	0.308	0.382	1.000	
ROL*GIN	-0.042	-0.057	0.090	0.106	0.066	0.975	0.056	0.082	-0.048	1.000
Source: Generated by Author										

Table 2: Correlation

5. Results

Table 3 shows the regression analysis in which the study used Heteroskedasticity Panel Corrected Standard Error (HPCSE), which is one of the advanced econometric techniques that is capable of handling panel data, correcting for heteroskedasticity, and serial correlation. The results from the first model show that regulatory quality has a negative impact at less than a 1% level, implying that a robust and conducive regulatory system often leads to a significant reduction in maternal and infant mortality. The results underscore the key role of regulatory policies in delivering healthcare services. Similarly, the government effectiveness is negative and statistically significant at less than 5%, which means that effective governance is a motivating factor for the delivery of healthcare services. Control of corruption with less than a 5% significance level also confirms that reducing corruption can help us use effective and efficient resources to support healthcare delivery. However, the rule of law has a positive impact of 10%. This suggests that legal structures may not be translated into health systems. In addition, government health expenditure has a coefficient of less than 1%, which proves that government expenditure can bring better health. The impact on GDP per capita growth is insignificant, implying that economic growth does not directly lead to better health outcomes in this region [55-57].

The second model showcases explicitly the role of inequality and the moderating role of the rule of law on healthcare access. Control of corruption and government effectiveness with a high level of 1% means that effective government and a low level of corruption contribute to better access to health care. On the other hand, regulatory quality is not significant, which means that the impact of healthcare accessibility is not efficient. Inequality with positive and significant, which is less than 1%, means that there is a present disparity among the citizens in accessing healthcare, which needs to be moderated by the rule of law to correct the disparity. The model further examines the interaction between the

rule of law and the Gini coefficient which is the indicator that measure the rate at which the inequality is spread, the moderating role of rule of law and the inequality revealed positive significant at less than 1% level, this suggest that rule of law can help in mitigating the unequal access to

health facilities in the ECOWAS region. These implications are crucial for policymakers and health professionals in devising strategies to improve healthcare access and reduce health disparities.

Explanatory Variables	Label	HPCSE		HPCSE	
		D. V: MMR		D. V: PHC	
		Coefficient	Std. Err.	Coefficient	Het-corrected Std. Err
Regulatory Quality	RGQ	-267.62***	64.14	0.003	0.016
Government Effectiveness	GVE	-185.15**	70.839	-0.070***	0.019
Control of Corruption	COC	-129.47**	58.146	0.059***	0.017
Rule of Law	ROL	109.68*	56.496	-0.230***	0.054
Government health expenditure	GEH	-123.10***	25.849		
GDP per capita growth	GPCG	3.546	5.274		
Gini index	GIN			0.004***	0.001
Rule of Law * GINI Coefficient	ROL*GIN			0.006***	0.001
Constant		505.26***	73.54	-0.109**	0.052
Model Specification					
R-Square		0.544			0.913
No of Observations		360			360
No of Group		15			15
Panel heteroskedasticity test	2345.23***			2458.14***	
Wald chi2	696.53***			3493.38***	
Note: *, ** and*** denotes significant level at 10%, 5% and 1% respectively					
Source: *Generated by the Author using STATA*					

Table 3: Main Regression Analysis

Figure 4 supports the regression analysis, highlighting the significant governance issues across ECOWAS nations, where the maternal mortality rate (MMR) reveals a strong negative relationship between regulatory quality and government effectiveness. This suggests that any improvements in Regulatory Quality and Government Effectiveness lead to reductions in MMR. However, the positive relationship between the ROL and MMR implies that inequities and

inefficiencies in the implementation policies undermine its potential benefits. In addition, the positive relationship between the (PHC), (COC), and (GVE) suggests their essential role in enhancing and achieving optimum healthcare access by the citizens. These key findings provide a solid foundation for future research and policy development in governance and health disparities.
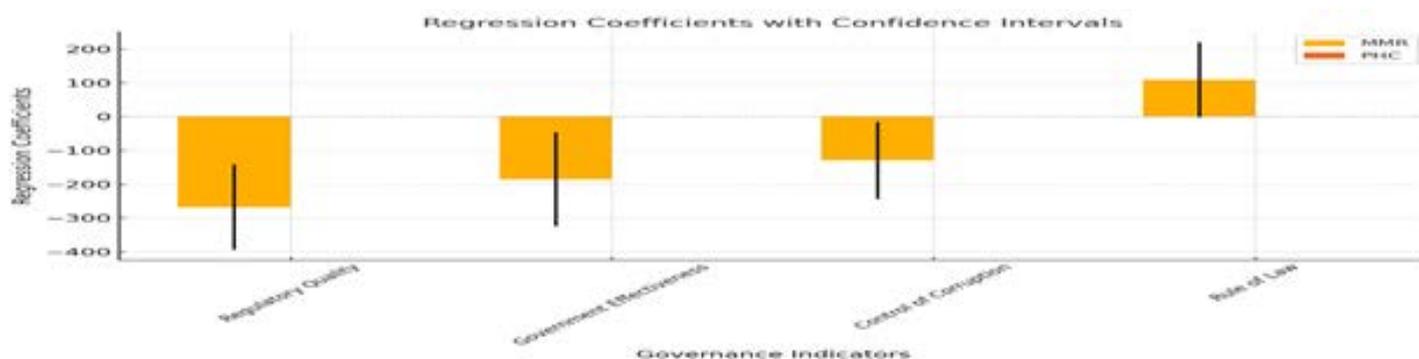

Figure 4: visualization of the Regression Analysis

Source: Generated by Author

6. Discussion of Findings

The results obtained from the analysis conducted show that governance influences health outcomes across the region. The findings align with the institutional economics that stated that an efficient and effective governance system reduces the cost and wastage of resources and enhances public service delivery. The negative impact of Regulatory quality on Maternal mortality rate is aligned with effective implementation of the health standards, plus efficiency of health policies and regulations that hold authorities accountable for input and, more importantly, for resource allocation. The significant effect of government effectiveness corroborates the studies that argued that effective governance enhances spending effectiveness in the healthcare sector and further improves the individuals' health Similarly, the negative sign of the control of corruption agreed with the study that emphasized how corruption undermines the competency of available and accessible global healthcare infrastructure and thus hampers public health. ECOWAS countries with lower corruption levels will likely experience better resource allocation, improving health outcomes [58-63].

