

DETERMINANTS OF FOOD INSECURITY STATUS AMONG CIVIL SERVANTS IN IBADAN METROPOLIS, NIGERIA.

*Akanni, O. F.; Olumide-Ojo, O; Oyetoki, O.A.; Kolade, R. I.;
Salako, B. A. and Asunlegan, O. A.

Forestry Research Institute of Nigeria
Forest Hill, P.M.B 5054, Jericho, Ibadan.
*Corresponding Author: barbrajo2012@gmail.com

Abstract

Globally, the attainment of food security for all is one of the main development objectives. The study therefore analyzed the food insecurity status among civil servants in Oyo state secretariat. Primary data used in this study were obtained through the administration of a well structured questionnaire among ninety two respondents that were randomly selected. Data were analyzed using descriptive statistics, food security scale and Linear Regression. The result revealed that 34.8% of respondents falls within the active age of 21-30 years, 39.1 had HND/Bachelor's degree and (39.1%) had supporting jobs. The results also showed that 39.13% of the respondents in the study area are food secure, 27.18% were moderately food insecure while 33.69% was core food insecure. The linear regression revealed that there is a significant relationship between food insecurity status and some selected socio-economic characteristics variables such as monthly salary ($p < 0.05$) and level of education ($p < 0.1$). The major coping strategies adopted by the respondents against food insecurity include spending from savings for other projects on food and eating once per day. It was concluded that respondents that were food secure had supporting jobs. It is recommended that the salaries and allowances should be increased as this will improve the workers' productivity at work.

Keywords: Civil servants, Food security, Coping strategies, Income, Expenditure.

Introduction

Hunger is on the rise in almost all sub regions of Africa, the region with the highest prevalence of undernourishment, at almost 20 percent. (FAO, 2019). After decades of steady decline, the trend in world hunger – as measured by the prevalence of undernourishment – reverted in 2015, remains virtually unchanged in the past three years at a level slightly below 11 percent. Meanwhile, the number of people who suffer from hunger has slowly increased. As a result, more than 820 million people in the world are still hungry today, underscoring the immense challenge of achieving the Zero Hunger target by 2030.

Although, figures released by Food and Agricultural Organization in 2005 on the state of food insecurity in the world indicated that 9 percent of Nigerian population was chronically undernourished between 2000 and 2002 (FAO, 2005).

For economic growth and development of a nation, food security is a crucial factor (Pourreza *et al.*, 2018, Zhou *et al.*, 2019, Adegboye, 2004). It does include consuming at a level adequate for physical and mental health and also include the right to cultural preferences. Food security includes at a minimum, the ready availability of nutritionally adequate and safe foods, and an assured ability to acquire acceptable foods in socially acceptable ways that is, without resorting to

emergency food supplies, scavenging, stealing or other coping strategies (Babatunde *et al.* 2007).

Food security is a broad concept which cuts across many dimensions. It means access to adequate food for a healthy life. This definition points to at least two parts of this complex concept: access to available food and adequate nutrient intake for sustainable health. Household food security is a function of household income and wealth status (Olagunju *et al.*, 2012). Income is considered as one of the most important factors impacting food insecurity and hunger of populations, since hunger rates decline sharply with rising incomes. (Beyene and Muche, 2010). A low-income household is more likely to suffer food shortages than a wealthier household.

Maziya-Dixon *et al.*, 2004 reported that over 40% of households across all agro-ecological Zones in Nigeria face the problem of severe food insecurity, food insecurity therefore remains a fundamental challenge in Nigeria (Matemilola and Elegbede, 2017). The concept of food problem is complex and goes beyond the simplistic idea of a country's inability to feed its population (Premanandh. 2011). Household's food security depends substantially on household income and asset (or wealth) status. Conversely, available records revealed that more than 14.3% of approximately

28 million people in Nigeria are undernourished (FAO, IFAD and WFP, 2015). Moreover, this situation may be worsening considering the trend of abject poverty in the country, which was projected to be approximately 53.5% of the teeming population living below the poverty line of \$1.9 per day, based on World Development Indicators (Fawole *et al*, 2016 and Godfray *et al*, 2010).

The Food and Agriculture Organization (FAO, 2010), reported that about 2.0 billion people globally are suffering from chronic malnutrition, which is manifested in diseases like kwashiorkor, marasmus and other related malnutrition problems. Out of this population, about 1.2 billion are from the developing countries of Asia, Africa and Latin America, where the most prevalent causes of death in post weaned-infants is protein malnutrition. More than twelve million children below the age of five die annually because of food-related nutrition and health problems and about 178 million children globally are stunted.

