



FAMINE AND STARVATION IN DRYLANDS AFRICA: THE PARADOX OF PERSISTENCE AND THE VIOLATION OF UNIVERSAL RIGHT?

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Abstract

This article examines the vexed issue of an endemic food crisis in sub-Saharan Africa. Notwithstanding the acclaimed global institutional capacity against hunger; undernutrition, starvation and famine persist. This amplifies the growing dilemma of famine causality, particularly in dryland environments thereby provoking a plethora of questions upon which this paper is focussed. Is famine demand or supply driven? Is famine a matter of recurring complex political emergencies (CPE) or man-made? Is famine a failure of humanitarian response or simply an act of God? Why does famine persist in sub-Saharan Africa (SSA)? To accomplish this task, the paper uses a cross-section of twenty sub-Saharan African countries within a set of panel data models to explore the link between food security and World Governance Indicators. The study employs Panel Vector Autoregression following Love and Abrigo (2016) and Panel Generalized Method of Moments of Arrelano and Bond (1991) and Blundell and Bond (1998). Diagnostic checks show the robustness of the choice of the models in explaining the dynamic causal effect of good governance and food security within the sampled countries. This paper argues that the vulnerability of SSA to hunger and starvation is more politically/conflict driven, among other causalities, validating the concept of an irony of persistence and violation of universal human rights. Vicious ethnic and religious rivalry, inordinate socio-economic dominance, deadly power struggles are clear culprits. Sustainable democracy, rule of law, strong institutions, and a universal criminalisation of starvation, are recommended as panacea. The ritual of humanitarian calls and/or food aid for Africa should have an expiry date.

Keywords: Conflicts, Drylands, Famine, Hunger, Starvation, Universal rights

Introduction

There is a paradox of feast and famine happening simultaneously and consistently in different regions of the world. Famine, hunger and starvation in extreme cases have over

the years become a status symbol of African drylands and indeed Africa south of the Sahara. This recurring disaster directly affects the livelihoods of about 268 million inhabitants of the African dryland areas. The dryland dwellers represents about 40 percent of the continents' population; and excluding deserts, occupies about 43 percent of the continents' surface area (Mortimore, 2003). The frequency of famine and the visible claws of starvation of man and animals in African drylands are clearly becoming worrisome and burdensome. Food shortages and outright famines have been recorded around the world at different times in history, occasioned by a network of causes, such as natural disasters, climate variability, economic and political marginalisation, and violent conflicts and insurgencies. However, the twenty-first century has witnessed the advent and demonstration of increasing capacity of global institutions against hunger, leading to a significant reduction of the global population still experiencing acute and chronic hunger. This statement is ironically correct in all continents except Africa (Brown, 2001). Consequently sub-Saharan Africa (SSA) is increasingly becoming isolated as the only region of the world still bearing the burden of famine and endemic food insecurity.

It is against this background that we sought to examine the "whys" and undercurrents of the persistent famine and starvation in SSA. This is done within the prism of relevant famine theories and concepts through which we x-rayed the famine causalities and provide answers to the question of why famine persists in sub-Saharan Africa. We also proffer plausible ways to address the menace. Led by literature and empirical details, we argue that African famines are mostly man-made and often politically driven. In the circumstance, we interpret the phenomenon as a violation of the universal right of citizens to food. The right to adequate food is enshrined in the universal declaration of human rights of 1948, and in the international convention on economic, social and cultural rights of 1966. The Rome declaration on world food security of 1996 reaffirmed the "right of everyone to have adequate access to safe and nutritious food for a healthy life, and be free from hunger". Unfortunately, there is no international enforcement mechanism. The regular images of starvation of man and animals in dryland areas have therefore become the symbol of the build-ups and painful costs of famine in Africa (Watts, 1991).

The Global hunger numbers continue to indicate persistent regional disparities, with Africa bearing the heaviest burden. "One in five people in Africa (20.2 percent of the population) was facing hunger in 2021, compared to 9.1 percent in Asia, 8.6 percent in Latin America and the Caribbean, 5.8 percent in Oceania, and less than 2.5 percent in Northern America and Europe" (SOFI, 2022). According to State of the World Food and Nutrition Security (SOFI, 2022), hunger has increased in the last 7yrs owing to climate change and conflicts. "The most recent evidence available suggests that the number of people unable to afford a healthy diet around the world rose by 112 million to almost 3.1 billion, reflecting the impacts of rising consumer food prices during the pandemic and the effect of the ongoing war in Ukraine on food supply chains, especially in low-income

countries”. Putting it more succinctly, the Global Hunger Index (GHI, 2022) ranked Nigeria number 103 out of 121 countries, with a score of 27.3, indicating a level of hunger that is serious. This is consistent with the Federal Government of Nigeria’s Agriculture sector food security and nutrition strategy (2016 – 2025) which clearly states that “Food availability, accessibility and utilization remain significant challenges in Nigeria”; Akinyele (2009) - “there is an overwhelming large proportion of Nigerians who are food insecure”; and FEWSNET (2007) – “food security is a constraint to many households in Nigeria” particularly in the climate beaten and conflict ridden northern zones.

Hunger predisposes people to a level of social distress that undermines human development in several ways, such as withdrawal of children from or non-registration in school, premature deployment into the labour force, assets depletion, destitution, prostitution, child trafficking and irregular migration. (Foresight, 2011). Hunger is an aberration in human development associated with nutrient deficiency, susceptibility to disease, and behavioural distress. It is also a critical trigger of armed conflicts with its multifarious implications around the continent. Eluhaiwe (2008), states that, out of the 86 low income and food-deficient countries in the world, 43 are in Africa where majority of the world’s 6.7 billion people live under the poverty line. Africa remains the region with the highest prevalence of undernourishment, with around one in four people estimated to be undernourished (FAO, 2013; IFAD/WFP, 2015). This is providing an unfortunate but consistent trend with the submission of Hollist and Tullis, (1987), which states that Africa stands out as the world’s hungriest, and the most food- deficit region. Anthropogenic activities basically complement climatic variability as the generally known causality of famine and hunger in dryland areas. The characteristic water deficit of the dryland environment often limits food production leading to unavoidable food shortages that predisposes the population to hunger, starvation and famine. Further critical examination of the main causality of African famine also suggests disproportionate population growth in relation to food production, as advocated by Malthus (1798). However, the emergence of the concept of complex political emergencies (CPE) in the 1980/90s heralded the issue of political famines. This concept is gradually dwarfing the original understanding of multiple elements such as human activities, biotic and abiotic factors, recurrent droughts and natural disasters as main causalities of famine, thereby bringing the role of governance, struggle for political and economic power, and conflicts to the forefront.

Consequently, CPEs began to manifest the socio-political dimensions of famine, regrettably including cases of groups and/or individuals appearing to be profiteering from the creation and sustenance of conflicts that leads to famine (Duffield, 1994; Keen, 1994). Dangerous as this phenomenon may be to the peace, stability and the food security status of nations, it is clearly implicated in many African famines; including at some point, in the case of the festering Nigerian Boko Haram (BH/ISWAP) insurgency. The United Nations early in 2017, declared over 20million people at risk of famine in Nigeria, Somalia, South Sudan, and Yemen. These situations are arguably man-made as a

result of violent conflicts that hinder food production as well as smooth distribution and access to food and water. Thus, the defining factors of famine in sub – Saharan Africa have been overwhelmed by the sudden upscale of complex emergency situations occasioned by structural arrangements that promote ethnic favouritism or dominance against merit, inequitable access to power and resources, excessive religiosity, and illiteracy (Vogel and Smith, 2002).

