Drivers of Under-five Mortality Rate and Health Human Capital in Selected Sub-Saharan African Countries

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Abstract
The study examined the drivers of under-five mortality rate and health human capital in sub-Saharan African (SSA) countries between the periods of 1995 to 2020 using the dynamic panel vector autoregressive (PVAR) technique, anchored on the theoretical framework of Grossman health production function. The variables of the model are: under-five mortality rate as, the dependent variable; per capita income, food security, electricity consumption, carbon emission, government health expenditure (% of GDP), government education expenditure (% of GDP) and poverty headcount ratio as independent variables. The data for the variables were sourced from World Bank Development Indicator (WDI, 2020) and African Development Bank Database (2020). The findings reveal that per capita income was positively related to under-five mortality rate while electricity consumption was negatively but significantly related to under-five mortality rate. The study therefore recommends among others the need for policymakers to initiate expansionary fiscal policy and restrictive monetary policy to promote and sustain per capita income through channeling of investments in the selected SSA countries to promote employment generation and to reduce under-five mortality rate.

Keywords: *Health stock, infant mortality rate, panel vector autoregressive, sub-Saharan Africa, under-five mortality rates*
JEL Codes*: I12, 118, C14, H51*

Introduction

Health is a key component of an individual's welfare and standard of living. Sickness and ill-health, and the risk of death, are central issues in shaping human capacities and behaviour. There is therefore a strong argument for health spending on the grounds that it has a direct effect on human well-being and happiness. Health is not only consumption goods that add to well-being, but it is also an investment good that increases the future productive power of individuals and the economy. Health has a direct effect on the productivity of workers and also indirectly acts as a complimentary input to other forms of human capital development. As argued by Schultz (1999), health is the ultimate indicator of the well being of a nation; hence the attainment of high health stock is an important aspect of development in its own right. Health capital has been classified in development literature to include: education, health, training, migration and other investments that enhances an individual's productivity.

In this study, health and education expenditures were used to proxy health human capital following Gyimah-Brempong and Wilson (2004). An improvement in health status of the citizenry of the sub-Saharan Africans is an important prerequisite for achieving human capital and economic development. There is no gain ignoring the maxim that health is wealth. The wealth and poverty of nations can, and have often been explained in terms of the state of health of its citizens. Health is fundamental to economic growth and development and is one of the key determinants of economic performance both at the micro and macro levels. This is because health is both a direct component of human well-being and a form of human capital that increases capabilities of individuals (Bloom & Canning, 2003; Ogunleye, 2014). The inclusion of health-related goals in the out-gone World Development Agenda (i.e. the Millennium Development Goals (MDGs) and the present Sustainable Development Goals (SDGs) highlights the strong effect and linkage between health, economic growth and economic development, vis-à-vis poverty reduction. To demonstrate further the importance of health, specific targets were set for achieving improved health status in the Sustainable Development Goals (SDGs) Agenda, namely: i) a reduction in child mortality by two-thirds levels by 2030; ii) a reduction in maternal mortality ratios by three-fourths levels by 2030.

Sub-Saharan Africa and the world at large, faces health system challenges including high child mortality ratios. A glance at the overall human development index of the SSAs portrays a disappointing picture of its quality of human capital development. The average annual growth rate of human development index (HDI) for sub-Saharan Africa is about 4.01 percent compared to East Asia, Pacific and Latin American regions with over 20 percent. Again, in comparative terms, progress in reducing child mortality since 1990 has been particularly slow in SSA, where rates of infant and child mortality are increasing on daily basis. These dramatic increase in infant and under-five mortality rates have been traced to several socio-economic factors. The most commonly sighted among relevant literature include: per capita income growth; expenditure on health and education. Others include poverty head-count ratio, while less attention has paid to food security and environmental factors (WHO, 2020). The focus on the drivers of under-five mortality rate in sub-Saharan African countries is hinged on some reasons. First, the World Development Report (1993) suggests that improved health in SSA will increase the growth rates of income of the SSAs. Accordingly, the report indicates that the Structural Adjustment Programme (SAPs) in SSA countries led to reductions in health investment which had consequential effect on under- five mortality rate. Quantifying the drivers of under-five mortality rate in SSAs could give policy makers an idea of policy measures to promote this component of health status. Furthermore, this study can add to the already existing literature on under-five mortality rate.

Majority of the previous scholars have focused on healthcare expenditure as a determinant of under-five mortality rate (e.g. Anyanwu & Erhijakpor, 2007; Novignon *et al*., 2012; Boachie & Ramu (2015); Ahmed & Hassan (2016); Barenberg *et al* (2015). Other researchers focused on energy consumption (Shobande, 2020) as a determinant of under-five mortality, as well as per capita income (Baird *et al.*, 2011). Adriano and Mollen (2019) used maternal education as a determinant of under-five. However, there is no consensus regarding the effect of these variables on under-five mortality rate.

This paper therefore, investigate the drivers of under-five mortality rates in SSA, by examining the effects of the previous variables and inclusion of additional variables of food production index, proxy by food security; government health expenditure as a percentage of total expenditure; government expenditure on education as a percentage of total expenditure, electricity consumption (per kwh); poverty head count ratio expressed in purchasing power-parity and carbon emission (CO2), proxy by air pollution. The inclusion of these variables is in line with the identified variables in the literature of under-five mortality. To achieve the purpose of the paper, a regional panel vector autoregressive (VAR) was estimated, using these variables over the period, 1995-2019 for which consistent and more comprehensive data is available. On the basis of the estimated evidence, conclusions were drawn on the relative drivers of under-five mortality rates in the selected SSA countries. The research questions of the paper following the statement of the problem are posed thus:

- What are the effects of the drivers of under-five mortality rate in sub-Saharan Africa?
- What is the forecasting power of the drivers of under-five morality rate in sub-Saharan Africa?
- What are the responses of under-five mortality rate to the changes in the drivers in Sub-Saharan Africa?

