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Food Security and Life Expectancy in Selected Economic Community of West African States (ECOWAS)

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Abstract

The considerable argument on the role of edible food and other relevant factors that influence life expectancy remains debatable among researchers. Various conclusions have been drawn with different methodologies and variables considered in the existing studies. Therefore, this study investigated the impact of food security on life expectancy in ECOWAS countries over the period 2012 to 2022. Life expectancy was proxy by life expectancy at birth, government expenditure on health, education, GDP per capita income, carbon dioxide emission, population growth rate, and control of corruption was sourced mainly from the World Development Indicator, Food and Agriculture Organization. This cross-sectional study employed the panel random effect model, vector error correction model, and Eviews 10.0 for regression analysis. The study used the Principal Component Analysis (PCA) to select the food security indexes, with the result showing that food affordability is the most appropriate for the study. The result revealed that even though food affordability positively impacted life expectancy, the impact is insignificant. It also showed that both government expenditures on health and education had a positive and significant impact on life expectancy, while carbon dioxide emission was negative and significant. The study also found that the population growth rate and income per capita granger caused carbon dioxide emissions without feedback. Consequently, this study recommended that policies to enhance food security should be given adequate attention by the governments of the selected ECOWAS countries through incentivizing farmers. The need to address high levels of income inequalities in these countries through institutional overhaul remains paramount, while mechanisms should be on the ground to ensure proper utilization of budgeted funds on health and education and embracing environmentally friendly practices.

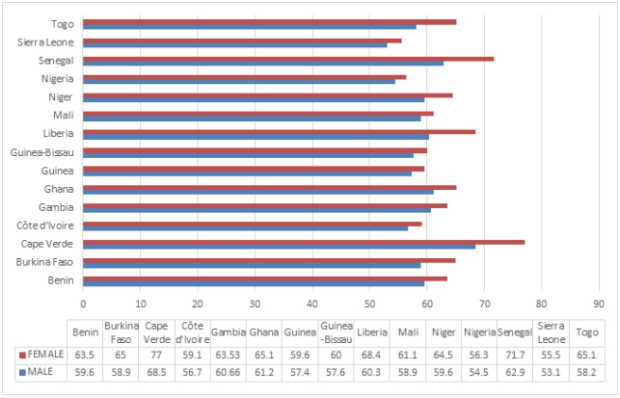
Background to the Study

At every stage of life, human beings continuously strive to improve their skills and to reach a life that is more and more dignified. For this reason, conscious and countless efforts to maintain and enhance health status and prolong life are made by individuals. The quality of life of individuals is reflected to a large extent in their life expectancies. This implies that the higher the quality of life, the higher the life expectancy will be (Monsef & Mehrjardi, 2015). Life expectancy is a measure of the average number of years an individual is expected to live from birth (World Health Organization, WHO, 2018). It is one of the most frequently used indicators for longevity, quality of life, mortality conditions, and economic development. It also serves as a key indicator of the health status of nations (Woolf & Schoomaker, 2019). More broadly, it is commonly taken as a measure of human progress, for instance, in aggregate indices such as the Human Development Index (United Nations, 2020). Several factors, including high-quality healthcare, adequate nutritional and edible food, education, income per capita, healthy lifestyle, sanitation, urbanization, environmental friendliness, and crime rates, amongst others, have been discussed in the literature as notable determinants of life expectancy (Ngangue&Manfred, 2016; Chen, Ma, Hua, Wang, Guo, 2021). It is perhaps not surprising that countries around the world have different life expectancies given the country-to-country variations in many of these factors (Organization of Economic Co-operation and Development, OECD, 2015).

Globally, life expectancy rankings continue to vary significantly by country and region, with the Western African countries having an exceptionally low position, even in the light of their huge budgetary allocations to the health, education, and agriculture sectors (Galvani, Martinez & Pandey, 2022).The less developed countries (LDCs) are faced with lower life expectancy as a result of many factors, such as low income, income inequality, inadequate healthcare systems, poor nutrition, poor infrastructure, and a host of others (Husain, 2012). As observed by Jetter,Laudage and Stadelmann (2019), wealthier countries have a higher average life expectancy than poorer countries, which is a result of higher standards of living, higher income levels, more effective health systems, nutritional food, and educational level. Similarly, Shafi& Fatima (2019) asserted that higher income implies better access to education, health care services, housing, dietary intake, and other items, which tend to improve health, lower rates of mortality, and higher life expectancy.