Accordingly, high famine mortality is increasingly correlated with the precipitation of violent conflicts and the concentration of populations in refugee or internally displaced peoples' (IDP) camps where the coordinates of hunger, malnutrition and disease epidemics are common cause of deaths (de Waal, 1998). In the circumstance, hunger, famine and starvation have been variously, perhaps justifiably described as a perversion of justice other than a disaster. The resultant socio-economic effect in all areas of communal life is enormous. A typical aftermath is the multiplication of the population of widows, widowers, and orphans, as currently indicated in northern Nigeria. Regrettably, 'Excess mortality' which is the most debilitating effect of famine has become the generally accepted indicator of a true famine (Watts, 1991; Devereux, 2000).

In spite of the magnitude of humanitarian response in South Sudan for example, food insecurity deteriorated to dangerous levels due to protracted violence, insecurity, and displacement (FAO/WFP/UNICEF, 2017). Currently, about 5 million South Sudanese, representing over 40 percent of the population, are facing severe food insecurity. They are not only unable to meet their basic food needs but must necessarily dispose critical assets in exchange for food. This creates a parallel explanation of the entitlement theory of food security as argued by Sen (1981) and reinforced by Foresight (2011). It shows an outright collapse of the people's entitlements, purchasing or economic power. It is also a negation of the universal charter of freedom from hunger. Food security or freedom from hunger is a universal human right carrying the same weight as the right to life as guaranteed by the United Nations declaration (1975), and World Food Summit (1996). These rights are largely disregarded in SSA leading to the argument that the main causality of hunger, famine and starvation in SSA may not be too far from bad governance and leadership failure. Thus, the foregoing is in classical agreement with the principles of political underpinnings of food security and/or political famines.

Somalia's case was declared as the worst humanitarian crisis that confronted the world since World War II (UN, 2017). Recently, 110 people are said to have died within 48hours in a Somalia displaced peoples' camp due to hunger, while millions are on the verge of starvation as a result of drought, and the situation continues to deteriorate due to intractable conflicts, ditto for the Kenyan ASAL region. Accordingly in Nigeria, the Boko Haram conflict in the north-eastern part of the country, and the volatile political environment has greatly impacted food availability, stable food supplies/market, and access to food. The conflict is said to be responsible for over 20,000 deaths and displacement of about 3,000,000. (IOM and UNCHR, 2017). UNICEF recently warned, on account of the crippling state of malnutrition in IDP camps in north-east Nigeria, that

about 48,000 children may die within the year (2017) as a result of hunger. Indeed, according to FEWSNET integrated agency report (2016), "conflict in northeast Nigeria has left a significant portion of the population without access to adequate food, water, and health services" with a strong possibility of famine and starvation already occurring in hard to reach areas of Borno State, Nigeria. These observations are grave and worrisome against the background of the 2011 Somalia famine disaster.

Regrettably, African governments have been less proactive and effective in their response to natural disasters such as drought and flooding, which impacts greatly on food availability, and farmers' livelihood. This has consequently produced a vicious cycle of food shortages and high food prices. Therefore, the greatest problem confronting drylands Africa now is food insecurity, malnutrition, and starvation in extreme cases. Thus, the continent's consistent lack of capacity to feed itself is clearly ominous and portends a long term danger for economic growth and human development.

Literature review

Theoretical framework

Webb and von Braun J (1994), in relation to the Ethiopian experience described famine as "a catastrophic disruption of society as manifested in a cumulative failure of production, distribution and consumption systems". Walker (1980), defined famine as a livelihood dynamics that increases the vulnerability of the very poor individuals/households in the community, while Kumar (1990), presented famine as a vicious condition of lack of food leading to death. The notion of famine being attributable only to food shortages and resulting in mass death through starvation was challenged by scholars on several grounds, and the definition debate continues. However, the current position of the international community under the integrated phase classification (IPC Phase 5) is that famine can only be declared when a threshold is reached, where at least one in five households faces an extreme lack of food, more than 30 percent of children under 5 are suffering from acute malnutrition (wasting), and at least two people out of every 10,000 are dying each day.

The pre-colonial Tanzania identified two faces of famine; first as ordinary food shortages, and secondly as 'famines that kill'- also described as the ultimate horrors of mass starvation. In Sudan, according to de Waal (1989), the classification of famine is more pungent and known as minor famines causes hunger, severe famines cause destitution, and catastrophic famines result in death. Thus, the ubiquitous scalar and sectoral ambiguities in defining famine has over time led to policy inconsistencies, exploitative tendencies, and attendant rights violation in humanitarian interventions (Howe, 2002).

Food crisis most likely has its foundation in what 'Sen' describes as the 'totality of rights' in relation to the theory of food security entitlements. The Independent Commission on International Humanitarian Issues suggested that famine is 'man-made'. Accordingly, the Brandt Commission rejected the climate and demographic explanations of African

hunger. Some scholars have also postulated that African famine has its roots in critical variables as colonial legacy, the failure of development experts, and the market; rather than from a benevolent nature (Watts, 1991). Rangasami (1985) submitted that Africa's key failing on the subject remains the inability to be proactive about the defining factors of persistent famine. Consequently, three main schools of thought and/or paradigm are identifiable as follows.

Demographic paradigm: The adherents of the Malthusian logic draw a non-linear relationship between a population and its resource base to establish the demographic principle. Thomas Malthus (1798), posited that as long as populations grow at a faster rate than their food supplies, there would necessarily be a time when the food needs of the population will exceed its resources; at which stage, famine would act as a natural check on population levels. Expectedly, Malthus's position has been severally critiqued based on new understandings that are at variance with the population theory. Sen (1981), for example, found that in several cases of famine, per capita food availability did not decrease significantly; what shifted grounds was the allocation of entitlements to food (Watkins and Menken, 1985). Accordingly, Sen faulted the supply-side concept by showing that the major African famines (Ethiopia, Malawi, Niger) happened without substantial reduction in national food availability (Devereux, 2009). This essentially strengthens the entitlement (economic) concept which is explained by lopsided state structures that reduces peoples' purchasing power and simultaneously increases their vulnerability to hunger.

Economic paradigm: Amartya Sen (1981) rejected the Malthusian theory of food availability decline (FAD) with the introduction of the concept of market forces and the role of the state in determining individual entitlements to food. He argued that people can easily become food starved through entitlements collapse. There are two narratives around this principle of entitlement failure in the economic theory of famine. First is the imperfect market or food market breakdown during crisis. This is as a result of the prevailing security situation being the chief driver of market dysfunction coupled with speculative/precautionary hoarding. The second principle is demand, as against supply failure. This is a case of lack of effective demand, or purchasing power (entitlement collapse), or inability to procure food for subsistence, notwithstanding the level of food availability at local or national levels.

These two narratives played out in Dikwa and environs, Borno state, north-east Nigeria, close to Cameroon borders. According to WFP (2017), the lack of farming activities in these locations for about two years consecutively has led to a food deficit situation, as well as heavily constrained households' entitlements, in a previously considered food basket area of the state. Consequently, about 90 percent of the households were assessed as having poor/borderline food consumption. Unavoidable security restrictions have hindered the hitherto vibrant livestock markets equally limiting the purchasing power of agro-pastoral households. Sen's emphasis on market forces accordingly displaces the non-human considerations of famine causalities, as explained by supernatural or natural

happenstance that presents famine as an act of God or nature. He effectively situated famine as an economic rather than supernatural event (Keen, 1994). However, the entitlement approach was also weakened by the same token of market forces and poverty as the sole basis for famine/starvation, ignoring the universal concept of the right to food, and the political underpinnings of famine (Edkins, 1996, 2001; de Waal, 1990; Duffield, 1998; Hendrie, 1997; Keen, 1994; and Rangasami, 1985). This accordingly opens the critical pathway to political considerations as a principal causality of hunger and famine.