The countries of Benin, Cote d'Ivoire, Ghana, Mali and Nigeria selected for the study were based on geographical, economic and health system factors. These countries are commonly in the ECOWAS sub-region.

Theoretical Frameworks and Model Specification

The section presents the theoretical framework and the model specification.

Theoretical Framework

The production function of health defines the relationship between health and health inputs. It envisions health as a capital stock to education or human capital. It emphasizes the similarities between health capital and human capital and policy implications of this relationship. Grossman model assumes that the individual makes decisions about how much to invest in his stock of health capital at any instant time on the basis of a calculation of cost and benefits, where both costs and benefits may be distributed over time. At any given time, people are assumed to have utility function that depends on health (H) and the consumption of goods and services (Z):

$$U_{t} = U(H_t, Z_t) \qquad (2.1)$$

Where U_t is utility at year t; H is health, a stock variable and Z is the consumption of goods and services. H and Z can be produced by people in the production function. Based on the models of Anyanwu and Erhijiakpor (2007) and Novignon and Lawanson (2017) and adjusting the health production function of Grossman (1972), the model of the study can be specified as thus:

$$U5MR_{i,t} = \beta_O + \beta_1 PCI_{i,t} + \beta_2 FPI_{i,t} + \beta_3 ELCON_{i,t} + \beta_4 CO2EM_{i,t} + \beta_5 G_oVtHEX_{i,t} + \beta_6 G_OVEXP_{i,t} + POVHCR + II \qquad (2.2)$$

Where U5MR=under five mortality rate; PC1=Per capita income; FPI=Food production index; ELCON=Electricity consumption; C02EM=Carbon emission; GoVtHEX=Government health expenditure; GoVEXP =Government education expenditure; PCR=Poverty head count ratio; U=stochastic error term; subscript i represents country and t denotes time measured in years.

While the simple regression model in equation (2.2) might provide some insights into the determinants of U5MR, it is plaqued by endogeniety arising from the correlation between unobservable characteristics of the population (e.g. cultural factors and attributes in a particular country) and some of the independent variables such as education and income per capita. Additionally, the health production function might be better represented as a dynamic model since U5MR is dependent on the stock of health in the reviewing periods (Grossman 1972). The panel VAR analysis was utilized in the estimation exercise. Procedurally, the pre-test and post-test estimations were carried out to enhance the robustness of the empirical results for policyinference

Table 1: Data Summary & Description

Variables	Type	Proxy	Unit of Measurement	Sources (s)
Under-five mortality rates	Dependent Variable	Health outcome	Per 1000 births	AfDB (2020)
Per capita income	Independent	Income	(Annual %)	AfDB (2020) WDI (2021)
Food production index	Independent	Food security	1999-2001 = 1000	AfDB (2020) WDI (2021)
Electricity consumption	Independent	Electricity infrastructure	Kwh per capita	AfDB (2020)
Carbon emission	Independent	Environmental hazard	Metric tons per capita	WDI (2020)
Govt. health expenditure	Independent	Government expenditure	% of GDP	AfDB (2020) WDI (2021)
Govt. education expenditure	Independent	Government expenditure	% of GDP	AfDB (2020) WDI (2021)
Poverty Head Count ratio	Independent	Socio-economic indicator/poverty	At $1.90 a day (2011 PPP) (% of population)	AfDB (2020) WDI (2021)

Source: Authors' compilation

Results and Analysis

Summary of Descriptive Statistics

Table 2 presents the summary of the descriptive statistics –the measures of central tendency–which explains the extent of distribution of the variables around the mean, and measures of dispersion –which measures the tendency of the variables to scatter away from the mean. The measures include the skewness and kurtosis.

Table 2: Summary of Descriptive Statistics

Variables	U5MR	C02EM	ELCON	GOVtHEX	PCI	GOVEXP	POVHCR	FPI
Mean	5.6252104	28.625	116.4952	8.56	2.2666	4.24	0.5241	3.24
Media	16.4200325	24.365	23.56824	7.256	3.00000	3.76	1.010001	1.625
Maximum	42.062854	106.821	2615.321	15.203	105.178	124	1.01000	2.489
Minimum	-172.528106	7.8962	-8.45229	0.2514	-47.02081	0.3	0.00000	1.0200
Std. Dev.	52.625021	9.2435	354.6593	2.1439	10.2776	11.2	0.32521	1.020
Skewers	-3.042956	1.6398	4.28634	-3.14	1.862423	10.4	-1.1441	5.824
Kurtosis	14.682154	15.1259	36.2175	1.462	38.12464	47.3	2.51478	52.61
Targue-Bera	1035.56210	1462	11063.24	0.32	11524.86	64.2	52.9524	48.7
Probability	0.0000010	0.00	0.00000	1687	0.000000	70.5	0.000000	0.00
Seen	728.4692	5106	21205.61	1803	654.7281	438.3	146.0010	136^{0}
Seen Squ.	18725.6	18206	24825.00	70.14	1.4063	1865	34.1218	0.25^{7}
Observation	195	195	195	195	195	195	195	195

Note: U5MR: under-five mortality rate; C02: carbon emission; ELCON: Electricity consumption, PCI: per capita income, GoVtHEX: Government health expenditure; GoVEXP: Government education expenditure; POVHCR: Poverty headcount ratio; FPI: Food production index.

