

**EFFECTS OF URBAN FOOD INSECURITY ON HOUSEHOLD IN NIGERIA: A
CASE STUDY OF MINNA METROPOLIS**

By

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Abstract

This paper examines the impact of food insecurity in Minna metropolis using a set of household data and index of food insecurity. To determine the impact of food insecurity, structured questionnaire were administered on 150 heads of households that were randomly selected from different social background. The report shows that 72 percent of the respondents were categorized as suffering from food insecurity with 25 percent of them falling below the minimal calorie requirement that would guarantee their survival. The causes of food insecurity in Minna metropolis include among other factors: high cost of food items, the increase in inflation rate., high cost of transportation, lack of access, unaffordability as a result of very low income lack of social capital e.t.c .The consequences of this include: high malnutrition level and ill health. Solution such as urban farming, efficient distribution network, macroeconomics stability, good governance most especially in the provision of farming incentives, social capital given its importance as a mediator in adequate and efficient distribution of food in the metropolis

I. Introduction

It is an understatement to say that Nigeria as a nation has over the years fall short in her quest to increase food production and consumption. This short fall has no doubt led to increase in the importation of food by the government and individuals into the country, that in the year 2001 alone food importation amounted to about N630.5million (CBN 2000). Despite the huge amount committed on food importation the nation's food insecurity most especially in the urban settlements has continued to mount astronomically.

Evidently, some marginal increases though with slight fluctuations were witnessed in the nation's per capita calorie, protein and fat intakes between the year 1970 and 2001. For instance the daily calorie intake per capita was 2102.1 in the year 1974, which slightly dropped to 2000.4 in 1984. Between 1985 and 1995, the daily calorie intake witnessed a progressive increase from 2183.6 to 2801.0. By 1996 it dropped to 2781.0, raised again in 2001 to 2882.0 which is still below the 3000.0 daily calorie intake per capita recommended by the Food and Nutrition Board of the United States National Academy of science as the standard daily dietary allowance (Dwyer 2001: ADB 2003).

The reasons for this fluctuation include the deliberate neglect of the agricultural sector by the government, as a result of oil discovery in the early 70s, the consequences of political, ethnic and religion crisis, most especially in the Delta region

and some parts of Northern Nigeria, the mounting debt problem in the early 1980s, and 1990s, macro-economic instability such as interest rate, exchange rate, high domestic inflation and large external debt burden, coupled with inconsistent policies on the pricing of agricultural products which are relatively low to the world market prices and an ineffective systems of subsidies for input, and rising cost of farm input, such as, agro-chemicals, farming implements and labour in the wake of continuous economic liberalization (Osagie 1983; Adesoye 1989; Anyanwu et al 1997).

Drawn from the above situation, the objective of this paper is to assess the impact of urban food insecurity on household in Minna metropolis. The rest of the paper contains, section two which provides the conceptual clarification, section three provides the study area and methodology, section four presents and discuss the results, conclusion and recommendation are contained in the last section.

2. CONCEPTUAL CLARIFICATION

2.1 Food Insecurity:

Bower (2001), observed that food is one of the basic needs of human being since it provide the energy for everything (working, talking, playing, reading and even thinking and breathing) food also provides, energy to the human nerves, muscle, heart and glands need to work.

Food security thus refers to the availability and accessibility of food. A household is considered food secure when its occupants do not live in hunger or fear of starvation. According to food and Agricultural organization (FAO 2003), World-wide, around 852million people are chronically hungry due to extreme poverty, while up to 2 billion people lack food security in intermittently due to varying degree of poverty.

Food security exist when all people at all times have access to sufficient safe and nutrition food to meet their dietary needs and food preferences for an active and healthy life (FAO 2003). Food security for a household means access by all members at all times to enough for an active, healthy life. In the same vein, United State Department of Agriculture (USDA 2003) defined food security to includes at a minimum (1) the ready availability of nutritionally adequate and safe foods and (2) an assured ability to acquire acceptable food in socially acceptable ways (that is without resorting to emergency food supplies scavenging, stealing or other coping strategies).

Food insecurity can be categorized as either chronic or transitory and acute food insecurity. Chronic food insecurity is characterized by a persistent inability to attain food access over a long term, and acute food insecurity is characterized by abrupt declines in food security status over a relatively short- period of time. These short-term declines in food security status may occur on a fairly regular basis as a result of seasonal changes in food access in a given area. They may also be associated with less frequent, but more acute declines in food access as in the case of famine.