Political paradigm: complex political emergencies (CPEs). The advent of the concept of complex emergencies opened the floodgate of political famines, thereby exposing the role of conflicts in bringing about hunger and starvation. When there is instability, conflicts or political disturbances, the population naturally scampers for safety outside their homes. In this circumstance, they are unable to neither farm nor harvest existing field crops. Consequently less food gets to the market, prices go up and peoples' livelihoods nose-dive for the worse. Complex emergencies aptly typify most current famines in drylands Africa. Thus, famine debates have shifted from the fulcrum of the environment and demography leaning heavily towards socio-economic and political elements.

Thus, political accountability became a big factor at local as well as international scales. Strong evidence began to emerge that food aid became a weapon of political interests, citing for example, the delayed response to the Ethiopian famine of 1984 by the US (Reagan administration), in an attempt to weaken the Marxist regime that succeeded and continued the legacies of Emperor Haile Selassie (Shepherd, 1993). Accordingly, Keen (1994), argued that "political powerlessness" as well as power flexing has become a central consideration in contemporary famines. Mariam (1986) agreed, submitting that the society and its institutions are the chief culprits in persistent famines, not nature. "Clearly, all famines are 'political' at some level" claims Masfield et al., 1997.

Watson (2007), Olen et al., (2003) and Darcy and Hofmann (2003), went further to reinforce the regular suspicion that donors' strategic interests are the main drivers of humanitarian response direction and levels, notwithstanding the field realities and need. This again raises the sore issue of political accountability. Curiously, when massive intervention activities with huge resources does not result in commensurate improvement in livelihoods at the local scale, as exemplified in the current case of north-east Nigeria and several other African famines; no government/government official is sacked, no politician is tried nor indicted, no intervention agency is investigated nor sanctioned, either at the local or international scales (de Waal, 1997). This indeed is the clear recipe for the paradox of persistence and perpetuation of the wanton violation of the peoples' rights to food and decent livelihood. Therefore, due to frustration, there is a growing advocacy "for the criminalisation of mass starvation, as a potential way of making governments and other relevant actors answerable when a famine occurs" (Edkins, 1996, 2007).

Conceptual framework

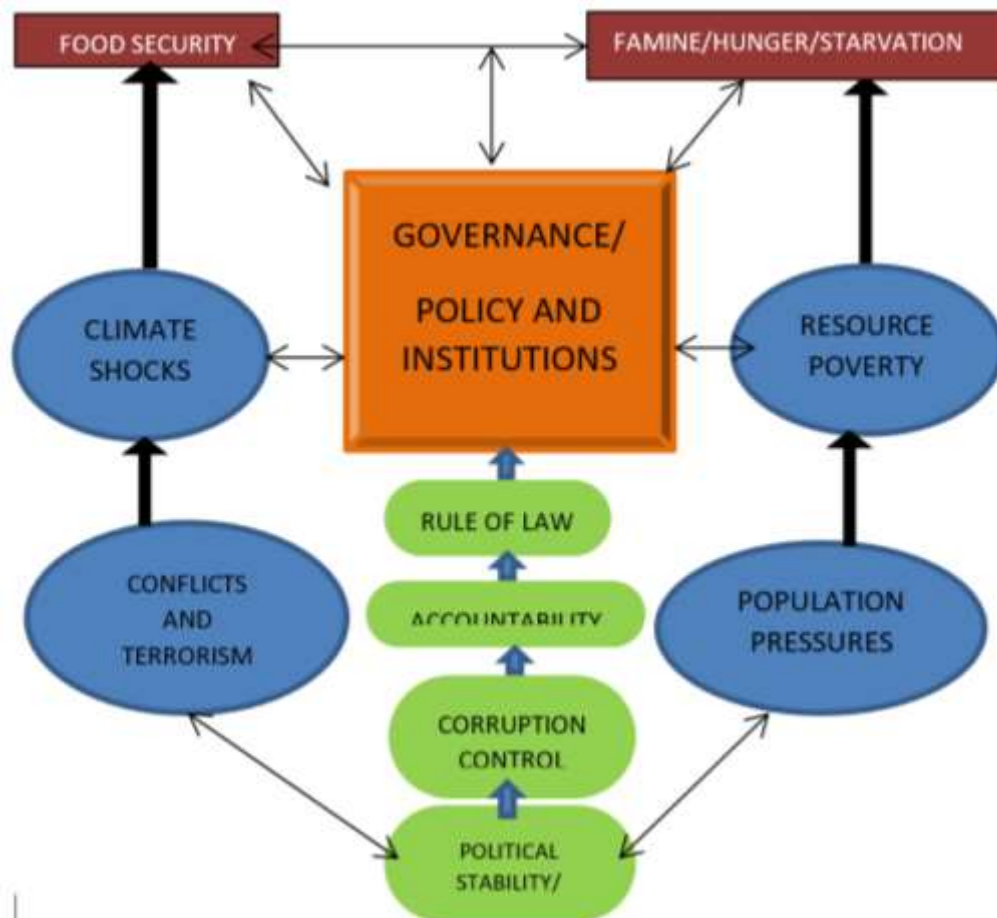


Figure 1: The determinants of famine and starvation/food insecurity
Source: Authors' design

There is a plethora of theories around the vexed issue of famine and starvation as earlier ventilated; however, this study is premised on the conceptual framework displayed in figure 1. The framework is designed in a matrix of five determinants (Governance, Poverty, Population, Climate variability and Conflicts) that are finally woven into a central one (Governance) considered as the main driver for clear estimation of the indicators.

African conflicts and consequences

The glaring consequences of famine, particularly those driven by conflicts/inordinate armed and power struggles are the signposts of rights violation. Chronic malnutrition and loss of weight arising from basic food deprivation; sudden increase in excess mortality, extensive social dislocation, and ludicrous assets disposal are accordingly the main markers of famine. Thus, famine, hunger, and starvation have been variously

described as a perversion of justice other than a disaster. The total socio-economic effects in all areas of communal life are enormous. A typical aftermath is the multiplication of the population of widows, widowers, and orphans. Consequently 'Excess mortality' is the most debilitating effect of famine, but has regrettably become the generally accepted indicator of a true famine (Watts, 1991; Devereux, 2000). According to Devereux (2006), and Maxwell and Fitzpatrick (2012), the new famines of the twenty-first century have their backgrounds mostly from armed struggles accompanied with dangerous manipulations of the food systems.

Table 1: Brief catalogue of hunger and famine in sub-Saharan Africa

s/n	Year	Remarks
1	1968 - 1980s	Drought in the Sahel region led to 1 million deaths in Mali, Chad, Niger, Mauritania, and Burkina Faso.
2	1980 - 1981	Drought and conflict led to widespread hunger in Uganda.
3	1984 - 1985	Famine in Ethiopia. Drought in the northern highlands and problems delivering aid led to approximately 1 million deaths and massive displacements.
4	1991 - 1992	Somalia famine caused by drought and civil war.
5	1998-2004	Second Congo War, more than 3 million people died in the Democratic Republic of the Congo, mainly from starvation and disease.
6	2011 - 2012	The Horn of Africa hunger crisis responsible for 285,000 deaths in East Africa.
7	2017	Conflicts in Ethiopia leads to more than 800,000 people displaced internally.

Source: adapted from www.worldvision.org

According to Devereux et al., (2002) "recent famines have happened because they were not prevented when they could (and should) have been, because bad policies (and bad policy advice) produced famine as an unintended by-product, or because famine was a policy goal, successfully achieved".

