

**DETERMINANTS OF THE RIGHT OF ACCESS TO FOOD  
IN SUB-SAHARAN AFRICA**

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**ABSTRACT**

Food is one of the most important basic needs of human beings since it provides the energy for the physiological functioning of the body. The right to food is thus the right of all individuals alone or in community with others to enjoy physical and economic access to adequate food or the means for its procurement. Adequate food also implies the availability of food in sufficient quantity and quality to satisfy the dietary needs of all individuals and the accessibility of food in ways that are sustainable. Generally, a number of factors are considered important in the determination of the right of access to food. Key among these factors are availability of agricultural resources such as land, water, energy and fertilizer; increase in the demand for food as a result of the increase in population, increase in personal income, development of transportation and storage facilities, macroeconomic stability, socio-political stability; seasonal fluctuation in availability of food due to natural disaster, access to safe water, access to health care services, access to sanitation facilities and many others. This paper examines the extent to which these factors have impacted on the ability of the people in Sub-Saharan Africa to have access to food, using a set of cross-country data and a multiple regression analysis. The results obtained indicate that factors like the increase in population, access to sanitation facilities, access to safe water, access to health care services, access to information and increase in the price of food have to some extent impacted on the right of the people to have access to food in the sub-region. Food supply, income of the people, the presence of democratic values, access to education and access to transport play little or no significant role in determining the right of the people to access food. Given these results, measures, such as, the provision of stable macroeconomics policies, reduction in income poverty, provision of basic social services and good governance were suggested as possible solutions to the right of access to food in Sub-Saharan Africa.

**Key words:** Food, right, access, determinants, Africa

## INTRODUCTION

Since its inception, the United Nations has identified among other human rights, access to adequate food as both an individual right and a collective responsibility. The 1948 Universal Declaration of Human Rights thus proclaimed "everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food..." [1]. Nearly 20 years later, the International Covenant on Economic, Social and Cultural Rights (ICESCR) developed this concept more fully by stressing on "the right of everyone to... adequate food" and specifying "the fundamental right to everyone to be free from hunger" under Article 11. At the 1996 World Food Summit, leaders from 185 countries and the European Commission reaffirmed this in the Rome Declaration (Document WFS 96/3) on World Food Security, "the right of everyone to have access to safe and nutritious food consistent with the right to adequate food and the fundamental right of everyone to be free from hunger". They further pledged to reduce the number of the world's hungry people by a half by 2015, a pledge that has not started manifesting in sub-Saharan Africa with just about six years to 2015. For instance, in 2008 963 million people across the world are said to be hungry with about 236 million of them in sub-Saharan Africa. [2,3,4,5,6,7].

Given all these declarations and efforts, what bothers the minds of policy makers, academia and the people, is the possibility of achieving the goal of halving hunger before 2015, especially in Sub-Saharan Africa, given a number of factors that are pertinent to right of access to food. These factors include among other things: macroeconomic stability, socio-political stability, access to health care services, access to education, access to safe water, the right to own property, access to safe and healthy environment, respect for cultural values and the right of the people to organize themselves economically and politically, adequate food production, rate of population growth and absence of natural disaster [2,3,4].

Another factor that is pertinent to the right of access to food is the principle that the primary responsibility for ensuring the right to adequate food and the fundamental right to freedom from hunger rests with national governments (refer to ICESCR 1999; General Comment 12 on the right to food) This assertion does not mean that the government has a duty to distribute food to all its citizens; it does, however, have an obligation to respect the right to food by not interfering with individuals' efforts to provide for themselves. It must also protect its people from infringement of their rights by others. The State's obligation to fulfill the means that would help those who do not enjoy the right to food is by creating opportunities for them to provide for themselves. The State's obligation to fulfill the right to food comprises two elements: (i) the obligation to facilitate; and (ii) the obligation to provide. The obligation to facilitate means that it should create and maintain an enabling environment within which people are able to meet their food needs. One way to achieving this is through agricultural development which is not only the key to increasing food availability but a major employer of labour in most developing countries. The obligation to provide food could occur in situations of extreme emergencies in order to meet the needs of the most vulnerable [2,3,4].