Source: Authors' computation using EVIEW 11.0

Table 2 presents the summary of the descriptive statistics of the panel VAR estimation results for under-5 mortality rate (per 1000 births), per capita income, food production index 1999-2001 = 100); electricity consumption (kwh per capita), $C0_2$ emission (metric tons per capita) government health expenditure (% of GDP); government education expenditure (% of GDP and poverty head count (at $1.90 a day, 2011 PPP) (% of population). From the presented evidence in Table 2, the mean for the variables ranges from 5.63 to 3.24. The range for under-five mortality is 26 while the range for food production index is 0.864. The skewness statistics showed that under-five mortality, government education expenditure and poverty head count ratio are negatively skewed while carbon emission, electricity consumption and per capita income, government health expenditure and food security are positively skewed. From the skewness results also, it can be concluded that there are no outliers in the distribution. The kurtosis statistics showed that the values of the data ranges from 1.462 to 47.3, suggesting that the variables are more peaked than the normal curve (Leptokurtic). Again, the Jarque-Bera statistic values of 1035.562 to 48.7 imply the rejection the null hypothesis of normal distribution for the variables at the 5% (0.05) critical values.

Correlation Matrix

The correlation matrix is carried out in support of the descriptive statistic results. The correlation matrix shows the correlation coefficient between the variables related to under-five mortality rate.

Table 3: Correlation Matrix

	U5MR	ELCON	FPI	PCI	C02EM	GoVtHEX	GoVEXP	POVHCR
U5MR	1.00							
ELCON	0.82	1.00						
FPI	0.74	-0.16	1.00					
PCI	0.42	0.27	0.08	1.00				

C02EM	-0.66	0.3	0.1	0.84	1.00			
GoVtHEX	0.68	0.27	0.1	0.81	0.98	1.00		
GoVEXP	0.76	-0.24	-0.11	-0.69	-0.89	-0.89	100	
POVHR	0.27	0.30	0.05	0.83	0.99	-0.29	0.43	1.00

Note: Variables previously defined.
Source: Authors' computation using EVEW11.0

Each cell in the table shows the correlation between two specific variables. For example, the correlation between under-five mortality rate and electricity consumption is 0.82, which indicates that ELCON is strongly related to under-five mortality rate, while carbon emission is negatively related to under-five mortality. This indicates that under-five mortality rate is negatively related to environmental hazard. None of these variables were found unrelated to under-five mortality. The correlation coefficients along the diagonal of Table 3 are all equal to 1 because each variable is perfectly correlated with itself.

Panel Unit Root and Co integration Results

Table 4: Kao Panel Co integration test

Test	t-Statistic	Prob.
	-1.755764	0.0396
Residual Variance	11.20856	
HAC Variance	25.21711	

Source: Authors' computation using EVIEW 11.0

The Kao panel cointegration results show the rejection of the null hypothesis as the residual and HAC variances are greater than the t-statistics value. This shows a long-run relationship between the dependent and explanatory variables.

Panel VAR Lag Order Selection Criteria Test

The correct lag-length selection is essential for panel VARs since excessively short lags may fail to capture the system's dynamics, leading to omitted variables and biased coefficients. However, too many lags lead to rapid less of degrees of freedom and to over parameterization.

Table 5: PVAR Lag Selection Criteria Test

Lag	Logl	LR	FPE	AIC	SC	HQ
0	-3934.303	NA	1.45e+12	45.03204	45.14054	45.07605
1	-3190.267	1428.549	4.45e+08*	36.94020	37.69975	37.24821
2	-3101.846	69.51928*	4.38e+084*	36.92249*	38.33308	37.4946
3	-3152.78	90.6972	3.71e+084	36.75253	38.81416	37.58879*
4	-3078.530	39.97040	4.31e+08	36.89749	39.61016	37.9973

Note: *Indicates lag Order selected by the criteria
LR: Sequential modified LR test statistics (test at 5% level); FPE: Final prediction error;
AIC: Akaike information criteria; SC:Schwarz information criteria; HQ: Hannan-Quim information criteria
Source: Authors' computation using E-view 11.0

Panel Least Square Regression Result

Generally, parameter estimation in the regression analysis with cross section data is done by estimating the least square method. The panel least square regression is relevant to the fixed-effect results, and the regression result is presented in Table 6.

Table 6: Panel Least Square (Dependent Variable, U5MR)

Variable	Coefficient	Std. Error	t-statistic	Prob.
C	162.0184	15.60247	10.38415	0.00000
PCI	0.150394	0.198284	0.758480	0.4497
FPI	-0.827161	0.087032	-9.504152	0.0000
ELCON	-0.152211	0.038910	-3.911928	0.0002
$C0_2EM$	7.841280	12.15951	0.644868	0.5203
GoVtHEX	3.935921	1.894078	2.078014	0.0400
GoVEXP	1.813176	0.416893	4.349257	0.0000
POVHCR	0.642309	0.176625	3.52331	0.0006

Cross-Section Fixed (Dummy Variables)			
R-Squared	0.933866	Mean dependent Var.	126.8440
Adjusted R-Squared	0.927429	S.D. dependent Var.	43.30993
S.E of regression	11.66730	Akaike info criteria	7.842531
t-statistics	145.0602	Schwarz criteria	8.114049
Prob.	0.000000	Hannan-Quin criteria	7.952834
f-statistic		Durbin Watson	0.342573

Source: Authors' Computation E-VIEW 11.0

From the above regression result, the R-squared (R^2) value of 0.933866 shows that 93.39% of variation in under-five mortality rate is accounted for by variations in the included variances of the explanatory variables. Put together, the adjusted R^2 also supported the results with a value of 0.927429 or 92.74 percent. This implies that the independent variables explain the behaviour of the panel model of the dependent variables at 93 percent level of confidence. The calculated F-statistic value of 145.0602 which is greater than any value in the F-table implies that there is a significant effect of the independent variables on the dependent variable. Meanwhile, the Durbin-Watson statistics as shown in the regression result is 0.34, imply the presence of autocorrelation. However, this shortcoming was corrected using the panel data reliability test using the Lagrange multiplier test (LM) for serial autocorrelation test. The mean of the dependent variable as shown by the regression result is 126.84 is greater than one, justifying the acceptance of the panel results.