Methodology

Study area and sampling

The study was focussed on the countries south of the Sahara Desert known as sub-Saharan Africa (SSA). This region comprises of 42 countries in four sub-regions of Central, East, West and Southern Africa. Five (5) countries were purposively selected from each of the sub-regions for this study. Central Africa (DRC, CAR, Rwanda, Burundi, Republic of Congo), East Africa (Sudan, Kenya, Tanzania, Somalia, Ethiopia), West Africa

(Burkina Faso, Chad, Mali, Niger, Nigeria), and Southern Africa (Angola, Malawi, Namibia, Zambia, Zimbabwe).

Data Description and Variable Measurement

Two sets of secondary datasets were used for this study including the World Governance Index (WGI - 2020), and the FAO – Food security indicators (released 25 October, 2020). The World Governance Index (WGI, henceforth) is a dataset constructed by the World Bank on indicators of six broad dimensions of governance viz, voice and accountability, political stability and absence of violence and terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption. The food security index expresses the level of food sufficiency in terms of the level of food availability, access, utilization and stability. The food security index is used as the dependent variable in the study and two lags of the dependent variable is used as explanatory variables to account for possibility of inertia.

The study utilizes time series data with an annual frequency, consisting of 337 sample points (2000 to 2016) for 20 sub-Saharan African countries. The data covers the twenty sub-Saharan African countries with history of famine and food insecurity and elements of poor governance in terms of political instability, violence/terrorism, control of corruption, rule of law, voice and accountability for correlation estimation. Additionally, we suspect country specific effect and therefore, we include three control variables. These are gross domestic product, foreign direct investment and crop production index. Bailliu and Fujii (2004) argue that the major advantage of using panel data in estimating our cross-country food security equation is that it allows for the identification of country-specific effects. The country-specific effects, ω_i , are designed to account for any unobservable or missing characteristics that vary across countries (but not over time) and that influence food security index for a given country. For example, they could capture cross-country differences in measurement error in the construction of the food security indexes or in institutional preferences for crises and non-crisis regimes (as long as the differences between countries are constant over time). This paper captures the country-specific effects; fixed and random effects, by estimating fixed effect model. Time dummy was used in the specification to account for the shock that may affect the countries sampled for different periods.

The two dummy variables constructed are $\gamma_1(\Delta\delta_{i,t}^2 * PS_1)$ and $\gamma_2(\Delta\delta_{i,t}^2 * PI_2)$. Their measurement is adopted from Jeannine and Fujii (2004) but our approach deviates from their measurement by rather taking a squared term of the world governance index (the six broad indicators) to account for variations in the political volatility in the countries that are sampled for the empirical investigation. In each case, the dummy variable takes on the value one (1) if there is a political volatility in a given country within the period of the research from 2000 to 2016. The sampled countries are deemed politically volatile if the six indicators of the aforementioned World Governance Index are computed to be high. Otherwise, a particular country is said to be politically stable and therefore the

dummy assigned to that country will be zero (0). We then multiply each dummy variable with the squared food security index term before including them as explanatory variables in equation (3.2). Thus, the coefficients appear on the multiplicative form as interaction terms to capture any change in the relationship between food security index and World Governance Index that occurs as a result of a transition from crises regime to non-crisis and vice-versa.

Econometrics Specifications

There are a number of frameworks developed in the literature of famine and starvation in the empirical methodology in sub-Saharan African countries. However, our specification is not without some modifications that will be adapted to account for panel of countries as well as the fact that we aim to ascertain the degree of world governance index and some control variables as it affects food security. Our specification of the model is constructed as:

$$\Delta f_{-S_{i,t}} = \sum_{k=1}^2 \varphi_k \Delta f_{-S_{i,t}} + \sum \phi_i wgi + \gamma \Delta \delta_{i,t} + \varepsilon_{i,t} \quad 3.1$$

From the above specification, $\Delta f_{-S_{i,t}}$ is the rate of change in the food security index, wgi world governance index while for the twenty sampled countries, $\Delta \delta_{i,t}$ is the rate of change in the control variables that are used as instruments in the research for country i at time t . However, the lags of the dependent variable is used here as an explanatory variable following the Phillips curve argument as proposed by Calvo (1983). $\varepsilon_{i,t}$ is an independently and identically distributed (i.i.d.) error term.

Dornbusch (2001) indicated that panel econometric specification must account for individual heterogeneity as well as time dummies. These two important features in dynamic panel specification are captured by re-specifying the equation above thus:

$$\Delta f_{-S_{i,t}} = \sum_{k=1}^2 \varphi_k f_{-S_{i,t}} + \sum \phi_i wgi + \gamma \Delta \delta_{i,t} + \omega_i + \theta_t + \varepsilon_{i,t} \quad 3.2$$

We felt that the countries used in the study have elements of country-specific effects which will be captured by ω_i and these countries might be exposed to a number of differing shocks, such as political violence, ethnic clashes and conflicts and drought. This can be captured by θ_t . Thus, the equation in (3.2) is adequate to capture dynamic panel of the relationship between food security and poor governance which is measured as an index variable across the countries sampled in the study. However, it must be noted that the equation specified in (3.2) is not appropriate to assess the varying level of food security in different forms of government attributes.

To account for the possibility of different crises periods that may characterize most of the sub-Saharan African countries, our study intends to define a dummy variable which captures high-crisis environment which is suspected to have been the results of poor governance, ethnic tension, conflict and violence, electoral crises and unrest due to

regime change and low-crises which is characterized by the absence of violence, electoral tension and ethnic cleansing and high level of political stability.

Following Bailliu and Fujii (2004), we construct two dummies. The first dummy will account for all the crises in the sub-Saharan African countries with the presence of political instability from 2000 to 2016 while the second dummy will absorb crises-free regimes in the sub-Saharan African countries from 2000 to 2016. Therefore, the econometric specification designed to capture the politically stable environment and politically unstable environment is constructed as:

$$\Delta f_{-S_{i,t}} = \sum_{k=1}^2 \varphi_k \Delta f_{-S_{i,t}} + \gamma \Delta \delta_{i,t} + \gamma_1 (\Delta \delta_{i,t}^2 * PS_1) + \gamma_2 (\Delta \delta_{i,t}^2 * PI_2) + \omega_i + \theta_t + \varepsilon_{i,t} \quad 3.3$$

From the above specification, it can be observed that two terms have been added to the previous specification, $\gamma_1 (\Delta \delta_{i,t}^2 * PS_1)$ and $\gamma_2 (\Delta \delta_{i,t}^2 * PI_2)$. These terms are dummy variables that capture shifts in crises and non-crises environments.

Econometric Method Employed

This study finds it most appealing to use dynamic panel-data models as the estimation technique. The data generation process (DGP) allows us to utilize linear dynamic panel models as they are found to adequately describe our data.

In the context of panel data, we usually must deal with unobserved heterogeneity with demeaning transformation, as in one-way fixed effects models, or by taking first differences if the second dimension of the panel is a proper time series. This renders the estimates biased and inconsistent. Consider the more compact form of a linear dynamic panel-data model containing a lagged dependent variable and a single regressor X:

$$y_{i,t} = \beta_1 + \rho y_{i,t-1} + \mathbf{x}'_{i,t} \beta_2 + \omega_i + \varepsilon_{i,t} \quad 3.4$$

Note also that this bias is not caused by an autocorrelated error process $\varepsilon_{i,t}$. The bias arises even if the error process is iid. If the error process is autocorrelated, the problem is even more severe given the difficulty of deriving a consistent estimate of the AR parameters in that context. The same problem affects the one-way random effects model. The ω_i error component enters every value of $y_{i,t}$ by assumption, so that the lagged dependent variable cannot be independent of the composite error process.