An efficient national food supply systems accompanied by appropriate marketing facilities, equitable rural development policies and adequate opportunities to produce food or earn enough money to buy it is another factor that is pertinent to the right of access to food. Development of the transportation and communications infrastructure, promotion of private food markets without resorting to inefficient and costly price controls and direct food assistance, reduction of barriers to obtaining trade licenses for food supply and the encouragement of trade and keeping food price affordable by reducing value-added taxes on food commodities and the enactment of legislation prohibiting monopolies and making price data available to the public through radio broadcasts or other means are also considered as important factors that determine the right of access to food [2].

Several studies on access to food also identified the following as the factors that determine the right to food: availability of agricultural resources such as land, water, energy and fertilizer; increase in the demand for food as a result of the increase in population, increase in personal income, development of transportation and storage facilities, macroeconomic stability, socio-political stability; seasonal fluctuation in availability of food due to natural disaster (e.g. excessive rainfall leading to flood or lack of rainfall leading to drought [ 8,9,10,11]

Another study also observed that adequacy of food availability, stability of food supply, adequate care and availability of health care services at the household and community levels were essential determinants of the right of access to food. Adequacy of food availability has to do with the overall nutritional needs of the people in terms of quantity (energy) and quality (providing all essential nutrients). The stability of the food supply has to do with a judicious public and community management of the natural resources that have bearing on food supply and conditions and mechanisms for securing food access which in turn as to do with a just income distribution and effective market together with various formal (public sector) and informal safety nets. Adequate care implies the time, attention and support provided in the household/community to meet the physical, mental and social needs of the growing child and other household/community members and care given behaviours which include breast-feeding and complementary feeding to young children, food preparation and food storage behaviours, hygiene behaviours and care for children during illness. Availability of health care services is viewed at three levels (community, household and individual levels). At the community level, factors such as the quality of the overall environment (biological pathogens and chemical pollutants in air, food and water), and the availability, cost and quality of services such as water, electricity, sewage, refuse disposal are considered. At the household level, the most important factors are the general conditions of the household including, the type of housing, the availability and cost of water and hygienic facilities, safe environment and food preparation methods. At the individual level, individual's food and nutrient intake and the nutritional and health status of the individual are mostly considered [12].

A critical assessment of some of these factors seems to provide a contrary view with regard to the right of access to food in Sub-Saharan Africa, especially when compared with other sub-regions in Africa and the World. For instance, as indicated in Table 1, Sub-Saharan Africa has the lowest per capita income. This low per capita income implies that the low income of people in this region has always deprived them the right of access to food. The sub-region is also the third most populous sub-region, which makes it the third highest demander of food. The sub-region also have a low percentage of people that have access to safe water, sanitation facilities and education, which are very important social services needed to complement access to food in order to ensure a healthy body and an active life.

It is thus against this background that this paper examined the relative contributions of the factors that determine the right of access to food as observed in Sub-Saharan Africa, using a set of cross-country data and a multiple regression analysis.

## MATERIALS AND METHODS

### Materials

The variables considered for this study were food, right to food and the factors that determine the right of access to food. Food is referred to as one of the basic requirements of human beings that provide the energy the human nerves, muscles, heart and glands need to work. In addition, food supplies the nourishing substances the body needs to build and repair tissues and to regulate body organs and systems [13]. The term right known as *Rectors* in Latin means just and moral which the law directs, approves or supports. It has been described as a liberty or power of possessing something, the disturbance or infringement for which there is a legal sanction. A right in its most general sense is either the liberty protected by law of acting or reacting in a certain manner or the power (enforced by law) of compelling a specific person to do or abstain from doing or possessing a particular thing [14, 15]. It is also referred to as something to which one is entitled to solely by virtue of being a person. It is that which unable an individual to live with dignity. A right can be enforced and entails an obligation on the part of the government [16]. The right to food therefore is the right of all individuals alone or in community with others to enjoy physical and economic access to adequate food or the means for its procurement. It should be understood primarily as the right to feed oneself, rather than the right to be fed. The right to be free from hunger is the minimum essential level of the right to adequate food [17]. The right to food also implies the availability of food in sufficient quantity and quality to satisfy the dietary needs of all individuals in a form that is culturally acceptable and the accessibility of food in ways that is sustainable and does not interfere with the enjoyment of other human rights [18].