Food insecurity exist, when people are undernourished as a result of the physical unavailability of food, their lack of social or economic access to adequate food, and inadequate food utilization. Food insecured people are those individuals whose food intake falls below their minimum calorie (energy) requirements, as well as those who exhibit physical symptoms caused by energy and nutrient deficiencies resulting from an inadequate or unbalanced diet or from the body's inability to use food effectively because of infection or disease. An alternative view would define the concept of food

insecurity as referring only to the consequence of inadequate consumption of nutrition food, considering the physiological utilization of food by the body as being within the domain of nutrition and health. Malnourishment also leads to poor health, if left unaddressed, hunger set in motion an array of outcomes that perpetuate malnutrition, reduce the ability of adults to work and to give birth to healthy children, and erode children's ability to learn and lead productive, healthy and happy lives. This truncation of human development undermines a country's potential for economic development for generation to come. (See Grootaert 1986; Demery and Grootaert 1993; Valadez and Bamberger 1994).

Reasons for food insecurity are, failure of crop and animal production because of the high cost of farm input and feeds, declining soil fertility that has reduced crop yields, over population that has resulted in the increases in demand for food, the deteriorating state of the nation's infrastructural facilities that would have facilitated the delivery of food to the people and its management when it get to them, inadequate electricity supply and irrigation facilities, low participation of the organized private sector in agriculture, frequent change / abolition of policies on agriculture, low investment on agriculture in terms of research and agricultural extension, and environmental problems such as high incidence of pests and diseases, drought, erosion, desert encroachment and pollution of agricultural land through industrial activities e.g. oil spillage etc. which affects soil fertility, socio-political instability (war and ethnic / religious conflicts) that has displaced the labour force that is in charge of food production and high rate of poverty, most especially income poverty, that has affected the people's purchasing power for food consumption (Ukoha 1997; Okuneye 2001).

Garrett (2000), and the World bank (2001), also identified the following as the main causes of food insecurity; limit in the availability of agricultural resources such as land, water, energy and fertilizer, increase in demand for food as a result of the increase in population, decrease in personal income as a result of poverty and distributional problem which is attributed to the lack of modern facilities for the transportation and storage of food which hamper quick delivery of food to the people from the rural areas to the urban centre and the preservation of food getting spoilt respectively, declining per capita food output, poor infrastructure, ecological constraints, limited arable land, diseases, poor water and sanitation, inadequate nutritional knowledge, civil war, and ethnic conflicts, high rate of inflation, depreciation of the exchange rate and the removal of key consumer or producer subsidies which has subsequently led to increase in price (see also Sen 1981; Scrageldin 1989; Ali and Pitkin 1991; Schiff and Valdes 1995; Ayres and McCalla 1996; Pinstrup-Andresen, et.al 1997; Sen 1998; Pinstrup - Andresen et.al 1999; Smith and Haddad; 2000; Wilson 2001).

Argenti (1998) was particular about the increasing growth in urban cities when he observed that urban growth has a number of direct and indirect consequences on food supply and distribution. For instance, urban growth increases the demand for marketed food but reduces the availability of productive land. It modifies food purchasing habits and makes existing market areas and infrastructure inadequate, both in the rural and urban areas. Urban growth also increases the price of available land, intensifies traffic, alters the location of consumers, and modifies food consumption habits. Furthermore, it increases the distances consumer must travel from their work

sites and put upward pressure on the costs of transporting and marketing food stuffs (see also Chatearjes, 1998; Tinker, 1998). The severe consequences of food insecurity are hunger/ starvation, malnutrition and illness, most especially among poor households, women and Children (sen 1981, Schiff and Valdes 1990; World Bank 1993, 1994). As indicated by Musgrove (1993) eating well is necessary for good health with long-run consequences on high productivity.

In Nigeria, the implication of food insecurity has been malnutrition, measured by underweight rates in children, hunger / starvation and illness, most especially among poor women and children. For instance, in 2003 about 28.7 and 38.3 percents of children under five years of age were underweight and stunted respectively. A figure that was far below that of Mauritius that recorded 14.9 and 9.7 percents of children under five that were underweight and stunted respectively in the same year (World Bank 2001).

3. STUDY AREA AND METHODOLOGY

3.1 Study Area

Minna the Niger State capital is located some 740 kilometers from Lagos and 140 Kilometer from Abuja the Federal Capital of Nigeria and on latitude North $6^{\circ}30'$ and longitude East $8^{\circ}80'$ of the equator. By 1991 census it has an estimated population of about 253,125 people (NPC 1993).

3.2 METHODOLOGY

a. Data Source

In addition to the use of secondary data, a survey aimed at generating primary data on the impact of food insecurity in Minna metropolis was conducted between the month of February and July 2008 through the distribution of copies of questionnaire. The questionnaire was based on the World Bank Living Standard Measurement Study (LSMS).

To obtain an unbiased selection of samples, the study area was divided into 12 sample units based on proximity ecological, social-cultural and economic variation. In accordance with the sample units the structured questionnaire was distributed to about 250 heads of households, out of which 150 of them responded.