One solution which we feel obvious is to follow the Arrelano and Bond (1991) method and use their version of dynamic Generalized Method of Moment (GMM) which is based on the work of Anderson and Hsiao (1981) and Holtz-Eakin, Newey, and Rosen (1988). Taking the first difference of equation (3.4) as proposed in their approach yield:

$$y_{i,t} - y_{i,t-1} = \rho (y_{i,t-1} - y_{i,t-2}) + (\mathbf{x}_{i,t} - \mathbf{x}_{i,t-1})' \beta_2 + (\varepsilon_{i,t} - \varepsilon_{i,t-1}) \quad 3.5$$

Or more compactly, this equation can be stated as:

$$\Delta y_{i,t} = \rho \Delta y_{i,t-1} + \Delta \mathbf{x}_{i,t} + \Delta \varepsilon_{i,t} \quad 3.6$$

With the individual fixed effects swept out, a straightforward instrumental variables estimator is available. We may construct instruments for the lagged dependent variable from the second and third lags of $y_{i,t}$, either in the form of differences or lagged levels. If $\varepsilon_{i,t}$ is iid, those lags of y will be highly correlated with the lagged dependent variable (and its difference) but uncorrelated with the composite error process.

A key aspect of the Arellano and Bond strategy, echoing that of Anderson and Hsiao, is the assumption that the necessary instruments are 'internal': that is, based on lagged values of the instrumented variable(s). The estimators allow the inclusion of external instruments as well. Since our model can accommodate a situation of using exogenous and endogenous variables as an explanatory variable, we can still estimate the following GMM model:

$$y_{i,t} = \mathbf{x}_{i,t}\beta_1 + Z_{i,t}\beta_2 + \pi_{i,t} \quad 3.7$$

Where:

$$\pi_{i,t} = \omega_{i,t} + \varepsilon_{i,t} \quad 3.8$$

Where $\mathbf{x}_{i,t}$ includes strictly exogenous regressors, $Z_{i,t}$ are predetermined regressors (which may include lags of y) and endogenous regressors, all of which may be correlated with $\omega_{i,t}$, the unobserved individual effect. First-differencing the equation removes the $\omega_{i,t}$ and its associated omitted-variable bias.

Results and discussion

The empirical models specified in section three will be presented and the discussions generated will be used for deducing statistical inference for policy prescription for the research. To this end, we provide estimates from competing models in the fashion of panel data models. We present summary statistics of the variables which helps in model checking and understanding the data generating process of the models. We estimate two different specification of 'Panel Vector Autoregression (PVAR) in Generalized Method of Moment' in a fashion of Love and Abrigo (2015). To ensure optimal performance of the estimators, we complement additional models following Arellano and Bond (1991) and Blundell and Bond (1998) for 'System Generalized Method of Moment and Difference Generalized Method of Moment'. In addition, block of fixed effect models for sub-Saharan African countries are also estimated.

Summary Statistics¹

The estimates of the mean, standard deviation, maximum and minimum value is presented. It is to be noted that the size of the mean value of some variables differ significantly across sub - regions. For example, the estimates of mean of the six indicators of World Governance Index in east African region are much bigger than any other sub - regional blocks (Southern Africa, West Africa and Central Africa). This suggest that the

¹ See the appendix page for complete estimates of the key summary statistics

sampled countries from East sub-Saharan African are more politically unstable than countries from other regions used in the study. This is indicative that food insecurity might be a big issue of concern among the countries sampled from the East. Equally, the level of Foreign Direct Investment (l_fdl) is higher in the Southern African sub-Saharan economies. This may suggest that South African countries are more attractive to foreign influx of investment than any other regional countries. The estimates of regional volatility of food security across sub-Saharan African vary and can be described as random with no systematic pattern.

Correlation Analysis

We examine the pattern of correlation between food security, f_s , and the six indicators of World Governance Index, lv_a lp_s lg_e lr_q lr_l lc_c ² in table 4.1.

Table 4.1: Partial and Semi-Partial Correlation between Food security and Control Variables

Variable	Partial Corr.	Semipartial Corr.	Partial Corr.^2	Semipartial Corr.^2	Significance Value
lv_a	0.0441	0.0437	0.0019	0.0019	0.4956
lp_s	0.0243	-0.0240	0.0006	0.0006	0.7077
lg_e	0.0128	0.0127	0.0002	0.0002	0.8428
lr_q	0.0781	-0.0775	0.0061	0.0060	0.2268
lr_l	0.0595	-0.0589	0.0035	0.0035	0.3578
lc_c	0.0156	-0.0154	0.0002	0.0002	0.8098

It is obvious that there is rather positive correlation between food security and WGI, although the significance of the partial and semi-partial correlation is not so high. It can be inferred that as the index of WGI improves, say political stability, food security will also increase. This interpretation is, on a prior, empirically expected.

Additionally, we correlate food security index with control variables using gross domestic product, foreign direct investment and crop production index. We report the result in table 4.2

Table 4.2: Partial and Semi-Partial Correlation between Food security and Control Variables

Variable	Partial	Semipartial	Partial	Semipartial	Significance
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² The coded variables are voice and accountability, political stability and absence of violence and terrorism, government effectiveness, regulatory quality, rule of law, and control of corruption, respectively.

Variable	Corr.	Corr.	Corr.^2	Corr.^2	Value
lc_p	0.0371	-0.0370	0.0014	0.0014	0.5255
lecon_act	-0.0362	-0.0361	0.0013	0.0013	0.5362
lfdi	0.0442	0.0441	0.0020	0.0019	0.4496

The results reveal mix expectation to the empirical relationship between food security index and the three control variables. While crop productivity index and level of economic activities show positive relationship, the coefficient of foreign direct investment is negatively correlated with food security index. In all, the significance of the correlation coefficient is not significant.

Estimates of the Econometric Models

In this section, two sets of competing models are estimated and presented from which structural inferences are drawn to serve as the basis of policy prescription relating to food security in a panel of sub-Saharan African economies. In the first block of model, a basket of 'Panel Vector Autoregression' (PVAR, henceforth) is estimated. The advantage of PVAR is that it allows the variables to be treated symmetrically and endogenously and that macroeconomic exercise of impulse response and forecast error variance decomposition analysis can be conducted. Specifically, two different specification of PVAR are estimated, PVAR1 and PVAR2.³ In the second block, fixed effect model and two forms of Generalized Method of Moment (GMM, henceforth) are estimated. The results of the PVAR1 and PVAR2⁴ are reported in table 4.3. Diagnostic associated with these two models are attached in the appendix page.

Table 4.3: Panel Vector Autoregression Estimates

	Panel VAR ~1	Panel VAR ~2
main		
L.f_s	-0.094	
-0.059		
L.lv_a	-0.003	0.596***
	(0.043)	(0.082)
L.lp_s	0.356***	0.143
	(0.101)	(0.076)
L.lg_e	-0.202**	-0.475***
	(0.061)	(0.079)
L.lr_q	-0.010	0.067***

³ PVAR1 uses lag value of the dependent variables as instruments which are constructed via GMM-style while PVAR2 report Hansen's J statistic of over identifying restrictions.

⁴ We are grateful to Michael Abrigo for codes used in the estimation of the Panel Vector Autoregression.