In Africa, like other developing countries in Asia and Europe, life expectancy has historically lagged behind other parts of the world (Yaya, Otekunrin&Ogbonna, 2021). The average life expectancy among members of the Economic Community of West African States (ECOWAS) has been pegged between 54.7 years and 73 years, indicating that each country has its unique factors influencing its life expectancy (West African Health Organization,2019). In 2023, the figure ranged from a low of 53.7 years in Western Africa to a high of 82.7 years in Western Europe (United Nations, 2023).

The graphical illustration below depicts the general trend of life expectancy among the ECOWAS countries.



	Benin	Burkina Faso	Cape Verde	Côte d'Ivoire	Gambia	Ghana	Guinea	Guinea -Bissau	Liberia	Mali	Niger	Nigeria	Senegal	Sierra Leone	Togo
FEMALE	63.5	65	77	59.1	63.53	65.1	59.6	60	68.4	61.1	64.5	56.3	71.7	55.5	65.1
MALE	59.6	58.9	68.5	56.7	60.66	61.2	57.4	57.6	60.3	58.9	59.6	54.5	62.9	53.1	58.2

Figure 1: Trend of Life Expectancy among the ECOWAS countries.
Source: Macro trends, 2022.

Figure 1 depicts the trajectory of life expectancy across the various sub-regions of ECOWAS and illustrates the trend in the mean life expectancy over time for the various regions of Africa. Despite a recent, slow, and consistent rise, it is clear that life expectancy is shifting.

A look in Figures 2 and 3 provides the state of affairs with respect to average life expectancy in the selected ECOWAS countries according to their income group.

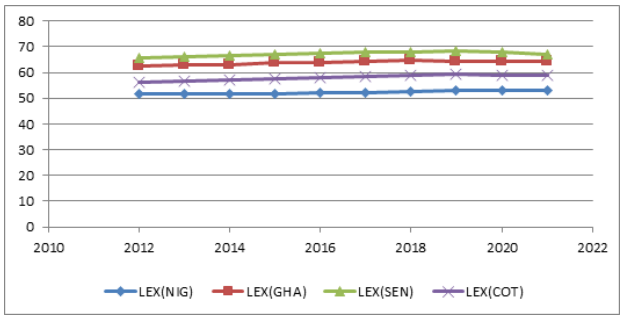


Figure 2: Trend of Life Expectancy among selected Lower Middle-Income ECOWAS Countries.
Source: World Development Indicator (2023).

Note: LEX – life expectancy, NIG – Nigeria, GHA – Ghana, SEN – Senegal, COTV - Côte d'Ivoire

Figure 2 depicts the trend of life expectancy among lower middle-income ECOWAS countries namely: Nigeria, Ghana, Senegal, and Cote d'Ivoire. Comparatively, the trend

shows that the country with the highest life expectancy within the study period is Senegal. On average, life expectancy in Senegal is 68 years, and it couldn't approach 70 years within the study period. Following Senegal is Ghana, with an average life expectancy of about 64 years. Figure 1.1 also shows that among the countries that fall into this income category, Nigeria has the lowest life expectancy within the study period. The average life expectancy for Nigeria within the period is 52 years. In all the countries except for Senegal, life expectancy on average was 62 years. Therefore, more still needs to be done in Nigeria and some other countries regarding life expectancy, and food security could serve as a panacea for increasing life expectancy.