Right to adequate food also encompasses food safety and food security. Food safety implies that food should be free from adverse substance, whether from adulteration, poor environmental hygiene or other causes. While food security implies the absence of vulnerability to hunger, for example, a low risk of falling victim of hunger through changes in personal or external circumstances. In other words, people are food secure if they can afford and have access to adequate food at all times [2,12,19].

The most important determinants of the right of access to food considered for this study were food supply, natural disaster, rate of population, ethnic and civil conflicts, presence of democracy, discrimination against women, level of income, access to sanitation facilities, access to safe water, access to health care services, access to information, access to transport facilities, price of food and access to education.

In testing the validity of these factors cross-country data drawn from 48 countries in Sub-Saharan Africa for the period 2003 (see Appendix 1) were used and a multiple regression analysis of the Ordinary Least Square (OLS) done. The data were obtained from the African Development Bank Selected Statistics on African Countries for the year 2005, African Development Bank Gender, Poverty and Environmental Indicators of Africa Countries for the year 2005 and the World Bank African Development indicators for the year 2005 [20, 21,22 ,23].

### Regression Model

Drawing from some studies on food, nutrition and malnutrition [24,25,26], a model that specified whether factors such as food supply, natural disaster, rate of population, ethnic and civil conflicts, presence of democracy, discrimination against women, level of income, access to sanitation facilities, access to safe water, access to health care services, access to information, access to transport, price of food and access to education had any significant influence on people's right of access to food in Sub-Saharan Africa was formulated thus:

$$RAF_i = F (FoS_i, NaDis_i, RPop_i, ECc_i, PDem_i, DisWo_i, LeInc_i, AccSF_i, AccSWa_i, AccHel_i, AccEdu_i, AccInf_i, AccTrans_i, Pric_i) \quad (1)$$

When transformed into a multiple linear, equation (1) thus becomes:

$$RAF_i = \alpha_0 + \alpha_1 FoS_i + \alpha_2 NaDis_i + \alpha_3 RPop_i + \alpha_4 ECc_i + \alpha_5 PDem_i + \alpha_6 DisWo_i + \alpha_7 LeInc_i + \alpha_8 AccSF_i + \alpha_9 AccSWa_i + \alpha_{10} AccHel_i + \alpha_{11} AccEdu_i + \alpha_{12} AccInf_i + \alpha_{13} AccTrans_i + \alpha_{14} Pric_i + z \quad (2)$$

Where:

$RAF_i$  = right of access to food proxied by the nutritional status of the people in each country, which in this study is based on daily *per capita* calories supplies.

F = functional relationship.

$FoS_i$  = food supply proxied by the food available in each country (output *per capita*).

$NaDis_i$  = natural disaster proxied by the countries that experienced drought in recent times. Dummy 1 for countries that shortage of rain unfavourably affected their agricultural production and dummy 0 for otherwise.

$RPop_i$  = rate of population proxied by the total number of people living in each country.