	(0.014)	(0.014)					
L.lr_l	-0.234	0.925***					
	(0.158)	(0.107)					
L.lc_c	-0.039**	-0.130***					
	(0.012)	(0.013)					
L.lc_p		0.742***					
-0.215							
lv_a							
L.f_s	-0.045*						
-0.021							
L.lv_a	0.841***						
-0.016							
L.lp_s	0.023						
-0.03							
L.lg_e	0.072**						
-0.024							
L.lr_q	0.025***						
-0.006							
L.lr_l	0.220***						
-0.06							
L.lc_c	-0.037***						
-0.007							
lp_s							
L.f_s	0.090*						
-0.038							
L.lv_a	-0.126**	-0.093**					
	(0.041)	(0.036)					
L.lp_s	0.593***	0.709***					
	(0.100)	(0.036)					
L.lg_e	0.427***	0.269***					
	(0.076)	(0.033)					
L.lr_q	-0.018	-0.026***					
	(0.011)	(0.007)					
L.lr_l	0.715***	0.164***					
	(0.099)	(0.049)					
L.lc_c	-0.018	-0.028***					
	(0.010)	(0.007)					
L.lc_p		0.007					
-0.092							

lg_e							
L.f_s	0.105***						
-0.027							
L.lv_a	-0.099**	0.254***					
	(0.034)	(0.066)					
L.lp_s	-0.047	-0.064					
	(0.077)	(0.066)					
L.lg_e	1.011***	0.440***					
	(0.066)	(0.094)					
L.lr_q	0.022**	-0.001					
	(0.009)	(0.012)					
L.lr_l	0.017	0.270***					
	(0.090)	(0.054)					
L.lc_c	-0.001	-0.061***					
	(0.009)	(0.012)					
L.lc_p		-0.588***					
-0.15							
lr_q							
L.f_s	0.466**						
-0.169							
L.lv_a	-0.545***	0.272					
	(0.153)	(0.414)					
L.lp_s	-0.165	-1.152***					
	(0.346)	(0.305)					
L.lg_e	0.883***	-1.402***					
	(0.211)	(0.413)					
L.lr_q	0.492***	0.568***					
	(0.062)	(0.068)					
L.lr_l	-0.692	1.749***					
	(0.382)	(0.403)					
L.lc_c	-0.059	-0.342***					
	(0.050)	(0.070)					
L.lc_p		-0.653					
-0.987							
lr_l							
L.f_s	-0.057*						
-0.023							
L.lv_a	-0.068**	0.133*					
	(0.023)	(0.067)					

L.lp_s	0.160*	-0.263**					
	(0.066)	(0.096)					
L.lg_e	-0.142***	-0.345***					
	(0.036)	(0.075)					
L.lr_q	0.015*	-0.024					
	(0.007)	(0.012)					
L.lr_l	0.606***	1.143***					
	(0.070)	(0.076)					
L.lc_c	-0.012*	-0.017					
	(0.006)	(0.015)					
L.lc_p	-0.224						
-0.176							
lc_c							
L.f_s	-0.131						
-0.158							
L.lv_a	0.040	1.533***					
	(0.120)	(0.322)					
L.lp_s	-0.656	0.310					
	(0.349)	(0.382)					
L.lg_e	-1.261***	-2.420***					
	(0.165)	(0.278)					
L.lr_q	-0.151***	-0.035					
	(0.036)	(0.067)					
L.lr_l	-0.845	-1.117**					
	(0.518)	(0.424)					
L.lc_c	0.504***	0.626***					
	(0.058)	(0.074)					
L.lc_p	-2.371**						
-0.83							
lc_p							
L.lv_a	0.208***						
-0.03							
L.lp_s	-0.161***						
-0.026							
L.lg_e	-0.007						
-0.023							
L.lr_q	-0.014*						
-0.006							
L.lr_l	-0.001						

-0.032						
L.lc_c	0.015**					
-0.006						
L.lc_p	0.397***					
-0.079						
R-squared						
N	135	183				
* p<0.05, ** p<0.01, *** p<0.001						

From the statistics reported in the table, we can readily infer that the performance of the models is relatively good. Most of the coefficients are statistically significant at various level of significance. The size of the estimates and their statistical significance suggest that PVAR2 fits the data fairly well than PVAR1, although the gain of the former model over the latter model is not substantial. In sum, interrogating PVAR2 estimates, we can say that the six indicators of WGI are found to be statistically significant at all level of significance. For example, the coefficient of logarithm of lagged voice and accountability, *L.l_va* is estimated to be 0.596. This suggests that as the index of voice and accountability increases by a unit, food security will, on average, increase by 0.596 in the sampled sub-Saharan African countries. Equally, when we take food security as the regressor⁵, we see that the coefficient is statistically significant; indicating that as food security index of the sub-Saharan African countries increases, the performance of WGI also improves. This is one of the motivations of estimating the PVAR as the model treats the variables endogenously.

Estimates of the Generalized Method of Moment (GMM)

In this section, we report two forms of GMM, the difference GMM (GMM1, henceforth) and system GMM (GMM2, henceforth). Table 4.4 reports the estimates of GMM1

Table 4.4: Dynamic panel-data estimation, two-step difference GMM

Group variable:	id	Number of obs	=	155
Time variable:	year	Number of groups	=	18
Number of instruments	= 122	Obs per group: min	=	0
Wald chi2(24)	= 70.38	avg =	8.61	
Prob > chi2	= 0.000	max =	14	

Corrected						
f_s	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
L1.	-1.158085	2.003983	-0.58	0.563	-5.08582	2.769649
L2.	-1.380656	1.23284	-1.12	0.263	-3.796977	1.035665

⁵ In this case, PVAR1 will be used because it uses lagged dependent variable as the instrument.

lv_a									
--.	-1.331664	2.644897	-0.50	0.615	-6.515567	3.85224			
L1.	1.064956	1.28306	0.83	0.407	-1.449795	3.579707			
lp_s									
--.	.3256727	.8101143	0.40	0.688	-1.262122	1.913467			
L1.	0 (omitted)								
lg_e									
--.	.9319994	1.368081	0.68	0.496	-1.749389	3.613388			
L1.	-0.369928	.5582931	-0.07	0.947	-1.131227	1.057242			
lr_q									
--.	.0035742	.0812106	0.04	0.965	-1.555956	.162744			
L1.	-0.0081382	.1538304	-0.05	0.958	-3.096404	.2933639			
lr_l									
--.	.8042373	1.842276	0.44	0.662	-2.806557	4.415031			
L1.	.0859749	1.556047	0.06	0.956	-2.963821	3.135771			
lc_c									
--.	-0.0812537	.0939102	-0.87	0.387	-2.2653144	.1028069			
L1.	-0.307214	.0419924	-0.73	0.464	-.113025	.0515822			
lc_p									
--.	1.593135	1.93897	0.82	0.411	-2.207177	5.393447			
L1.	0 (omitted)								
L2.	.5824314	2.778927	0.21	0.834	-4.864165	6.029028			
lecon_act									
--.	0 (omitted)								
L1.	0 (omitted)								
L2.	.0625997	1.131098	0.06	0.956	-2.154311	2.279511			
lfdi									
--.	0 (omitted)								
L1.	.158948	1.918222	0.08	0.934	-3.600699	3.918595			
L2.	-1.109831	.5088233	-0.22	0.827	-1.108258	.8862922			

id	0 (omitted)								

From the estimates, the current and lags coefficient behaves fairly well. It can be deduced that most of the statistical significance of the estimates die out with the second lag of the variables in consideration. Worth noting is that the size of coefficients are improved with 'corrected standard error.

Table 4.5 report the diagnostics associated with GMM1 model. Two set of tests are reported; first and second order autocorrelation test in first differences and the Sargan and Hansen test of over identifying restriction. We are sure that null hypothesis of serial independence cannot be rejected at all level of significance, indicating that the model is free from the problem of serial autocorrelation. When we subject the validity of the instruments used in the model via Sargan and Hansen test, we see that we are not able to reject the null of Hansen at all level of significance. This shows that the instruments used are robust, but weakened by many instruments. On the other hand, we are able to reject the null of the Sargan test at all level of significance. This means that our instruments are robust and are not weakened as the number of instruments increase.