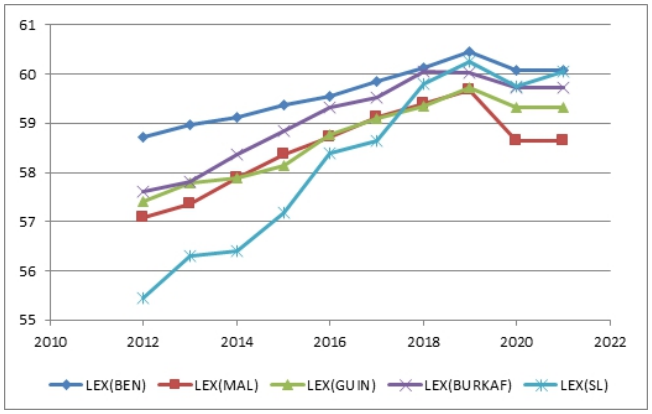


Figure 3: Trend of Life Expectancy among selected Low Income ECOWAS Countries.
Source: World Development Indicator (2023).
Note: LEX – life expectancy, BEN – Benin, MAL –Mali, GUIN – Guinea, BURKF – Burkina Faso, SL = Sierra Leone

Figure 3 shows the trend of life expectancy in low-income countries from 2012 to 2022. From the trend, all the countries in the sample had a steady rise in their life expectancy, but from 2019, their life expectancy experienced a drastic fall. Among the countries that fall within this income group, Benin Republic has the highest life expectancy, with an average life expectancy of 68 years. Following the Benin Republic is Burkina Faso, with an average life expectancy of 60 years. However, starting in 2018, a fall in life expectancy in Burkina Faso led to Sierra Leone experiencing more life expectancy in 2019, with an average life expectancy of 60 years. Though average life expectancy in Mali and Guinea was almost at the same level, from 2019, life expectancy in Mali was the least. Another noticeable feature in Figure 2 is that prior to 2018, Sierra Leone had the lowest life expectancy compared to other countries in the income group.

Developed countries are known to vigorously pursue meaningful policies aimed at attaining and improving healthy life and well-being, which reduce the morbidity and mortality rate whilst achieving inclusive growth and sustainable development. This is because it has been realized that a healthy populace guarantees improved productivity. However, African countries lag behind in this pursuit, mainly because life expectancy is

very low compared to the developed and even some other developing countries outside Africa (Imoagwu, Nwogwugwu, Ezenekwe, & Kalu, (2023).

Over the years, successive governments in West Africa, especially the ECOWAS bloc, have attempted to tackle the alarming increase in morbidity and mortality rates in the region by formulating and implementing policies and programmes to raise their life expectancy. In a bid to tackle this impediment to human developmental targets, various African governments collaborated with several international organizations, donor agencies, foreign governments, and non-governmental organizations to enhance their lifespan. Some of the prominent efforts made include the African Health Observatory Programme, United Nations International Children's Emergency Fund (UNICEF), Sustainable Development Goals (SDGs), Global Partnership for Maternal, Newborn & Child Health (PMNCH), United Nations Population Fund (UNFPA), Health Watch Africa (HWA), United Nations Educational, Scientific Cultural Organization (UNESCO), Africa Region Initiatives, United Nations Development Programmes (UNDP), United States President's Emergency Plan for AIDS Relief (PEPFAR), Africa Development Bank (ADF), African Leaders Malaria Alliance (ALMA), among others. All these policies and programmes have been implemented for some decades now with a view to improving quality of life and thus achieving higher life expectancy (UNDP, 2018; Adibe, Mgbemena & Kalu, 2021).

Promoting food security requires a comprehensive approach that addresses various aspects of food production, distribution, access, and usage. Nevertheless, some of the policies and programmes initiated by ECOWAS countries to promote food security, sustain agricultural practices, foster regional co-operation and integration in the sub-region includes: ECOWAS Agricultural Policy (ECOWAP), ECOWAS Regional Food Security Reserve, Regional Agricultural Trade Policy, Regional Food Balance Sheet (RFBS), West Africa Seed Program (WASP), West Africa Agricultural Productivity Program (WAAPP), Regional Agricultural Investment Plans (RAIPs), among others.
Despite these efforts, statistics on life expectancy in the ECOWAS countries still remain abysmally low. This, therefore, calls for an in-depth investigation into the factors that influence life expectancy with a view to proffering policy direction.