- DisWo<sub>i</sub> = discrimination against women proxied by women gross secondary school enrolment ratio.
- Lelnc<sub>i</sub> = level of income proxied by the per capita income in each country.
- ECC<sub>i</sub> = ethnic/civil conflicts e.g. wars. Dummy 1 for absence of war/conflicts and dummy 0 for war torn countries or countries just recovering from war/conflicts.
- PDem<sub>i</sub> = presence of democratic values. Dummy 1 for the presence of democratic values (such as countries with full democratic governance) and dummy 0 for otherwise.
- AccSF<sub>i</sub> = percentage of people with access to sanitation facilities.
- AccSWa<sub>i</sub> = percentage of people with access to safe water.
- AccHel<sub>i</sub> = percentage of people with access to health care services.
- AccEd<sub>i</sub> = percentage of people with access to education.
- AccInf<sub>i</sub> = number of people with access to information proxied by the number of radio receivers in use for broadcast to the general public.
- AccTrans<sub>i</sub> = number of people with access to transportation proxied by the ratio of 1000 kilometers of paired or unpaved road per 1 million people.
- Pric<sub>i</sub> = price of food proxied by consumer price index in the countries.
- $\alpha_0$  = the intercepts.
- $\alpha_1 \dots \alpha_{14}$  = parameter estimates associated with the influence of the independent variables (FoS<sub>i</sub>; NaDis<sub>i</sub>; RPop<sub>i</sub>; DisWo<sub>i</sub>; Lelnc<sub>i</sub>; ECC<sub>i</sub>; PDem<sub>i</sub>; AccSF<sub>i</sub>; AccSWa<sub>i</sub>; AccHel<sub>i</sub>; AccEd<sub>i</sub>; AccInf<sub>i</sub>; AccTrans<sub>i</sub>; Pric<sub>i</sub>) on the dependent variable (RAF<sub>i</sub>).
- $z$  = the error term to capture some of the omissions and mis-specifications.

To estimate the model, a multiple regression analysis of the ordinary square was used in order to reflect the explanatory nature of the variables. To verify the validity of the model, two major evaluation criteria were used. The *a-priori* expectation criteria which is based on the signs and magnitudes of the co-efficients of the variables under investigation; and the statistical criteria which is based on statistical theory, which in other words is referred to as the First Order Least Square (OLS) consisting of R-square ( $R^2$ ), F-statistic and t-value. The R-Square ( $R^2$ ) is concerned with the overall explanatory power of the regression analysis; the F-statistic is used to test the overall significance of the regression analysis; and the t-test is used to test the significant contribution of each of the independent variable on the dependant variable [27].

Drawn from the model our *a-priori* expectations or the expected behaviour of the independent variables on the dependent variable were: FoS<sub>i</sub> >; NaDis<sub>i</sub> <; RPop<sub>i</sub> >; DisWo<sub>i</sub> <; Lelnc<sub>i</sub> >; ECC<sub>i</sub> <; PDem<sub>i</sub> >; AccSF<sub>i</sub> >; AccSWa<sub>i</sub> >; AccHel<sub>i</sub> >; AccEd<sub>i</sub> >; AccInf<sub>i</sub> >; AccTrans<sub>i</sub> >; Pric<sub>i</sub> < 0. An indication that all the variables are directly related to the right of access to food, except natural disaster, ethnic and civil conflicts, discrimination against women and price of food.

## RESULTS

The results of the multiple regression analysis of the model conducted at 5 percent level of significance are presented in Table 2. A look at the model shows that it has an  $R^2$  of 0.77, which in other words means that 77 percent variation in the dependent variable is explained by the explanatory variables, while the error term take care of the remaining 23 percent, which are variables in the study that cannot be included in the model because of certain qualitative features. At 5 percent level of significance, the F-statistic show that the model is useful in determining if the explanatory variables have any significant influence on the dependent variable, as the computed F-statistic which is 3.50 is greater than the tabulated F-statistic valued at 1.92.

In terms of the individual independent variables, the co-efficient estimates and the associated t-values of high rate of population, access to sanitation facilities, access to safe water, access to health care services, access to information and the increase in price of food have the expected signs, thus fulfilling our *a-priori* expectations. Of all these variables, only the high rate of population was statistically significant at 5 percent level, while the other variables were not. These results are an indication that as the population of the countries in Sub-Saharan Africa increases, the right of access to food also increases. Same is the situation when more people have access to sanitation facilities, safe water, health care services and information. For instance, having access to these services will provide healthy body and active life, since it is only a healthy body and an active life that will always seek right to food. With access to information, the right of access to food is made easy, since information about the type of food available, the nutrient contents of the food, where to get it (e.g. the market) and at what price are readily given. Supply of food, income, natural disasters, ethnic and civil conflicts, presence of democratic values, discrimination against women, access to education and transport facilities fall short of our *a-priori* expectations.