The rule of law with positive signs is explained by the systemic inequities caused by inconsistencies in enforcing legal frameworks, where the rule of law benefits some groups of individuals over others. Government health expenditure reveals a negative relationship with maternal mortality rate, underscoring the importance of government expenditure in enhancing health outcomes. The finding aligns with the public health theories that support the argument that government expenditure is one of the determinants in addressing the mortality and morbidity rates. However, GDP per capita revealed that economic growth does not translate to health improvement without effective and efficient governance systems [64,65].

We also find that the governance system significantly affects healthcare access disparities. Government effectiveness and control of corruption showcase the significant negative coefficients, which corroborate with the studies that emphasized the need to improve control of corruption to reduce the negative relationship of disparities in healthcare access and outcomes by ensuring equitable resource allocation and curtail the loopholes. The significant positive of the Gini coefficient indicates that income inequality exacerbates disparities in healthcare access. The finding is consistent with global findings highlighting the need for governance reforms, which could be targeted toward resource distribution to ensure that healthcare services are equitably accessible across socio-economic levels. Lastly, the positive and significant interaction term of the rule of law and the Gini coefficient indicates that the rule of law can be used to tackle the effect of inequality on access to healthcare. This finding is consistent with several studies that stated that institutional quality increases access to equitable healthcare despite socioeconomic inequalities [66-69].

Explanatory Variables	Label	FGLS		FGLS	
		D. V: MMR		D. V: PHC	
		Coefficient	Std. Err.	Coefficient	Het-corr. Std. Err
Regulatory Quality	RGQ	-267.62***	73.638	0.003	0.016
Government Effectiveness	GVE	-185.15***	67.585	-0.070***	0.017
Control of Corruption	COC	-129.467**	60.929	0.059***	0.016
Rule of Law	ROL	109.679	67.375	-0.230***	0.059
Government health expenditure	GHE	-123.10***	29.312		
GDP per capita growth	GPCG	3.546	4.943		
Gini index	GIN			0.004***	0.001
Rule of Law * GINI Coefficient	ROL*GIN			0.006***	0.001
Constant		505.26***	74.22	-0.109*	0.058
Model Specification					
R-Square					
No of Observation		360			360
No of Group		15			15
Panel heteroskedasticity test	1310.73***			2033.83***	
Wald chi2	411.98***			3616.96***	
Note: *, ** and*** denotes significant level at 10%, 5% and 1% respectively					
Source: *Generated by the Author using STATA*					

Table 4: Robustness Test

Table 4 shows the robustness result, which the study further considered the additional test to affirm and validate the previous results; this could be seen in Table 4. The study used Feasible Generalized Least Squares (FGLS) as an advanced econometric technique suitable for panel analysis, as evidenced by. The results show the role of governance quality in influencing health outcomes and addressing maternal mortality rates. The results further show how the role of governance could mitigate the disparities in healthcare access across ECOWAS nations, which consistently agrees with the previous results. The findings underscore the significant role of institutional quality in promoting and improving healthcare delivery across the ECOWAS region [70].

7. Conclusion, Policy Implications, And Limitations

The study's findings underscore the crucial role of governance quality in achieving health outcomes, particularly in regulatory quality, government effectiveness, the rule of law, and control of corruption. These governance dimensions show a strong relationship with healthcare quality and significantly reduce maternal mortality rates across the region. Good governance fosters a robust healthcare system that guides resource usage, deters corruption, and facilitates effective policy implementation. Furthermore, governance positively mitigates the influences of income inequality on healthcare access, reinforcing its robustness in promoting fairness. The results highlight the importance of governance in strengthening the health system, decreasing disparities, and providing a strong strategy for equitable healthcare in ECOWAS. Based on the results, strengthening governance systems across the ECOWAS region is important. This could be done via robust governance effectiveness, strengthening the mandate of anti-corruption, and ensuring monitoring and supervision to achieve and improve the quality of health care delivery and health care outcomes, as this could also adequately make use of resources and eliminate corruption and waste in healthcare systems. Policymakers should increase health expenditure and ensure it is adequately utilized to reduce the rate of maternal mortality, accompanied by sufficient healthcare infrastructure and helpful health programs, specifically for healthcare personnel. In mitigating the unequal income distribution and poor access to healthcare services, strong health policies should ensure everyone has access to healthcare services across the region. All these policies could help improve health outcomes and equitable access to healthcare in the region. While this study provides a comprehensive exploration of the relationship between socioeconomic and political factors and health outcomes, there are several limitations that future research should address. The study's focus on ECOWAS countries may limit the generalization of the findings to other regions with different governance and socio-economic characteristics. Additionally, panel analysis may not fully reflect the individual country's status across the region. Future studies could consider a country-wise analysis to identify countries with advanced and weak governance systems in achieving health outcomes.

Declaration of AI Use
During the preparation of this work, the authors used some AIs to improve the English language and readability. After using it, the authors reviewed and edited the content as needed and took full responsibility for the publication's content.

Data Availability
Data will be made available on request.

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