The consequences of this malnutrition are slow economic growth (poverty) and direct losses in productivity because of the poor households. Food expenditure comprises a large share of the spending of poor households, making them relatively more vulnerable to the impacts of food price hike. This relationship between a household's food security status and its purchasing power is far from static; it changes over time (Aliber, 2009; Romer -Lovendal and Knowels, 2006). All other factors remaining constant, changes in income alter the quantity and quality of foods purchased and consumed. A study examining the determinants of food insecurity status with respects to civil servants in Oyo state is lacking, therefore this research is planned to fill this gap. This study therefore seeks to examine the food insecurity status and the coping strategies adopted to combat food insecurity by civil servants in Oyo state, Secretariat, Nigeria.

Hypotheses of the Study

Ho1: There is no significant relationship between socio economic characteristics of the respondents and the determinant of food insecurity status of the respondents

Methodology Study Area

Oyo state is located in the South West Region of Nigeria on Latitude 7° 3' and longitude 4° 31' East with its population at 5,580,894 comprising 2,802,432 males and 2,778,462 females (NPC, 2006). Ibadan metropolis has a population of 3,565,108 (Worldometer, 2020). The State covers a total of 27,249 square kilometers of landmass and is ranked 14th by size. The area lies within the rainforest region of Nigeria and has two distinct seasons, the raining season from April to October with an August break and dry season from November to March. The annual rainfall ranges from 1,200 – 1,300 mm. The temperatures vary from a minimum of 21°C in July to a maximum of 39°C in February.

Sampling Procedure

The state secretariat was chosen as a study area because it holds the entire department that regulates all the affairs of the states. It has the largest number of states workers where we have the least civil service cadre to the highest. This gives a true representation of states workers within Oyo State.

Multi-stage sampling procedure was used to select 92 respondents from the secretariat. The first stage is the purposive selection of Ibadan South West due to the presence of the state secretariat within the local government. The second stage involves a random selection of five ministries within the secretariat. The last stage involves a random selection of the following Ministries within Oyo state secretariat:

21 respondents from Ministry of Education, Science and Technology,
20 respondents were selected from Ministry of health,
18 respondents were selected from Ministry of Finance,
16 respondents were selected from Ministry of Land, Housing and Survey,
17 respondents were selected from Ministry of Justice from each department within the ministries that were randomly selected. This made a total of 92 respondents.

Method of Data Collection and Analysis

Primary data were collected through structured questionnaire. Data were analyzed using descriptive statistics, food security scale, Linear Regression and Likert Scale.

Descriptive statistics was used to analyze the socio-economic characteristics of the respondents, while food security scale was used to analyze the food insecurity status of the respondents.

Likert scale was used to analyze the coping Strategies adopted by the respondents to food insecurity.

Linear regression model was used to test the relationship between socio economic characteristics of the respondents and their food insecurity status. The model is stated thus:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + \epsilon$$

Y = Food Insecurity status of the respondents

X₁ = Monthly Salary

X₂ = Marital status

X₃ = Family size

X₄ = Monthly expenditure

X₅ = Grade level at work

X₆ = Level of education

ϵ = error term

The food security scale was used to analyze the food security status of the respondents. The food security scale was developed by Freedom From Hunger (FFH) an international development organization and have been used in a similar studies by Gabriela and Manfred (2007) and Ibrahim *et al.*, (2009). FFH's scale incorporates 17 items that account for a maximum scale score of 9 points (Melger-Quinonez, 2004). The scale

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that was used for this study was similar to the FFH's scale, but includes only 12 items. The scale was designed to capture the food insecurity status of the households. The classification into 3 food security groups was done according to the following criteria:

Scale

Total score of 0 or 1 meant a food secure household

Total score of 2 to 5 meant a moderately food insecure household

Total score greater than 5 meant a core food insecure household

The scale construction included 12 items in an attempt to capture the range of experiences related to food insecurity. The questions were in the form of a

statement where respondents were asked direct yes / no questions; or frequency questions related to a particular question. Four kinds of situations were covered by the questions: anxiety or perception that the household food budget or food supply was inadequate, perceptions that the food eaten by adults or children was inadequate in quality, reported instances of reduced food intake, or consequences of reduced intake, for adults and reported instances of reduced food intake or its consequences for the children. The higher the score, the more the household tends towards insecurity status while the lower the score the more the households tends towards food security status.