The regression results reveal a positive relationship between under-five mortality rate and per capita income, such that 1 percentage point increase in per capita income brings about 15 percent decrease in under-five mortality rate. This result is in conformity with some previous results (Anyanwu & Erhijakpor, 2007; Ehikioya & Mohammed, 2013) and also at variance with results obtained by Rad *et al*, (2013), Kim & Shannon (2013). The results further show a negative relationship between under-five mortality rate and food security. As such a percentage point change (decrease) in food security results to 83 percent increase in under-five mortality rate in the selected sub-Saharan African countries. This result support earlier findings from Chewe & Hangoma (2020). Electricity consumption (kilowatt per capita) was found to be negatively related to under-five mortality rate. This result contradicts the theoretical assumptions that under-five mortality rate. Shobande (2020) revealed that carbon-emission was found to exhibit a positive relationship with under-five mortality.

Vector Auto Regression (PVAR)

The results are presented in Table 7

Table 7: Panel Vector Auto Regression Estimate

Variables	U5MR	PCI	FPI	ELCON	GoVtEXP	GoVEXP	POVHCR
R-squared	0.998908	0.227186	0.975680	0.93698	0.948484	0.912736	0.818500

Adj. R-squared	0.998729	0.101012	0.972709	0.926364	0.940013	0.89849	0.855663
S.E. equation	1.452388	5.180731	4.944556	23.38890	0.051517	0.3937762	2.953948
Sum sq. reside	206.7243	2630.317	2395.967	53609.98	0.260092	15.19736	855.1063
F-statistic	5601.138	1.800578	245.7206	90.63409	112.7691	64.064	44.28656
Log like hood	-196.8990	-343.1488	-337.7830	-516.4900	187.0920	-46.808	-278.5398
Akaike AIC	3.7199	6.2834	6.170139	9.27888	-2.95814	1.109719	5.139823
Schwaz Sc	4.125756	6.669229	6.575902	9.683860	-2.552348	1.515491	5.545596
Mean Depend.	122.7789	2.633270	113.6377	154.3713	0.393320	5.171489	16.66942
S.D. dependent	40.74420	5.464042	29.39694	86.19126	0.210445	1.23596	7.857234

Source: Authors' Computation using E-VIEW 11.0

The above results portray the exogenous level of the variables and show a relationship between (U5MR & the determinants). From the F-statistics, the values indicate that the components of the model are statically significant (5601.13; 1.8005; 245.72; 9063; 112.76; 64.06; 44.29) and the values of the coefficient of multiple determination (R^2) for PCI is (99.89%); food security (97.56%); electricity consumption (93.66%); government health expenditure as percentage of GDP (94.84%); government education expenditure (91.27%) and poverty head count ratio (87.85%). It can be concluded that the observed outcomes are well simulated by the model as the greater proportion of total variation of outcomes is well explained by the variables. All data fit well into the statistical model to give more reliable results. The impulse response and the variance decomposition analyses this further.

PVAR Residual Serial Correlation LM Tests

The serial autocorrelation LM test reports the multivariate LM test statistics for residual serial correlation up to the specified order. It is a diagnostic check to ensure that the successive values of our error terms are not serially correlated.

Table 8: VAR Residual Serial Correlation LM Tests

Null hypothesis: No serial correlation at Lag h						
Lag	LRE*stat	df	Prob.	Rao-f-stat	df	Prob.
1	69.75	64	0.2902	1.096900	(64,485.2)	0.2929
2	68.64	64	0.3231	1.078141	(64,4852)	0.3288
Null hypothesis: No serial correlation at lag 1 to h						
1	69.75429	64	0.2902	1.096900	(64,485.2)	0.2929
2	135.6896	128	0.3041	1.064610	(125.553)	0.3146

*Edgeworth expansion corrected likelihood ratio statistic

Source: Authors' Computation using E-View 11.0

From the result presented in Table 8, the model is free from any form of serial correlation and hence the estimates obtained are useful for policy inference and forecasting.

Policy Implication of Findings

Some notable policy implications can be drawn based on the conclusions from the empirical results. First, this study points clearly to the significant drivers of under-five mortality rate in sub-Saharan Africa. The results show that the selected determinants as drivers of under-five mortality rate have a close, consistent relationship with under-five mortality rate in the SSA countries. The results of the PVAR support the view that per capita income can be more effective in reducing under-five mortality rate in the SSA countries. Thus, increase in per capita income through provision of employment would be greatly helpful in moving the SSA countries toward the achievement of the health goal of the Sustainable Development Goal (SDGs).

Second, the negative effects of food security and electricity consumption confirmed the important role of reforms aimed at improving food security and availability of electricity infrastructure. If economic policy measures for food security and electricity are to reduce under-five mortality rate in SSA, policy makers need to pay attention to food security and energy consumption. Those economic policy measures both in size and efficiency for food security and electricity are important vehicles for improving under-five mortality rate in SSA countries.

Third, the strong effects of carbon-emission, government health expenditure, government education expenditure and poverty reduction measures also confirms the important roles of these variables as significant and positive drivers of under-five mortality rates in SSA countries. The findings call for an opportunity for the international community, especially the international organization and institutions to come to the aid of SSA countries in accordance with some agreements- for example, the Monterrey (2002) and Gleneagles (2005) to improve the drivers and to reduce under-five mortality rates. Thus, there is need for sub-Saharan African countries to consolidate and sustain the education and health expenditures, to the agreed standards as vital component for health human capita.