## DISCUSSION

The analysis in Table 2 shows the extent to which some of the variables have impacted on the right of access to food in sub-Saharan Africa. For instance, the increase in price of food can be linked to instability in some of the major macroeconomic variables, like interest rate, exchange rate and inflation, which hitherto has had drastic impact on the purchasing power of the people in the sub-region. As it was revealed in a number of studies, most countries in the sub-region have for years experienced high rate of depreciation in their national currencies. When compared with the United States (US) dollars, the purchasing power parity has been unfavourable to the countries. Take the case of countries like, Ghana, Nigeria and Zimbabwe, to get a dollar in 1980, only 2.8 Cedes, 0.5 Naira and 0.6 Zimbabwe dollars were respectively needed, but by 2003 this has rose to 8677.4 Cedis in Ghana, 129.2 Naira in Nigeria and 697.4 Zimbabwe dollars in Zimbabwe [22]. If food and agricultural input will have to be imported to these countries, the long-run consequence will be an increase in price of food and the produce produced with these input.



For variables like natural disaster, ethnic and civil conflicts, the presence of democratic values (full democracy and quasi- democracy) and discrimination against women, their impact were not severe because their occurrence was not widespread but in few countries in the sub-region. For instance, it is only countries like Somalia, Sudan, Uganda, and the Democratic Republic of Congo that have pockets of conflicts, while countries like Sierra Leone, Liberia, Rwanda and Burundi are just recovering from conflicts and wars that lasted for more than a decade [28,29,30].

The lack of sufficient supply of food can also be linked to limitations in the availability of agricultural resources, like tractors, water, energy, fertilizer, insecticides, on-farm and off-farm storage facilities, the existence of land tenure system that has limited land availability to would-be farmers, women and the landless. The case of transport can be linked to the lack of expansion in the transport industries, especially construction of more roads that can link the rural areas with the urban markets and the decay in existing transport facilities, especially road networks and railway. The low-income level can be linked to chronic poverty in the sub-region, while low education attainment can be linked to poor funding, drop in enrolment level, most especially among girl children and the high rate of poverty.

A careful look at these results seems to conform with the views of some scholars, who attributes the lack of infrastructural facilities (e.g. transport), macro-economic instability (e.g. like high rate of inflation and fluctuation in exchange rate), increase in population, inadequate nutritional knowledge because of the lack of access of education, high rate of poverty as some of the factors that determine people's right of access to food.

## CONCLUSION AND RECOMMENDATIONS

An empirical study of the determinants of the right of access to food in Sub-Saharan Africa was carried out using a cross-country data and a multiple regression analysis. The determinants considered provided some interesting results that fulfilled some of the *a-priori* expectations. For instance, the increase in population, access to sanitation, safe water, health care services, information and increase in the price of food have to some extent impacted on the right of the people to have access to food in Sub-Saharan Africa, while food supply, income of the people, the presence of democratic values, access to education and access to transport play little role in determining the right of the people to food in the sub-region. This is an indication that there are lots of problems with regard to food production, inflation, governance, education and transportation in Sub-Saharan Africa. This situation thus require solutions like stable macro-economic policies that would take care of some of the basic problems that usually deprive people access to food, like inflation and exchange rate volatility. The stability of these variables at appropriate rates would not only facilitate domestic and foreign investment in food production and related food processing industries but also improve the people's purchasing power.

A reduction in income poverty is also important, because with greater income, most especially at the household and community levels would enable families not only have access to food but food related commodities like safe water, sanitation facilities, health care services and good hygiene that are essential for a healthy body. Coupled with this is the need to empower the people, most especially the poor and those that are food insecure. The empowerment should be such that it provides an enabling environment that supports the people in feeding themselves rather than that, which support giving food aid.

The government should also endeavour to respect, protect and fulfil the right of every individual to food. The right should be a matter of legal obligation to create and maintain an enabling environment within which the people can enjoy their right to food, and the State obliged to provide food to those who cannot access the food by all means available to them as pledged under international human rights law and instruments.