Table 1: Scale Construction

Item	Criteria
ITEM 1	Binary item
I (we) couldn't afford to eat balanced meals	
1= Yes	No = 0
0= No	Yes = 1
ITEM 2	
In the last 12 months did you or other household member ever cut the size of your meals or skip meals because there was not enough food or money to buy food?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 3	
In the past 12 months were you and your household member worried that your food will run out before you have food or money to buy more?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 4	
In the last 12 month were you ever hungry but did not eat because you couldn't afford enough food?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 5	
In the past 12 month did you have to eat same food daily because you did not have varieties of food?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 6	
In the past 12 month did you ever eat less than you felt you should because there was no food?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 7	
Did you or any adult household stop eating for a whole day because there was no food?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 8	
Did you rely on few kinds of low cost food because you do not have money?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 9	
Did you ever comment that the food you bought did not last and you did not have money to get more?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 10	
Did you or any adult household member lose weight during the past 12 months because you did not eat enough food?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 11	
I couldn't feed my children with balanced and enough meal because there was no enough food?	
1= Yes	No = 0
0= No	Yes = 1
ITEM 12	
Which of the following describes your household food consumption during the past 12 months?	
(a) Always enough of what is required () (b) Enough but not always what is required () 1 = 0	
(c) Sometimes enough food () (d) Often not enough food ()	2-4 = 1

Result and Discussion

Table 2I: Socio Economic Characteristics of the Respondents

VARIABLE	FREQUENCY	PERCENTAGE	MEAN
SEX			
Male	42	45.7	
Female	50	54.3	
Total	92	100.0	
AGE			
21-30	32	34.8	38.89
31-40	19	20.7	
41-50	19	20.7	
Above 50	22	23.9	
Total	92	100.0	
MARITAL STATUS			
Single	27	29.3	
Married	62	67.4	
Divorced	2	2.2	
Widow	1	1.1	
Total	92	100.0	
FAMILY SIZE			
1-4	51	55.4	4.7
5-8	36	39.1	
9-12	1	1.1	
Above 12	4	4.3	
Total	92	100.0	
EDUCATION			
Primary	5	5.4	
Secondary	15	16.3	
NCE/ND	33	35.9	
HND/BSC	36	39.1	
Post graduate	3	3.3	
Total	92	100.0	

Table 2 above shows that 34.8% of the respondents were between the age range of 21-30 years, while 23.9% were above 50 years. The mean age of the respondents is 39. This suggests that majority of the respondents were within their economic active age and this will enhance their productivity in order to be food secured, and they will have the strength and energy to work (Ofuoku et al., 2008). 54.3% of the respondents were females while 45.7% were male. This finding implies that there are more female workers in the civil service. According to Pena, Webb and Haddad (1994), women are more likely than men to spend a given income on food for the family. Thus, resources for women represent resources for food security. Successful development for women does not stop at women; it benefits whole households and

communities. The distribution of marital status shows that majority 67.4% of the respondents were married and while 1.1% were widowed. This implies that majority of the respondents in the study area had responsibilities to cater for the needs of their households. The study further revealed that the average family size is 5. 16.3% had secondary education, (35.9%) are NCE/ND holders, (39.1%) are HND/BSC holders, while (3.3%) had postgraduate education. This implies that majority of the respondents had one form of education or the other. The level of education can enhance food security status of the respondents, the higher the level of education, this will make them have a higher income thereby improving their food security status.

Table 3 : Socio Economic Characteristics of the Respondents.

VARIABLE	FREQUENCY	PERCENTAGE	MEAN
WORKING EXPERIENCE			
Below 5 years	32	34.8	
6 - 10 years	28	30.4	
11 - 15 years	13	14.1	
16 - 20 years	16	7.4	
21 years above	3	3.3	
Total	92	100.0	
GRADE LEVEL AT WORK			
1 – 5	22	8.3	
6 – 10	50	54.3	
11 – 15	13	14.1	
Above 15	3	3.3	
Total	92	100.0	
MONTHLY SALARY (₦)			
10,000 - 20,000	24	26.1	36739.13
21,000 - 40,000	26	28.3	
41,000 - 60,000	29	31.5	
Above 61000	13	14.1	
Total	92	100.0	
MONTHLY EXPENDITURE (₦)			
Below 10,000	38	41.3	15,919.54
10,001-20,000	29	31.5	
20,001-30,000	12	13.0	
30,001- 40,000	2	2.2	
40,001-50,000	3	3.3	
60,001-70,000	1	1.1	
Above 100,000	2	2.2	
Undecided	5	5.4	
Total	92	100.0	
SUPPORTING JOBS			
Yes	36	39.1	
No	56	60.9	
Total	92	100.0	
MONTHLY INCOME FROM OTHER JOBS (₦)			
10,000 - 20,000	18	19.6	27,727.27
21,000 - 40,000	11	12.0	
61,000 and above	4	4.3	
Undecided	59	64.1	
Total	92	100.0	
MONTHLY EXPENDITURE ON FOODSTUFF (₦)			
Below 10,000	35	38.0	15,877.19
10,000 - 20,000	7	7.6	
20,001 - 30,000	7	7.6	
40,001 - 50,000	5	5.4	
60,001 - 70,000	2	2.2	
90,001 - 100,00	1	1.1	
Undecided	35	38	
Total	92	100.0	