Conclusion and Policy Recommendations

Conclusion

The key findings revealed as follows: a significant positive relationship was observed between per capita income and under-five mortality rate during the reviewing period. Food security was found to be negatively but significantly related to under-five mortality rate. The estimates of carbon emission, government health expenditure, and government education expenditure and poverty head count ratio were found to be positively and significantly related to under-five mortality rate. This is supported by the results of the coefficient of determination (R^2). The model diagnostic check conducted using the PVAR residual serial correlation (LM) test revealed that there is no trace of serial correlation. It is therefore concluded that the explanatory variables are determinants of under-five mortality rate in the selected sub-Saharan Africa.

Policy Recommendations

In the light of the key findings and in consonance with the policy implications, the following are recommended as policy measures:

i. Since per capita income was observed to relate positively to under-five mortality rate in the selected countries, government and policymakers should initiate expansionary fiscal and restrictive monetary policy strategies to sustain the per capita income promotion via investment in the economy for promoting employment generation.

ii. Electricity consumption was found to be negatively but significantly related to under-five mortality rate in the selected countries. Therefore, sub-Saharan African policymakers need to intensify policy effort in the promotion of accessible electricity by household and firms. This also means strengthening the energy sector reforms embarked upon by these countries. This will definitely improve the health sector services and under-five mortality rate reduction.

iii. Food security was observed to be negatively but positively related to under-five mortality rate. This means that the agricultural sector reforms and policies for improving food availability across the selected countries must be encourage by the policy-makers. Again, environmental policies for mitigating climate change needs to be strengthened through the fiscal measures.

iv. The estimates of carbon emission, government health expenditure and government education expenditure were all found to be positively and significantly related to under-five mortality rate. This implies that the Nigerian government should pay more attention to the Montreal Protocol and Agreement to contain the ozone depletion. Again, government health/education expenditures need to be improved upon in line with the Abuja Declaration of 15% and Education Fund 26%.

v. The estimate of poverty head count ratio was found to be positive. This implies that different poverty reduction measures in the SSA (N-Power and Tradi money for Nigeria) need to be improved upon, made transparent and sustainable over a longer period of time.