Empirical Literature Review

Several literatures that concern the theories and empirical relationship between life expectancy with diverse outcomes. Theoretically, Grossman in 1972 observe the macroeconomic factors responsible for health indicators which includes individual's investment in health capital through a combination of personal health behaviors, healthcare utilization, socio-economic, demographic, environmental, and institutional factors.

Kinsella (2015) conducted a study on food nutritional intake and life expectancy in less developed countries from the period of 1970 to 2015 using a cross-sectional panel data analysis from World Bank. The variables utilized in the study are food production index,

agricultural funding, health care spending, literacy rate. The study revealed that sufficient nutrition can increase life expectancy and reduce mortality rates. However, in dry-land developing countries, where large numbers of people have a deficient nutritional intake, increasing this intake can reduce mortality rates and increase life expectancy. In a sample of 27 provinces, Wang (2019) estimated the relationships between food security, food prices, and climate change in China. The variables used in the study are per capita disposable income of rural residents, food retail price index, rural per capita food consumption, agricultural disaster area, sown are, and saving of urban and rural residents. Using a dynamic panel data analysis, the study showed that climate change affects food security significantly in the current year, but food prices had no influence on food security in the current year in China.

Manap and Ismil (2019) employed a dynamic panel data model known as the General Method of Moments (GMM) to estimate the impact of Food security and economic growth of 75dry-land developing countries using data from 1970 to 2016. Food security was captured by dietary energy supply, gross domestic product, life expectancy, total employment, poverty headcount, government expenditure, agricultural machinery, and arable land. The results revealed that food security has a significant positive impact on food security as an increase in food security increases economic growth. The study also showed that food security has an impact on economic growth in terms of life expectancy, total employment, and poverty whereas life expectancy and total employment with better food security have a positive impact on economic growth which reduces poverty.

Aigheyisi (2020) examined the effects of agricultural productivity and other economic factors on life expectancy in Nigeria. The variables used in the study are life expectancy at birth, energy poverty, agricultural productivity, unemployment, per capita income, inflation, and nominal exchange rate. The study used the ARDL to show that improvement in agricultural productivity enhanced life expectancy in the short in but adversely affected it in the long run. Also, inflation and unemployment adversely affected life expectancy both in the short and in the long run. The effect of real per capita income was also shown to be negative both in the short run and in the long run effect. While government expenditure on education was significant in both the short run and the long-run, health expenditure positively affected life expectancy in the short run and in the long run.

Agu, Agu, and Onwuteaka (2020) employed the multivariate ordinary least squares to investigate food poverty and its implications for life expectancy in Nigeria. The variables used in the study are life expectancy, total Labour force, capital formation, agricultural output, and food items importation. The findings of the study showed that while capital formation, total labor force, and food importation impacted positively life expectancy in Nigeria, food poverty had a negative impact.

Imoagwu, Nwogwuwgwu & Ezenekwe (2023) examined the role of food production in enhancing Life expectancy in some selected countries in ECOWAS using the food

production index dataset. The study was analyzed using annual series from 1996 to 2021 under the frameworks of panel FMOLS and DOLS. The study found that in the two models used, food production is statistically significant and positively related to life expectancy in the selected countries. Government expenditure on health was also found to influence life expectancy positively, while expenditure on education did not have any significant impact. The study also found GDP per capita and population growth rate to adversely impact on life expectancy.

Nzeh, (2023) employed dynamic ordinary least squares (DOLS) and fully modified ordinary least squares (FMOLS) in addition to panel OLS to examine the role of food production on life expectancy among Africa's low-income and food-poverty countries over the period 2000 to 2020. Using food production index, government expenditure on education, government expenditure on education, GDP per capita, life expectancy at birth as variables in the study. The result showed that in all the three-panel models used, food production index impacted positively and significantly on life expectancy in the selected countries. It also found that GDP per capita did not positively influence life expectancy; government expenditure on health improved it. The positive impact of nutritional food on life expectancy was strongly established.

Methodology and Procedures

The theoretical framework for the study was based on Micheal Grossman model that emphasized that health indicators (including life expectancy) are often affected by various factors. These factors include diet, education, health care, income, environment, healthy lifestyle and time. As Aigheyisi,(2020) put it, people allocate their resources to produce healthy living, and this average life expectancy are often influenced by nutritional intake (food security).