Table 3 above shows the year of working experience of the respondents, it shows that 34.8% of the respondents had a working experience of 5 years, while only 3.3% had 21 years and above working experience. According to Muibat *et al.*, (2016) spending more years in a job will increase the household food security status as additional years of experience leads to more income and hence higher food security. The finding also shows the monthly salary of the respondents, 26.1% earns between ₦10,000- ₦20,000 just 14.1% earned above ₦61,000 on a monthly basis. The average monthly salary is ₦36,739.13k. The study revealed that 41.3% of the respondents had an expenditure of ₦10,000, while 2.2% had an expenditure of ₦60,001-₦70,000. The average monthly expenditure is ₦15,919.54k. The level of their involvement in secondary occupations shows that 60.9% of the respondents were not involved in secondary occupation while 39.1% were involved in secondary occupation meaning that the respondents have other sources of income for feeding their families.

This implies that income from primary occupation alone is not sufficient for the respondents to be food secure. This is in line with Zertlin and Brown (1992) which stated that households with insufficient income to enable continuous access to adequate supplies of safe and good quality food will be vulnerable to food insecurity. Table 3 also shows monthly income earned from the secondary occupation, 19.6% earned between ₦10,000- ₦20,000, while 4.3% earned 61,000. The average monthly income from secondary occupation is ₦27,727.27k. The income earned from supporting jobs serves as a means of improving the food insecurity status of the household. The table also revealed the amount spent on food stuffs monthly; the (38%) of respondent spends below 10,000 on food stuffs 38% of respondents were unable to decide the amount spent on food stuff. The mean monthly expenditure on foodstuffs is ₦15,877.19k. This indicate that majority of respondents spending below 10,000 on foodstuff monthly spends a low amount on foodstuff on monthly basis which may be because of the amount earned from the job.

Table 4 : Food Insecurity Status of the Respondents

Food Security Score	Frequency	Percentage
0-1	36	39.13
2-5	24	27.18
>5	32	33.69
Total	92	100
Mean	4.00	

NOTE: TOTAL SCORE

0- 1= Food secure households

2-5= Moderately food insecure households

>5= Core foodinsecure households

Table 4 above revealed that 39.13% were food secure, about 27.18% were moderately food insecure while 33.69% were core food insecure. The proportion of the respondents with different food security score are presented above. It can be observed that the scale varies with different food security score. The highest score was found in the score of zero, while the lowest score was found in score 1. The mean score is 4.00 indicating that majority of the respondents are food insecure. The

food secure households have much income and they spend more on food which make them to have access to adequate food, moderately food insecure households have average income and they do not spend much on food while non-food insecure households have less income and they spend low amount on food. This implies that on the average, the respondents in the study area are non-food secure. This may be as a result of irregular and low income.

Table 5: The Coping Strategies Respondents Adopt to Combat Food Insecurity

S/N	Strategies	A%	S%	R%	N%	Mean
1.	Send their children to look for food somewhere else	4(4.3)	16(17.4)	12(13.0)	60(65.2)	3.3913
2.	Reduce the quantity of food consumed	2(2.2)	25(27.2)	23(25.0)	42(45.7)	3.1413
3.	Change the type of food they eat and go for the less quality to survive	3(3.3)	28(30.4)	17(18.5)	44(47.8)	3.1087
4.	Spend on savings for other food project	4(4.3)	32(34.8)	20(21.7)	36(39.1)	2.9565
5.	Spend the whole day without food	0(0.0)	16(17.4)	14(15.2)	62(67.4)	3.5000
6.	Eating once per day	6(6.5)	14(15.2)	10(10.9)	62(67.4)	3.3913
7.	Eating but not satisfied	0(0.0)	25(27.2)	20(21.7)	47(51.1)	3.2391
8.	Borrow from friends or relatives	1(1.1)	13(14.1)	17(18.5)	61(66.3)	3.5000

Keys: A- Always; S- Sometimes; R- Rarely; N- Never

Level of Education is negatively related to food security score meaning food security score increases as level of education increases. This effect is however statistically significant at 10% level of significance.