The issues raised in the questionnaire included the background of the respondents (i.e. Marital Status, educational status, employment status and household size) the household income, total consumption expenditure, access to food and the nature and types of food mostly consumed in the household and the quantities of different foods consumed in the previous seven days. The quantities of different foods consumed was converted into the available daily per capita calories using household size and locally adapted proximate composition of some Nigeria food stuffs that convert physical units of food into calories.

In the course of determining the extent of food insecurity in Minna metropolis a survey aimed at generating primary data on food insecurity in Minna metropolis between the month of February and July 2008 was conducted using a questionnaire and the participatory assessment method. The questionnaire was based on the World Bank Living Standard Measurement Study (LSMS) and the Federal Office of Statistics (FOS) National Integrated Survey on Household, (NISH) methods, which among others things produced a comprehensive monetary measure of welfare and its distributions and a

description of the patterns of access to and use of food and social services, e.g. education and health. The participatory assessment method was used.

The data collected were analyzed using descriptive statistics, such as frequency distribution and percentile in describing the socio-demographic characteristics of the respondents and the distribution of responses. In line with most recent work on food insecurity, the analysis of food insecurity in this study was first based on the household size / composition of the respondent and the total household expenditure on food. To determine the total household expenditure on food, the household expenditure per adult equivalent was used. The most commonly used is that of the Organization for Economic Co-operation and Development (OECD) because of its easier to apply and wide familiarity.

This scale is expressed as follows:

$$EXPeq = EXP/n (0.7) \dots \dots \dots (1)$$

Where:

Exp = total household expenditure

n = household size

0.7= exponential formations representing other adults in a particular household.

For the indicator of food insecurity, the current calorie intake was established based on the response of the respondents and used as the base line for the measurement of food insecurity. Thus, a person is deprived of food if his daily calories intake is less than or equal to the established survey (see Christiansen, et.al 2000).

The next stage in the analysis of food insecurity in Minna metropolis is the use of the functional form of food insecurity index adopted by Christiansen, et.al (2000). The index which is a multi-dimensional generalization of the P-alpha poverty index developed by foster, Greer, and Thorbecke in 1984 is defined as;

$$Fis = 1/n \sum_{i=1}^q (z_i - x_i/z_i)^\alpha \dots \dots \dots (2)$$

Where:

n = number of respondents

q = number of respondents whose calorie intake falls below the threshold

z_i = the calorie intake threshold

x_i = consumption expenditure which measures the value of the calorie intake

α = food insecurity aversion parameters which measures the weight or value attached to the short fall in calorie intake and can take any positive value of zero. The higher, the value the more the rate of food insecurity. Of specific interest are the cases where α is equal to 0 and 1 if α = 0 the food insecurity index become Fis = q/n (3)

Which is the simple count of the number of people whose calorie intake is below the threshold? However, this index fails to take into consideration the depth of the level of food insecurity. To find the depth, one needs to look at the extent to which the consumption expenditure of those suffering from food shortage in Minna falls below the food insecurity threshold. This is expressed in the consumption-expenditure gap ratio that expresses the average shortfall as a fraction of the threshold i.e.

$$(z_i - x_i / z_i) \dots \dots \dots (4)$$

Where x_i is the average consumption-expenditure of household suffering from food shortage in the town.

A useful index is therefore obtained when the simple count of the number of people whose calories intake is below the threshold is multiplied by the consumption expenditure gap ratio. This corresponding to

$$Fis = q/n (z_i - x_i/z_i) \dots \dots \dots (5)$$

Which reflect both in absolute term, the number of people whose calorie intake is below the threshold and the depth of food insecurity? This measure has a particular useful interpretation because it indicates on the average (in percentage term) each household's shortfall in the minimal calorie requirement and in percentage term, the minimal calorie requirement to secure future calorie sufficiency.

4. RESULTS AND DISCUSSION

4.1 Socio-demographic characteristics of the respondent

The socio-demographic characteristics of the 150 heads of household included in the analyses are presented in table 1.

Table 1: socio-demographic characteristic of the respondents

Characteristics	percentage (%)
a. Age of the respondents	
Below 30	15.2
31-50	61.3
Above 50 years	23.5
b. Marital status of respondent	
Single	15.3
Married	79.2
Divorced	-
Widow	-
c. Educational status of respondent	
No school	40.1
Primary school	25.2
Secondary school	10.4
Tertiary	64.5
d. Employment status of respondent	
Informal sectors / farming	1.2
Organized privates sector	15.2
Organized public sectors	75.2
Unemployed / schooling	20.1

The survey conducted on the heads of households in the study area indicated that 61.3 percent of the respondents fall within the age bracket of 31-50 years, and 79.2 percent are married. About 25.2 percent of the head of household had a minimum of primary education while 64.5 percent has tertiary education, the survey also indicated

that 75.2 percent of the heads of household are engaged in the organized public sector while 15.2 and 1.2 percent are engaged in the organized private sectors and informal sector /farming respectively.