Table 4.5: Diagnostic Checks of the Difference GMM

Arellano-Bond test for AR(1) in first differences: z = 0.07 Pr > z = 0.943									
Arellano-Bond test for AR(2) in first differences: z = -0.28 Pr > z = 0.777									
Sargan test of overid. restrictions: chi2(98) = 137.41 Prob > chi2 = 0.005									
(Not robust, but not weakened by many instruments.)									
Hansen test of overid. restrictions: chi2(98) = 0.00 Prob > chi2 = 1.000									
(Robust, but weakened by many instruments.)									

Contrasting the difference GMM (GMM1) with system GMM (GMM2), table 4.6 reports the estimates of the parameters as obtained using GMM2. One can see apparent improvement in the performance of system GMM over difference GMM as the parameter estimates from GMM2 outperform the parameter estimates of GMM1 in terms of size, sign and statistical significance. The second lags of the variables are mostly statistically insignificant suggesting that in most cases, the model does not need second lags of the variables. In addition, the control variables used in the research help in accounting for country specific effects. Both GMM1 and GMM2 support the control variables used in the study.

In addition, we estimate Fixed Effect model⁶ to complement the GMM models estimates and to ensure robustness in the analysis and interpretation of the results. Further

⁶ The results of the model are not reported here in the paper but can be obtained upon request.

exercise is conducted by estimating regional models using fixed effect assumption. To sum the idea, we estimate four (4) fixed effect model, one for each region.⁷ Therefore, we compare the estimates of the parameters within and between sub - regional sub-Saharan African countries

Table 4.6: Dynamic panel-data estimation, two-step System GMM

Dynamic panel-data estimation, one-step system GMM						
Group variable: id		Number of obs = 169				
Time variable : year		Number of groups = 19				
Number of instruments = 167		Obs per group: min = 1				
Wald chi2(14) = 525.98		avg = 8.89				
Prob > chi2 = 0.000		max = 15				
Robust						
f_s	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
f_s						
L1.	-.0854687	.0597785	-1.43	0.153	-.2026323	.0316949
lv_a						
L1.	-.2963904	.144515	-2.05	0.040	-.5796345	-.0131463
--.	.3851492	.1337979	2.88	0.004	.1229101	.6473883
lp_s						
L1.	-.3836179	.1579267	-2.43	0.015	-.6931485	-.0740874
lg_e						
L1.	-.152002	.1067314	-1.42	0.154	-.3611916	.0571876
--.	-.1097914	.0701406	-1.57	0.118	-.2472645	.0276817
lr_q						
L1.	.020803	.0251339	0.83	0.408	-.0284586	.0700646
--.	-.06777	.0155557	-4.36	0.000	-.0982586	-.0372814
lr_l						
L1.	.0999923	.1664475	0.60	0.548	-.2262388	.4262234
--.	.0080801	.1430747	0.06	0.955	-.2723412	.2885013
lc_c						
L1.	-.0016143	.0252906	-0.06	0.949	-.0511829	.0479543
--.	.0113651	.0262702	0.43	0.665	-.0401234	.0628537
lc_p	.1499835	.1941234	0.77	0.440	-.2304913	.5304583

⁷ We sample Burkina Faso, Chad, Mali, Niger and Nigeria from West Africa, Democratic Republic of Congo, Central Africa Republic, Rwanda, Burundi and Republic of Congo from Central Africa, Sudan, Kenya, Tanzania, Somalia, Ethiopia from East Africa and Angola, Malawi, Namibia, Zambia and Zimbabwe from South Africa.

lfdi .3818013 .1481156 2.58 0.010 .0915 .6721025
--

We conduct some diagnostic checks on the system GMM which is reported in table 4.7. These are battery of tests design to check the performance of the system GMM.

Table 4.7: Diagnostic Checks of the System GMM

Arellano-Bond test for AR(1) in first differences: $z = -3.15$ $Pr > z = 0.002$				
Arellano-Bond test for AR(2) in first differences: $z = -0.21$ $Pr > z = 0.835$				
Sargan test of overid. restrictions: $\chi^2(153) = 186.23$ $Prob > \chi^2 = 0.035$				
(Not robust, but not weakened by many instruments.)				
Hansen test of overid. restrictions: $\chi^2(153) = 7.48$ $Prob > \chi^2 = 1.000$				
(Robust, but weakened by many instruments.)				
Difference-in-Hansen tests of exogeneity of instrument subsets:				
iv(lc_p lecon_act lfdi, eq(diff))				
Hansen test excluding group: $\chi^2(150) = 7.48$ $Prob > \chi^2 = 1.000$				
Difference (null H = exogenous): $\chi^2(3) = 0.00$ $Prob > \chi^2 = 1.000$				

Conclusion and Recommendation

To the extent that the models of estimation in this study revealed the fact that, as the index of WGI improves, for example political stability, food security will also increase, validating the Apriori expectation; the current famines clearly exhibit significant political underpinnings, equally validating the concept of a paradox of persistence and wanton violation of peoples' right to adequate food and nutrition. This paper therefore concludes that persistent famine and starvation in SSA is neither an act of God, failure of humanitarian response, nor that of the benevolent nature. It is clearly demand rather than supply driven, based on consistent collapse of the people's entitlements/purchasing power occasioned by sustained complex political emergencies/conflicts on the continent.

Ultimately, If famine and starvation must be eliminated in sub - Saharan Africa, substantial efforts must come from Africans, who must ensure that democracy and the rule of law is firmly established, strong institutions rather than individuals are established, actively prevent armed conflicts/deadly power struggles. Indeed, there must be a serious consideration for the transition "from social assistance to social insurance, from discretionary benevolence to enforceable rights [entitlements]" (Devereux, 2009), as a form of social security against hunger. International criminalisation of mass starvation within the framework of global justice system, as argued by Edkins (2007), might be more useful as a deterrence against famine, than the FAO's (2004) food rights guideline which has no consequence for violation.

We conclude based on evidence advanced, that the ritual of humanitarian calls for Africa is the sign-post of a fundamental failure of the global community. With the expanse of arable land and large water bodies of the continent, Africa may just be able to feed the world, if only Africa can focus on the real issues out of the food deficit quagmire, particularly in the manner the African Development Bank (AfDB) is currently envisioning its programmes in context.

Finally, there is the need to begin to actualise the commitment of the global community to a “World without Hunger”. Access to food in the right quantity and quality is a fundamental human right, irrespective of place or region of domicile, or indeed status. Governments must therefore move beyond rhetoric and take concrete steps to ensure that this right is respected across sub – Saharan Africa, particularly the drylands.