This implies that: LEX = f (FS). (1)

Where;
LEX is the average life expectancy (at birth) and FS

represent the food security. Thus, the main objective of this study is to examine the impact of food security on life expectancy in selected ECOWAS countries. For this purpose, the study would be based on the Grossman model with some modifications. This modification was the introduction of global food security index which is the appropriate proxy for food security, control of corruption which serves as control variable, to investigate the impact of food security on life expectancy in selected ECOWAS. The functional form of the model is as follows:

$$LEX_{it} = \eta_0 + \eta_1 FAFORD_{it} + \eta_2 GEE_{it} + \eta_3 GEH_{it} + \eta_4 LCO2_{it} + \eta_5 GPCI_{it} + \eta_6 PGR_{it} + \eta_7 CC_{it} + \varepsilon_{it} \quad (2)$$

Where: LEX_{it} = Life expectancy at birth for country i and in time t, $FAFORD_{it}$ = Food affordability for country i and in time t, GEE_{it} = Government expenditure on education for country i and in time t, GEH_{it} = Government expenditure on health for country i and in time t, LCO_{2it}= log of carbon dioxide emission for country i and in time t, $GPCI_{it}$ = Gross domestic product per capita income for country i and in time t, PGR_{it} = Population growth rate for country i and in time t, CC_{it} = Control of corruption for country i and in time t, ε_{it} = error term for country i and in time t, η_0 = intercept term. The panel random effect model also guided objectives two and three but it is modified by including the interaction effect. Thus, the following model guided objective two:

$$LEX_{it} = \gamma_0 + \gamma_1 FAFORD_{it} + \gamma_2 GEE_{it} + \gamma_3 GEH_{it} + \gamma_4 LCO2_{it} + \gamma_5 PGR_{it}) + \gamma_6 CC_{it} \gamma_7 FAFORD_{it} * GPCI_{it} + \varepsilon_{it} \quad (3)$$

The specification of the panel VECM is as follows:

$$LEX_{it} = \phi_0 + \sum_{i-1}^{p} \phi_1 LEX_{it} + \sum_{i-1}^{p} \phi_2 \Delta FAFORD_{it-i} + \sum_{t-0}^{p} \phi_3 \Delta FAV_{it-1} + \sum_{t-0}^{p} \phi_4 \Delta GEE_{it-i} + \sum_{t-0}^{P} \phi_5 GEH_{it-i} + \sum_{t-0}^{p} \phi_6 \Delta LCO2_{it-i} + \sum_{t-0}^{p} \phi_7 \Delta PGR_{it-i} + \sum_{t-0}^{p} \phi_8 \Delta CC_{it-1} + \sum_{t-0}^{p} \phi_9 GPCI_{it-i} + \delta PECM_{it-i} + \varepsilon_{it} \quad (4)$$

Where: Δ = First difference operator, $PECM_{it-i}$ = Panel error correction model, δ =Coefficient of the panel error correction, ϕ_1 - ϕ_9 = Short-run coefficients, ε_{1t} =Stochastic error term.

Results and Discussion

Table 1: Summary of Descriptive Statistics Result

	LEX	FAFORD	GEE	GEH	LCO2	PGR	GPCI	CC
Mean	54.03	-2.79	16.62	6.52	-0.37	2.63	1323.9	-0.51
Median	58.84	-1.4	17.70	5.11	-0.27	2.58	1189.1	-0.52
Maximum	68.52	11.1	37.52	31.09	0	3.21	3200.95	0.05
Minimum	0	-22.7	0	0	-0.96	2.007	0	-1.27
Std. Dev.	17.49	7.19	8.03	6.21	0.28	0.29	702.29	0.39
Skewness	-2.61	-1.04	-0.15	1.84	-0.347	0.06	0.53	-0.11
Kurtosis	8.40	4.18	3.38	6.55	1.98	2.51	2.43	1.70
Jarque-Bera	209.95	21.54	0.89	97.35	5.62	0.92	5.50	6.43
Probability	0	0.00	0.63	0	0.06	0.62	0.06	0.04
Sum	4809.0	-248.9	1479.2	580.96	-33.67	234.67	117833.5	-45.67
Sum Sq. Dev.	26949.2	4558.0	5684.9	3402.5	7.245	7.43	4340	13.53