4.2 Incidence of food Insecurity in Minna metropolis

In estimating the rate of food insecurity, the household size and the total household expenditure on food determined by the household expenditure per adult equivalent were used. Having established the individual household expenditure on food, a threshold that measured the value of calorie intake was established at 2294.0 per adult equivalent. Following this, a food insecurity index adopted by Christiansen, et.al (2000) was used in determining the incidence and the depth of food insecurity in Minna metropolis.

As indicated in table 2 the index of the incidence of food insecurity was 0.72 representing 72 percent of the people with calories intake below the threshold. Thus 72 percent of the respondents in Minna metropolis lived in households that are deprived of food since their calories intake is on and below the 2294.0 thresholds.

Table 2: the incidence and depth of food insecurity in Minna metropolis

Total sample	No of Heads of Households based on 2294.0 food Calories threshold	incidence of food insecurity (%)	Depth of food insecurity (%)
150	116	72	25

Source: Authors computation

Within the same period, the index of the depth of food insecurity was 0.25 representing 25 percent of those whose calories intake was below the threshold. This measure indicates on the average (in percentage term) each household's shortfall in the minimal calorie requirement to secure future calories sufficiency.

From the perception of some of the affected people, the causes of food insecurity in Minna metropolis includes among others the high rate of poverty, high cost of food item because of the increase in inflation and global economic crisis, high cost of transportation due to increase in the price of fuel which before 1999 was about N20.00 per liter and by 2007 have increased to N70.00 per liter, lack of storage facilities for some of the agricultural produce, the deteriorating state of infrastructural facilities e.g. road network, lack of finance for agricultural development programmed, over population most especially in Minna town, rural-urban drift that has affected labour productivity in the rural areas, poor fertile land and environmental degradation in the agricultural land areas of Minna over dependence on imported food that have become too expensive because of the depreciation in Nigerian currency, bad governance and high level of corruption that have affected the distribution of farm input and the

availability of food to majority of the people, above all in the lack of social capital among the government officials and individual as well.

The consequence of this according to some of the respondents include high malnutrition level most especially in children, ill health that tells very much on the productivity of the people, which in turn had led to low income and low standard of living.

5. Conclusion and Recommendations

An empirical analysis of food insecurity in Minna metropolis using the functional form of food insecurity index adopted by Christiansen and others (2000) was undertaken. The finding shows, that the incidence of food insecurity in Minna metropolis is high with 72 percent of the population falling below the food insecurity threshold. The depth of food insecurity was 0.25.

Given these results and the structure of Minna metropolis, which is an urban centre, the problem of food insecurity in the town would first require urban solution. As a way of complementing the foods that come from the agricultural rural areas the urban dwellers of Minna should be encouraged to plant food crops and fruits trees and rare goat, cows, poultry in the available urban spaces. Apart from providing the necessary nutrients to the households these measures would also help reduces household expenditure on foods and serve as source of income to the very poor ones among them.

Since most of the reasons for the scarcity of food in Minna metropolis have to do with the cost of food, lack of storage facilities, inadequate supply and inefficient distribution networks, efforts should be intensified at curtaining the high cost of transportation that hinders in most cases the storage, supply and distribution networks. In addition, the supply and distribution of food should be private sectors driven and adequately managed. Market infrastructure, market information, transport and credit facilities should also be given to the producers of food within and outside Minna metropolis. As a complement food processing enterprises within the metropolis should also be provided with incentive, support programmed and infrastructure in order to improve their activities.

The government should ensure stability in some of the key macroeconomics variables like inflation and exchange rates given their tendency to increasing the price of food, for instance, a reduction in the rate of inflation would not only reduce the cost of producing food, but would allow consumers to have enough income to argument their consumption for food.

The government should also incorporate into its food security programmed, the matter of good governance in the provision of farming incentive to farmers and the provision of social services e.g. road, health care service, safe water, irrigation facilities, education and agricultural extension service. Where good governance is allowed to prevail, sufficient food production and effective distribution of food would become a thing of the past in the metropolis. Social capital, which emphasizes on membership of association, (trade /commercial groups), social/kinship network, reciprocal relationships and trust among government officials and people should be encouraged given its importance as a mediator in cementing relation, settling disputes and forging unity among members and as an avenues for providing members financial, social and political support in times of need and as a mechanism for removing fear of fraud and

mismanagement that are detrimental to adequate supply and efficient distribution of food in the metropolis.

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