Essentially the issue of good governance, most especially, in the provision of farming incentives to farmers, in formulation of food policies that are people friendly and in the provision of social services, e.g. road, health care services, safe water, irrigation facilities, education and agricultural extension services that would enhance food production, food accessibility and affordability should be prioritized by all states if the right to adequate food is to be progressively realized and sustained.

**Table 1: Some Indicators on Rights of Access to Food in Sub-Saharan Africa and other Regions of the World in 2003**

| Regions                   | Per capita income (US \$) | Adult Literacy (%) | Adult Population (Million) | Access to water (%) | Access to Sanitation (%) |
|---------------------------|---------------------------|--------------------|----------------------------|---------------------|--------------------------|
| East Asia and Pacific     | 1070                      | 88                 | 1854.6                     | 78                  | 49                       |
| Europe and central Asia   | 2580                      | 97                 | 472.2                      | 91                  | 82                       |
| Latin America & Caribbean | 3280                      | 87                 | 532.7                      | 89                  | 74                       |
| Middle East & N.A.        | 2390                      | 72                 | 311.6                      | 88                  | 75                       |
| South Asia                | 510                       | 59                 | 1424.7                     | 84                  | 35                       |
| Sub-Saharan Africa        | 500                       | 65                 | 1704.5                     | 58                  | 36                       |

Source: World Bank 2005[23]

**Table 2: Regression Results of the Determinants of Right of Access to Food in Sub-Saharan Africa**

| Explanatory variables     | Co-efficient and t-value |
|---------------------------|--------------------------|
| Intercept (t)             | -0.009(-0.03)            |
| FoS <sub>i</sub> (t)      | 0.02(0.61)               |
| NaDis <sub>i</sub> (t)    | 0.002(2.43)*             |
| RPop <sub>i</sub> (t)     | 37.3(0.30)               |
| ECc <sub>i</sub> (t)      | -190.8(-2.17)*           |
| PDem <sub>i</sub> (t)     | 0.17(0.25)               |
| DisWo <sub>i</sub> (t)    | -0.018(-0.27)            |
| LeInco <sub>i</sub> (t)   | 6.19(1.53)               |
| AccSF <sub>i</sub> (t)    | 0.69(0.15)               |
| AccSWa <sub>i</sub> (t)   | 3.14 (1.18)              |
| AccHel <sub>i</sub> (t)   | -5.83(-1.59)             |
| AccEda <sub>i</sub> (t)   | 0.55(1.15)               |
| AccInf <sub>i</sub> (t)   | -7.26(-2.31)*            |
| AccTrans <sub>i</sub> (t) | -1.16 (-0.37)            |
| Pric <sub>i</sub> (t)     | 0.77                     |
| R <sup>2</sup>            | 0.55                     |
| R <sup>2</sup> Adjust     | 3.50                     |
| F                         |                          |

t-test in parenthesis

\*Significant at 5 percent level of significance

**Appendix 1: Countries Selected for the Study in Sub-Saharan Africa**

|               |                          |               |               |              |                     |
|---------------|--------------------------|---------------|---------------|--------------|---------------------|
| Angola        | Benin                    | Botswana      | Burkina Faso  | Burundi      | Cameroon            |
| Cape Verde    | Central African Republic | Chad          | Comoros       | Congo        | DR Congo            |
| Cote D'Ivoire | Djibouti                 | Equat. Guinea | Eritrea       | Ethiopia     | Gabon               |
| Gambia        | Ghana                    | Guinea        | Guinea Bissau | Kenya        | Lesotho             |
| Guinea        | Madagascar               | Malawi        | Mali          | Mauritania   | Mauritius           |
| Mozambique    | Namibia                  | Niger         | Nigeria       | Rwanda       | Sao Tome & Principe |
| Senegal       | Seychelles               | Sierra Leone  | Somalia       | South Africa | Sudan               |
| Swaziland     | Tanzania                 | Togo          | Uganda        | Zambia       | Zimbabwe            |

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