Source: Authors' computation using EViews 10

In Table 1, the results of descriptive statistics reveal that the variables have low variability as well as been symmetric (variables have values that appear at regular frequencies). The

test also revealed that the mean value of life expectancy (LEX) is 54.03, and while the mean value of government education (GEE) is 16.62, that of government expenditure on health (GEH) is 6.52. The result indicates that government expenditure on education (GEE) is higher than expenditure on health (GEH). In another respect, the study found that the variable with the highest range (maximum value minus minimum value) is GDP per capita income (GCPI), while the variable with the least range is food affordability. By implication, GDP per capita income experienced the highest volatility within the study period. At the 5% level, the Jarque-Bera results indicate the normality hypothesis cannot be accepted for life expectancy (LEX), food affordability (FAFORD), government expenditure on health (GEH), and control of corruption (CC), while other variables passed the normality test.

Table 2: Summary of Correlation Matrix of the Food Security Variables

COMPONENTS	FAFORD	FAV	FSTAB	FUT
FAFORD	1.000000			
FAV	0.272306	1.000000		
FSTAB	0.112743	0.183992	1.000000	
FUT	0.101331	0.313259	0.593840	1.000000

Source: Authors' computation using EViews 10

Having ascertained the correlation among the determinants of food security, the study investigated the most appropriate variables among the four food security indexes using the principle component analysis (PCA). This test needs to avoid over-fitting the model such that other non-food security indicators of life expectancy are excluded from the model. The choice of variable selection under the PCA is guided by the suggestion by Adams, Bamanga and Mbusube (2019) that the usual approach in the selection of appropriate variables is to choose those that have eigenvalue equal to or greater than one.

Table 3: Results of Panel Unit Roots at Level

Variables	LLC t-stat.	ADF-FISHER t-sta.	LLC Critical Value	ADF-FISHER Critical Value	Order of integration
LEX	6.28801	18.8659	1.0000	0.4001	I(0)
FAFORD	-3.91968	59.6524	0.0000*	0.0000*	I(0)
GEE	0.06893	8.89134	0.5275	0.9622	None
GEH	4.91641	12.4236	1.0000	0.8246	None
LCO2	-2.63701	6.04115	0.0042*	0.9960	LCC I(1)
PGR	3.02994	10.0063	0.9988	0.9317	None
GPCI	1.15539	7.23341	0.8760	0.9880	None
CC	-2.32562	21.7020	0.0100*	0.2455	LCC I(1)

Note: * indicates the rejection of the null of no unit root at the 5% level.
Source: Authors' computation using EViews 10

To confirm the order of integration of the series, the study conducted panel unit root tests. The results of the panel unit root test at level in Table 4.3 indicate that under the Levine-Lin-Chu test (LLC), food affordability, carbon dioxide emission, and control of corruption were stationary. They are integrated of order zero or I(0). However, other series did not achieve stationarity. Under the ADF-Fisher, findings show that food affordability achieved stationarity while others did not.

Table 4: Result of the Hausman Test

Hausman Test for Period Random Effect			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f	Prob.
Period random	0.004648	8	0.987578

Source: Authors' computation using EViews 10

To examine the impact of the food security measures and other explanatory variables on life expectancy, the panel random effect model was used. In conducting the Hausman test, the assumption is that the random term is uncorrelated with the explanatory variables. The test is guided by the condition that the null hypothesis which states that the random term is uncorrelated with the explanatory variables. If the random effect is revealed to pass this test, then the random effect model is chosen against the fixed effect model. On the contrary, if the random term is shown to correlate with the explanatory variables, the fixed effect model is chosen. In Table 4.4, the result of the Hausman test reveals that the p-value is greater than 5% which implies that the random effect is chosen since the study cannot reject the null hypothesis that the error terms are uncorrelated with the explanatory variables.