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APPENDICES

Figure 1: Under-Five Mortality Rate in SSA Countries

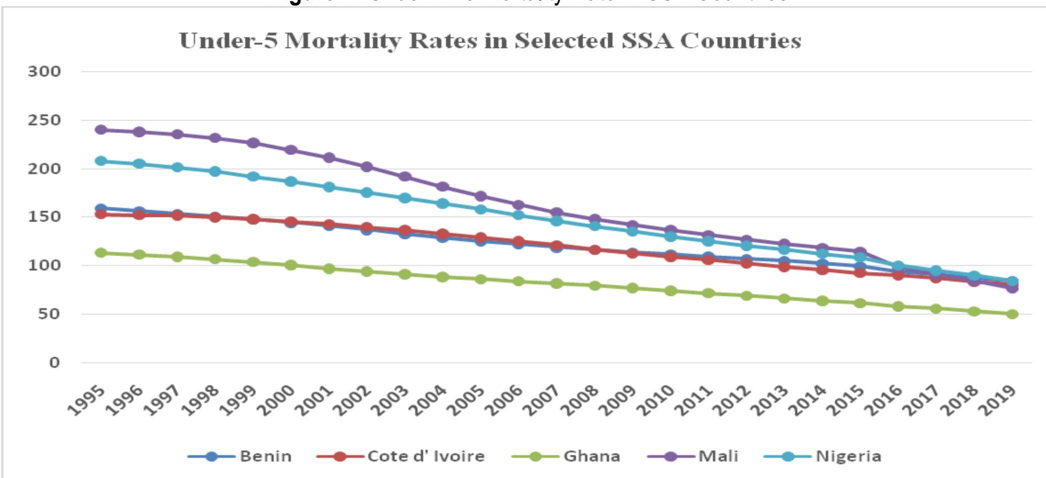


Figure 2: Per Capita Income in selected SSA Countries

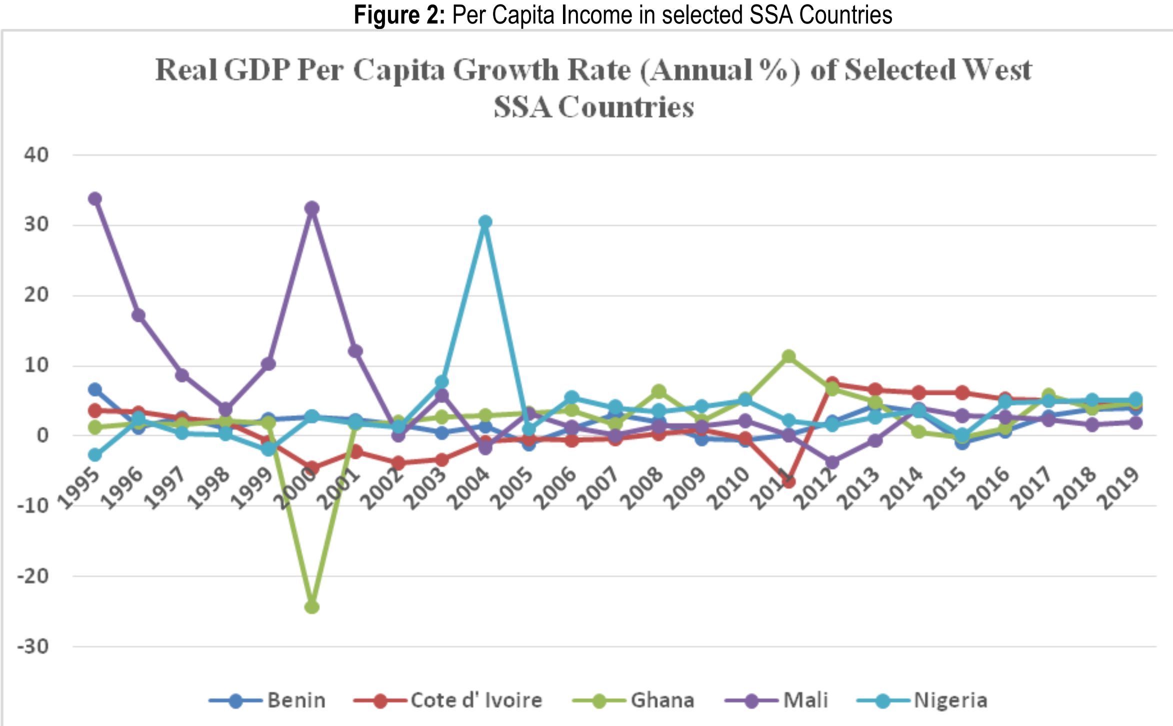


Figure 3: Food Security in selected SSA Countries