References

- Baro, M., and Deubel, T. F. (2006). Persistent hunger: perspectives on vulnerability, famine, and food security in sub-Saharan Africa. *Annual review of anthropology*. 35:521–38 online at anthro.annualreviews.org doi:10.1146/annurev.anthro.35.081705.123224
- Brown, L. (2001). Eradicating hunger: a growing challenge. In *state of the world 2001*. New York: Worldwatel Inst; Norton.
- Darcy, J., and Hofmann, C. (2003). According to Need? needs assessment and decision making in the humanitarian sector, *HPG Report, 15. Overseas Development Institute, London*
- de Waal, A. (1990). A re-assessment of entitlement theory in the light of the recent famines in Africa. *Development and Change*, 21 (3):469–490
- Devereux, S. (1998). Entitlements, availability and famine: a revisionist view of Wollo, 1972–74: *Food policy*, 13: 270-282.
- Devereux, S. (2000). Famine in the twentieth century, *IDS working paper, 105. Institute of Development Studies, Brighton*.
- Devereux, S. (2001a). Livelihood insecurity and social protection: a re-emerging issue in rural development. *Dev. Policy Rev.* 19(4):507–19
- Devereux, S. (2001b). Sen’s entitlement approach: critiques and counter-critiques. *Oxford Dev. Stud.* 29(3):245–63
- Devereux, S. (2009). Why does famine persist in Africa? *Food Bulletin Vol 33 No 4*
- Devereux, S., and Maxwell, S. (2001). *Food Security in sub-Saharan Africa*. London: ITDG
- Devereux, S., and Tiba, Z. (2007). Malawi’s first famine, 2001–2002, Chapter 7. In *Devereux, S. (ed) The new famines. Routledge, London*
- deWaal, A. (1989). *Famines that kill. Sudan 1984-1985*, Oxford: Clarendon Press
- deWaal, A. (1997). *Famine crimes: politics and the disaster relief industry in Africa*. Oxford: James Currey.
- deWaal, A. (1998). *Famine crimes: politics and the disaster relief industry in Africa*. Bloomington: Indiana Univ. Press
- deWaal, A. (2004). *Famine that kills: Darfur, Sudan 1984–1985*. New York: Oxford Univ. Press
- deWaal, A., and Whiteside, A. (2003). New variant famine: AIDS and food crisis in Southern Africa. *Lancet* 362:1234–37 DOI 10.1007/s12571-008-0005-8
- Duffield, J. S. (1998). *World power forsaken: political culture: International Institutions, and German Security Policy After Unification*. Stanford, CA: Stanford Univ. Press
- Duffield, M. (1993). NGO’s disaster relief and asset transfer in the horn: political survival in a permanent emergency. *Development and change*, 24: 131-157.

- Edkins, J. (2007). The criminalisation of mass starvations: from natural disaster to crime against humanity, Chapter 3. In: *Devereux, S. (ed) The new famines. Routledge, London*
- Edkins, J. (1996). Legality with a vengeance: Famines and humanitarian relief in 'complex emergencies'. *Journal of international studies, 25 (3): 547-575.*
- Edkins, J. (2001). *Whose hunger? Concepts of Famine, Practices of Aid.* Minneapolis: Univ. Minn.Press
- Eluhaiwe, P. N. (2008). *The central bank of Nigeria partnership with alliance for a green revolution in Africa (AGRA): Conceptual issues, operations and prospects for food security in Nigeria.* CBN economic and financial review, December 2008. Vol. 48/4. Pp.181-192.
- FAO (2013). *The state of food insecurity in the world: Undernourishment around the world in 2013.*
- FAO. (2004). Intergovernmental working group for the elaboration of a set of voluntary guidelines to support the progressive realization of the right to adequate food in the context of national food security, final report of the chair. FAO, Rome
- FEWSNET (Famine Early Warning Systems Network). (2016). Food Security reaches extreme level in pockets of Nigeria's Borno State. CILSS/FAO/WFP July 7, 2016.
- Food and Agriculture Organisation of the United Nations (FAO). (1996). Commitment 3. Rome declaration on world food security and world food summit plan of action. Report of the world food summit. Rome. FAO.
- Hendrie, B. (1997). Knowledge and power: a critique of an international relief operation. *Disasters 21(1):57-76*
- Hollist, W. L. & Tullis, F. L. (Eds.), (1987). *Pursuing food security: Strategies in Africa, Asia, Latin America and the Middle East.* International political economy year book, Vol. 3. (pp. 1-5).
- Howe, P. (2002). Reconsidering 'famine'. *IDS Bulletin Vol 33 No 4*
- IFPRI Global Hunger Index. (2017). The inequality of hunger
- Illiffe, J. (1979). *A modern history of Tangayika.* Cambridge: Cambridge University Press
- Keen, D. (1994). *The benefits of famine: a political economy of famine and relief in South Western Sudan, 1983-1989,* Princeton: Princeton University Press.
- Kumar, B. (1990). Ethiopian famines 1973-1985: a case study: chapter 3 in *Dreze, J. and Sen, A. (eds). The political economy of hunger, vol. 2: Famine prevention,* Oxford: Clarendon Press.
- Malthus, T. (1798). *An essay on the principle of population as it affects the future improvement of society,* Oxford: Oxford University Press (1993 edition).
- Mariam- Wolde, M. (1986). *Rural vulnerability to famine in Ethiopia: 1958-1977.* London: Intermediate technology publications.
- Olsen, G., Carstensen, N., and Hoyen, K. (2003). Humanitarian crises: what determines the level of emergency assistance? Media coverage, donor interests and the aid business. *Disasters 27 (2):109-126*
- Rangasami, A. (1985). Failure of exchange entitlements' theory of famine: a response. *Economic and political weekly, 12 and 19 october.*
- Sen, A. (1981). *Poverty and famines: an essay on entitlement and deprivation.* Oxford, UK: clarendon
- Shepherd, J. (1993). Some tragic errors: American policy and the Ethiopian famine, 1981-85; in *Field, J. (ed). The challenge of famine: recent experience, lessons learned.* West Hartford, Conn: Kumarian Press.
- United Nations. (1948). Universal declaration of human rights, adopted and proclaimed by the General Assembly Resolution 217 A (111) of 10 December, 1948.
- United Nations. (1966). International covenant on economic, social and cultural rights, adopted and opened for signature, ratifications and accession by General Assembly Resolution 2200 A (XX1) of 16 December, 1966.
- United Nations. (1974). Universal declaration on the eradication of hunger and malnutrition endorsed by the General Assembly in Resolution 3348 (XXIX) of 17 December, 1974.
- United Nations. (1975). Report of the World food conference, Rome, 5-16 November, 1974. New York.
- Vogel, C., and Smith, J. (2002). The politics of scarcity: conceptualising the current food security crisis in Southern Africa. *South Afr. J. Sci. 98:315-17*

- Vonn-Braun, J., Teklu, T., and Webb, P. (1998). *Famine in Africa: causes, responses, and prevention*. Baltimore: John Hopkins University Press.
- Walker, P. (1989). *Famine early warning systems: victims and destitution*. London: Earthscan
- Watkins, S. C., and Menken, J. (1985). Famines in historical perspective. *population and development review*, Vol. 11, No. 4. pp. 647-675.
- Watson, F. (2007). Why are there no longer 'war famines' in contemporary Europe? Bosnia besieged, 1992-1995, Chapter 12. In: *Devereux, S. (ed). The new famines. Routledge, London*
- Watts, M. (1991). Entitlements or empowerment? famine and starvation in Africa . Review of African Political Economy No.51: 9-26. ROAPE Publications Ltd., ISSN 0305-6244; RIX #5102 . <http://www.jstor.org>
- Watts, M. (1983). *Silent violence: food, famine and peasantry in Northern Nigeria*. Berkeley: University of California Press.
- Webb P, von Braun J. (1994). *Famine and food security in Ethiopia: lessons for Africa*. New York: Wiley
- WFP (World Food Programme). (2017). Nigeria. Dikwa rapid food security assessment January 2017. www.vam.wfp.org
- World Food Conference. (WFC). (1974). Solemn declaration that "every man, woman and child has the inalienable right to be free from hunger and malnutrition in order to develop their physical and mental faculties". Rome, 5-16 November, 1974.
- World Food Summit (WFS). (1996). Declaration on plan of action and commitments towards achieving sustainable food security, including halving the number of undernourished in the world by 2015. Rome, 13-17 November, 1996.