Table 5: Results of Random Effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	14.07121	14.79404	0.951140	0.3447
FAFORD	0.030875	0.318015	0.097087	0.9229
GEE	0.986757	0.228652	4.315544	0.0000
GEH	0.668816	0.247047	2.707244	0.0085
LCO2	-6.404257	7.946385	-0.805933	0.4229
GPCI	0.003134	0.002544	1.231780	0.2220
PGR	4.623771	4.574202	1.010837	0.3155
CC	-0.153032	5.312034	-0.028809	0.9771
R-squared	0.170321			
Adjusted R-squared	0.089657			
Durbin-Watson stat	1.512977			
J-statistic	4.30E-25			

Source: Authors' computation using EViews 10

The outcome of the Hausman test indicates that the random effect model has to be estimated. The results of the random effect model in Table 5 indicate that reveal that food affordability has a positive impact on life expectancy but the outcome is not significant.

Discussion of Findings

From the foregoing results, this study found that food security did not have a significant impact on life expectancy in the selected ECOWAS countries, even though it was positive. The positive impact of the food security index on life expectancy finds support in the finding by Uchendu and Abolarin (2015)in a study of developed and developing countries as well as the finding by Manap and Ismil (2019) in a study involving dry-land developing countries. Also, the study finds support in the finding by Nzeh (2023), which found that the food production index impacted positively on life expectancy in low-income food-deficit countries in Africa.

The fact that the results of the impact of food affordability did not have a significant impact on life expectancy in the selected ECOWAS countries is clear evidence that these countries still grapple with food shortage, which affects their life span. Food deficit in African countries in general and in ECOWAS countries, in particular, is a phenomenon that has become hydra-headed. The majority of the countries that are classified as food-deficit countries by the Food and Agricultural Organization (FAO, 2023) are in Africa and most of the countries are in ECOWAS. To be specific, apart from Nigeria, other countries included in the present study fall into this category.

The result revealed that in the two-panel random effect models, government expenditures on health and education impacted positively on life expectancy in the selected ECOWAS countries, which aligns with apriori expectation. This result finds support in the findings by Reynolds and Avendano (2019) in a study involving high-income countries. The study found that carbon dioxide emission impacted negatively on life expectancy, while GDP per capita is found to have non- significant positive impact on life expectancy in the selected countries. However, some studies have also found that GDP per capita hasan insignificant impact on life expectancy, such as a study by Kabir (2018) in developing countries. A negative impact was also found in a study of low-income food-deficit countries in Africa by Nzeh (2023). The positive impact of income per capita on life expectancy is in line with apriori expectation, but the non-significant impact, as found in the present study, is an indication that wealth is not widely spread in these countries, mainly owing to institutional weaknesses. To prove this fact, the control of corruption in the first model was shown to have a negative impact on life expectancy even though the impact is not significant

Conclusion

Achieving the Sustainable Development Goals of the United Nations, which include reducing hunger and inequality, enhancing public health, and enhancing overall well-being for all people, is synonymous with raising the life expectancy of Africans, particularly in the ECOWAS sub-region. However, raising life expectancy is a pressing

concern on a worldwide scale. It is a phenomenon that has been deemed essential for the development of third-world nations because a person's diet determines how healthy they are as well as how long they live. Nevertheless, the findings of the study revealed that food security impacted positively on life expectancy in the models used in the study, even though the results are not significant.

Recommendations

In the light of the key findings and in consonance with the objectives and policy implications of the study, the paper recommends that:

i. Government of the ECOWAS countries should invest in sustainable agricultural practices such as agricultural research and extension services, climate-smart agriculture and weather insurance, agricultural skill acquisition centres, trade policies and social protection programmes.
ii. Policy makers should prioritize food security initiatives such as diversification of food sources, food distribution networks, nutrition education and awareness campaigns, anti-corruption measures, transparent and inclusive governance.
iii. International organisations should provide support for food security and health initiatives through nutrition counselling and supplementation programs, quality health care services, and prevention programmes. Finally, all these economic policy options if properly adhere to will boost food security, improve health outcome and prolong life in the region through institutional overhaul.

Conflict of Interest

Authors have declared that no conflict of interests exist.

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