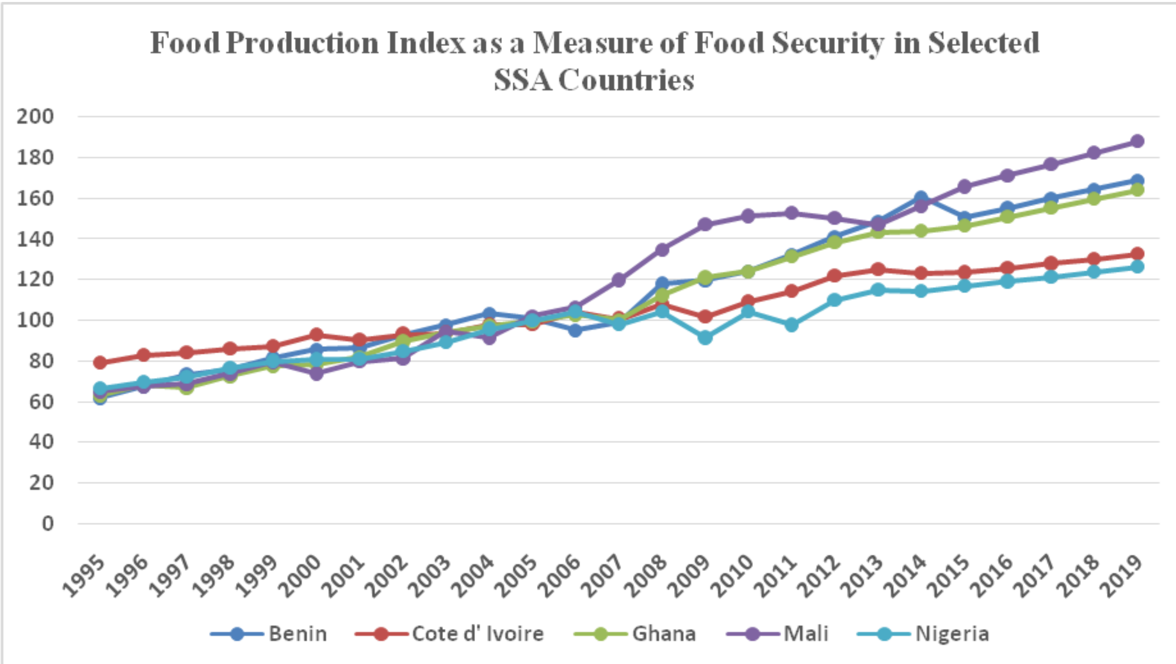


Figure 4: Electricity Consumption in selected SSA Countries

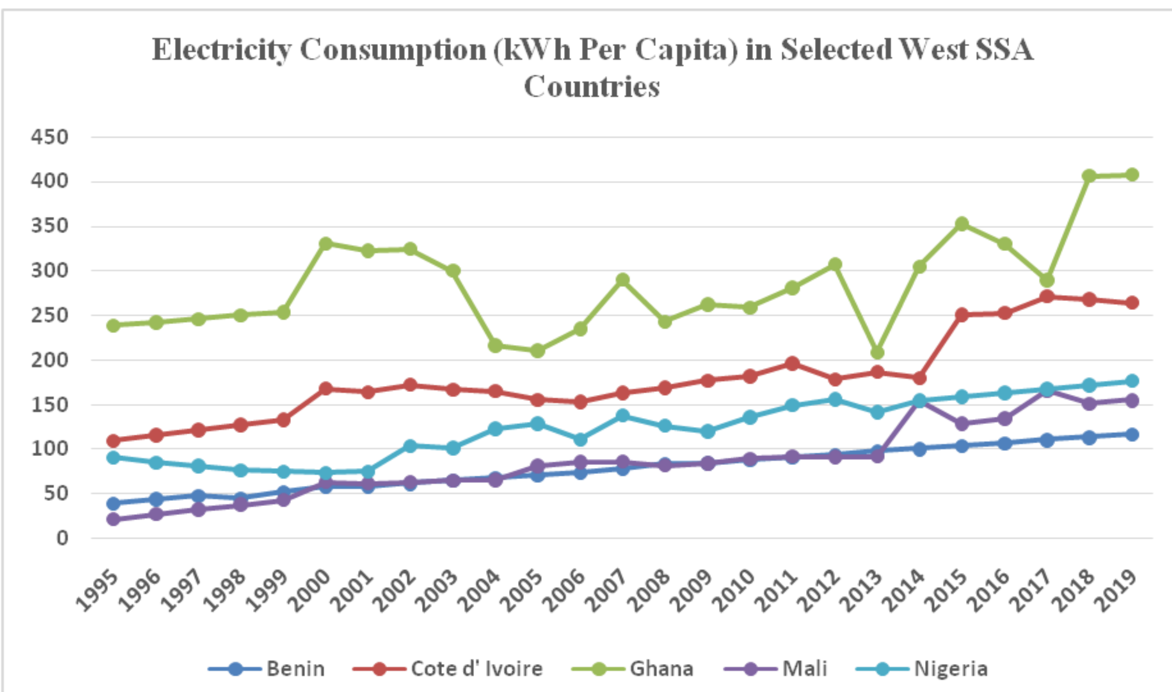


Figure 5: Carbon Emission in Selected SSA Countries

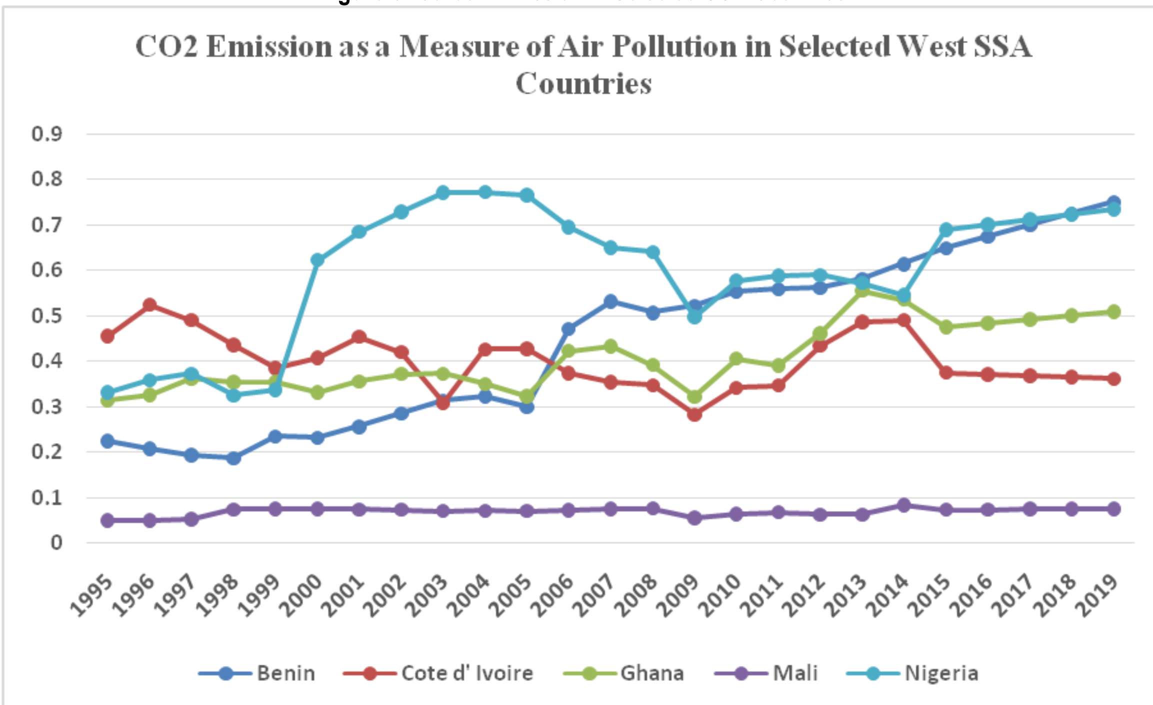


Figure 6: Government Health Expenditure in Selected SSA Countries