Marital Status is negatively related to food security score meaning singles were more food secure than married and married were more food secured than the divorced and divorced were more food secure than widows. This effect is not statistically significant at 10% level of significance.

Grade level of worker is negatively related to food security score meaning that the higher grades were more food secure compared to the lower grades. This effect is not statistically significant at 10% level of significance.

The F-ratio which determines the overall significance of the regression is statistically significant at the 1% level as F-calculated value (17.335) is far higher than F-tabulated value. It can therefore be concluded that the independent variables significantly affect food security score.

Conclusion and Recommendations

The study assessed the food security status and coping strategies adopted by the civil servants in case of food insecurity at state secretariat, in Ibadan North East local government area, Oyo state. The respondents in the study area are within their active and economic age, married with children. Variables such as education and monthly salary have significant relationship with food insecurity status of the respondents.

It is recommended that the respondent's salaries and allowances should be reviewed as this will make the workers to concentrate on their jobs without seeking for other means of livelihood which will in turn improve their productivity at work. The factors affecting household food insecurity must be revisited by the government, as it is one of the causes of malnutrition. Government should also provide proper adequate training for the workers on how to improve their educational status and get adequate training on the job as this is closely tied to their food security status.

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Table 5 revealed the coping strategies adopted by respondents against food insecurity. The result shows that 65.2% of the respondents never sent their children to look for food somewhere else because they have food, in case when they change the type of food they eat and go for less quality to survive, 47.8% never changed to less quality food to survive this implies that this large amount of respondents are satisfied with what they have. 30.4% sometimes change the type of food they always eat and go for less quality to survive. For the household who reduce the food quantity consumed; 45.7% never reduced the food they consume, while 27.2% sometimes reduced the quality

of food consumed. Moreover, 39.1% never spends from the savings on other food projects while 34.8% sometimes spends from savings for food project. 67.4% never spend a whole day without food and 64.4% never eat once per day. 51.1% never eat without getting satisfied while 27.2% sometimes eat but are not satisfied. Lastly 66.3% never borrowed from friends or relatives when they don't have food. This denotes the coping strategies adopted by respondents against food insecurity. This result is in line with (Ojo, 1991) in his work on recognition of the importance of adequate food and nutrition in the development process and in supporting world peace and stability.

Table 6: Degree of Coping Strategies

Degree	Frequency	Percentage
High	48	52.2
Low	44	47.8
TOTAL	92	100.0

Above mean value= High, Below Mean= Low (Mean 1.4783)

Table 6 above shows the respondents degree of coping strategies to food insecurity. 52.2% had high degree of coping strategies to food insecurity while 47.8% had a low degree of coping strategies to food insecurity. This implies that the respondent had various means of coping strategies for combating food insecurity in the study area.

Hypothesis of the Study

H01: there is no significant relationship between socio-economic characteristics of the respondents and the determinants of their food security status of the respondents.

Table 7: Linear Regression.

Variables	Coefficient	Standard error	T value	Sig level
Constant	0.501	0.1465	3.42	0.000
Monthly salary	-3.216	0.8645	3.72	0.000**
Marital status	-1.32	0.8919	1.48	0.132
Family size	2.072	1.0518	1.87	0.211
Monthly Expenditure	-1.47	2.0137	-0.73	0.512
Grade level of worker	-2.841	5.0732	-0.56	0.403
Level of Education	-1.743	0.3252	-5.36	0.001***
R ²	0.5213			
Adjusted R ²	0.5021			
F ratio	17.335			

Dependent variable: Food Insecurity status.

*** Significant at 1%
** Significant at 5%

Source: Computed by the Author with Shazam Econometrics software

The result of the OLS regression shows that the coefficient of multiple determination (R²) is 0.5213 (52.13%) implying that monthly salary, family size, monthly expenditure, grade, level of education and marital status jointly explained 52.13% of variation in food security score.

Monthly Salary is negatively related to the food security score meaning that as monthly salary increases, food security score reduces thereby food insecurity is reduced. This effect is statistically significant at 5% level of probability.

Family size is positively related to the food security score meaning that as family size increases, food security score also increases translating to increased food insecurity. A unit increase in family size keeping all other explanatory variables constant would lead to 2.072 units increase in food security score. This effect is however not statistically significant.

Monthly expenditure is negatively related to food security score meaning food security score decreases as monthly expenditure increase translating to reduced food insecurity. This effect is however not statistically significant at 10% level of significance.

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