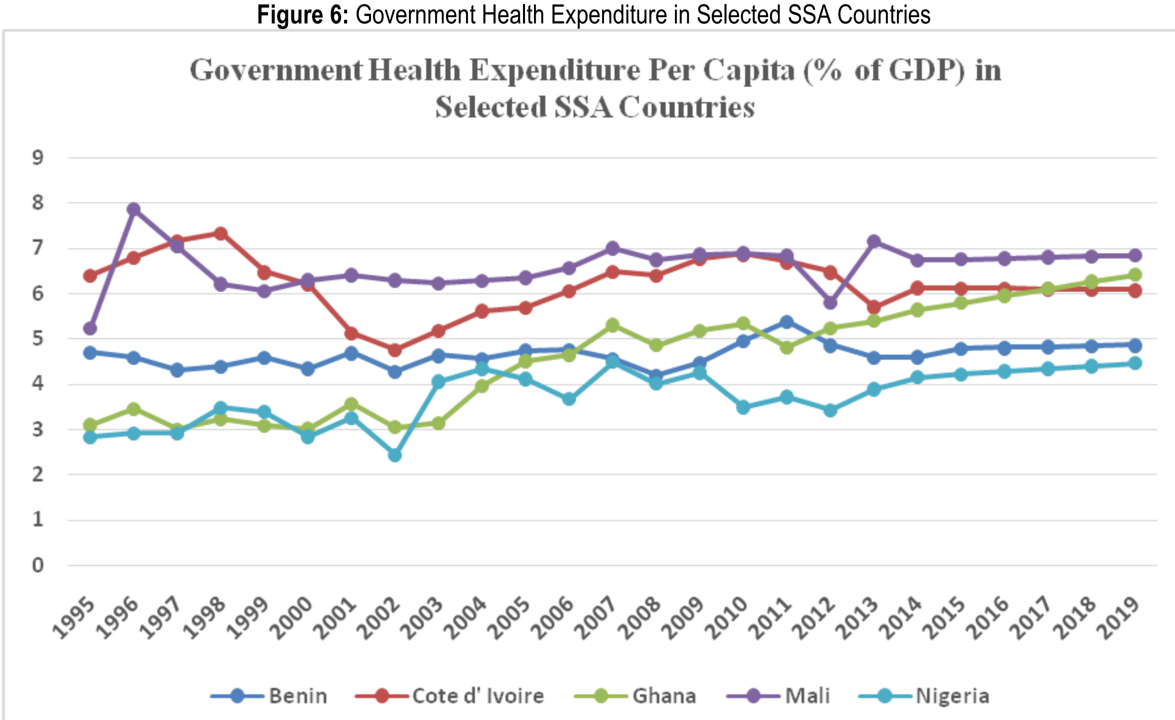


Figure 7: Government Education Expenditure in Selected SSA Countries

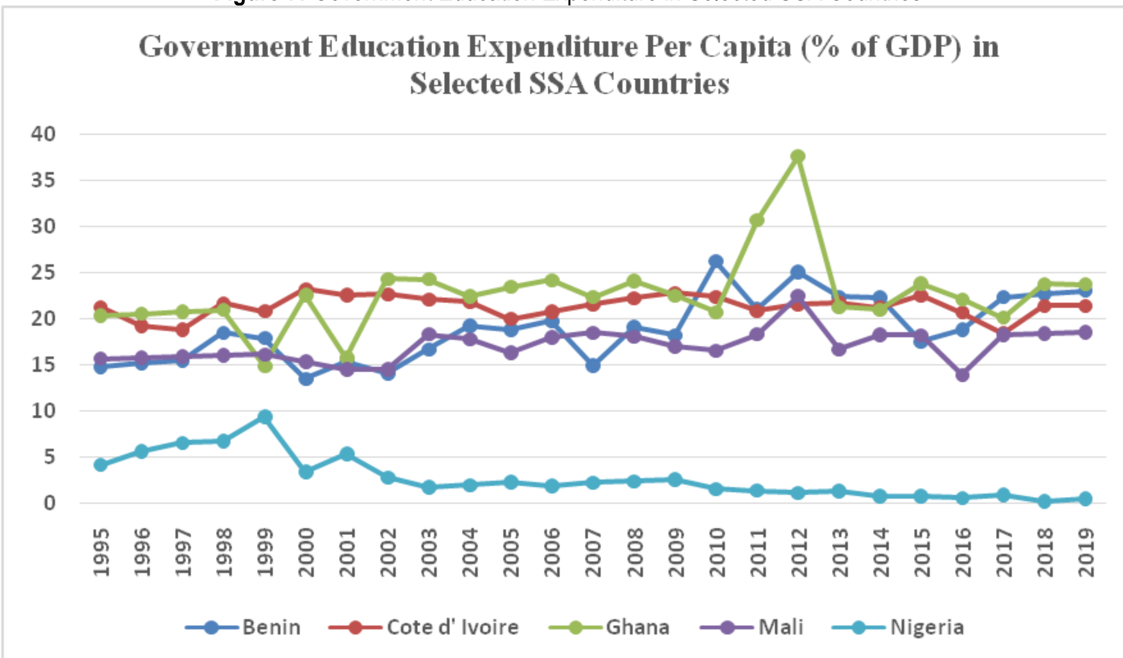
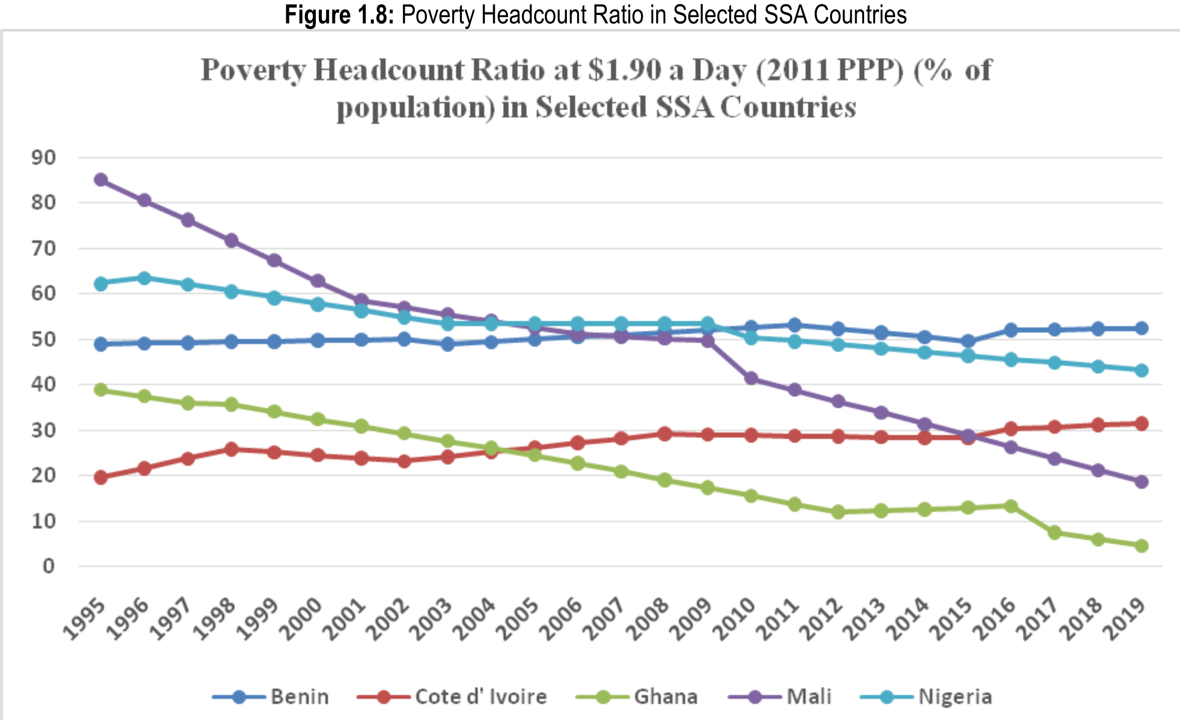


Figure 1.8: Poverty Headcount Ratio in Selected SSA Countries



Source: WDI (2020), AfDB (2020)