EFFECT OF E-WALLET SYSTEM OF INPUTS DISTRIBUTION ON MAIZE FARMERS FOOD SECURITY STATUS IN GWAGWALADA AREA COUNCIL OF ABUJA, NIGERIA

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Abstract: Food security is still relevant in global discuss considering the rate of food insecurity in the third world nations. The study examines the Effect of E-Wallet System of Inputs Distribution on Maize Farmers Food Security Status in Gwagwalada Area Council, Abuja. Primary data was used for the study. Multi-stage random sampling techniques was used to select 80 maize Farmers from which relevant data obtained for this study. Descriptive statistics, food security index and logit regression model were used to achieve stated objectives. Results from the study revealed that maize Farmer in the study spent at least N4,272.02 on food per month and majority of them were food secured. From the logit regression result beneficiaries of E-Wallet program, Education, Access to Credit, Marital status where positive and significant in determining maize farmers food security status. Beneficiaries of E-Wallet program and Access to Credit were significant at 1% while Education Marital status were significant at 5%. Based on the findings from this study, its therefore recommended that maize farmers be urged to register and join the E-Wallet program and be active members. Furthermore, access to credit was positive and significant hence policies that will reduce the bottle necks around accessing credit facilities should be developed and implemented.

Keywords: Food Security, E-Wallet, Maize Farmers.

1. INTRODUCTION

Shala and Stacey (2012) found that many countries experience food insecurity with food supplies being inadequate to maintain their citizens' per capita consumption. They also found that sub-Saharan Africa was the most vulnerable region with regards to food insecurity. The average amount of food available per person per day in the region was 1,300 calories compared to the world-wide average of 2,700 calories. FAO (2010) also concluded that Africa has more countries with food insecurity problems than any other continent. The role of agriculture in the development and growth of the Nigerian economy is primarily indicated in its contribution as a source of food supply. Food demand in Nigeria has generally grown faster than either food production or total supply. CBN (2010) reported that the rate of increase in food production of 2.5 percent per annum does not keep pace with the annual population growth rate of 2.8 percent per annum. Local food production in Nigeria falls short of the demand (Basorum et al, 2012) hence, leading to augmentation of shortfall through import. To address this, the Federal Government decided from the 2012 farming season to opt out of direct procurement and distribution of inputs and instead introduced the Growth Enhancement Support Scheme (GESS), an alternative system aimed at delivering subsidized farm inputs to farmers through an electronic wallet. Under the Scheme, an accredited farmer will receive agro inputs allocation through an e-wallet that hosts unique voucher numbers sent to his or her phone, and goes to an accredited agro dealer to redeem his inputs.

In Growth Enhancement Support Scheme (GES), mobile phones are used to conduct basic transactions, make payments to farmers, and farmers can also access fertilizer subsidies directly through their mobile phones (Nwalieji et al., 2015). The subsidies move from the State to the farmers directly, eliminating the middlemen (Ojoko, 2014). Farmers can pay via a mobile phone platform. An electronic wallet (e-wallet) system is a technology widely accepted and adopted and this takes place across the value chain. It is worthwhile to know that there are over ten million Nigerian farmers with access to the electronic wallet system (on the demand side). A billion-dollar industry has emanated, about a ten-fold increase which involves the number of seed companies, provision of inputs, and fertilizers (on the supply side).

The study focused on the Effect of E-Wallet System of Inputs Distribution on Maize Farmers Food Security. Food insecurity is a product of inadequate consumption of nutritionally adequate food, considering the psychological requirement of food by the body as being within the sphere of nutrition and health. Chronic food insecurity is due to unavailability of resources to acquire and produce food, thereby leading to persistent inadequate diet. This poses a huge setback to food consumption and indirectly affects farmers output, general well-being and reduction in standard of living. The study proposes to evaluate the food security status line of maize Farmers in the study area and determine the factors influencing maize farmers' food security status in the study area.

2. METHODOLOGY

2.1 Study Area

Abuja is located in the centre of Nigeria and has a land area of 8,000 square Kilometers (Jaiyeola, 2016). It is bounded on the north by Kaduna state, on the west by Niger state, on the east and south-east by Nasarawa state and on the south-west by Kogi state. The area is located between latitude $8^0 55'52''N$, $9^0 14'34''N$ and longitude $6^0 51'36''E$, $7^0 11'35''E$ (Balogun, 2001). Rainy season begins around March and runs through October, the dry season (usually characterized by bright sunshine) which begins from October and ends in March. Within these periods, there is a brief period of harmattan occasioned by the north east trade wind, with a resultant dusty haze and intense coldness and dryness. During the rainy season daytime temperatures reach 28 °C (82.4 °F) to 30 °C (86.0 °F) and night time hover around 22 °C (71.6 °F) to 23 °C (73.4 °F). In the dry season, daytime temperatures can soar as high as 40 °C (104.0 °F) and night time temperatures can dip to 12 °C (53.6 °F). Crops grown in Abuja are millet, maize, sorghum, cowpea, groundnut, rice, eggplant among others.

At the 2006 census, the city of Abuja had a population of 776, 298 (NPC, 2006). As at 2016, the metropolitan area of Abuja is estimated at 6 million (Jaiyeola, 2016)

2.2 Method of Data Collection

Primary data was used for the study. The data was obtained with the aid of a well semi-structured questionnaire using interview method; the questionnaire was used to collect information on the socio-economic variable, food security variables including availability, accessibility, affordability and utilization of safe and nutritious food, monthly food expenditure among others.

2.3 Sampling Technique

Purposive and multi-stage random sampling techniques were used to obtain the relevant data used for this study. Purposive sampling was used to select Abuja because of its peculiarity as the nation capital and the assumption in some quotas that people living in Abuja are relatively food secured. In the second stage Gwagwalada Local Government Area was purposively selected because of its peri-urban attributes. In the third stage four wards including Quarters, Dobi, Paiko and Dukpa were randomly selected from the list of ten wards in Gwagwalada Local Government Areas (LGA). The last stage involved a simple random sampling of twenty maize farmers from the list of maize farmers obtained from Agricultural Development project (ADP) from each of wards. Thus, a total of 80 farmers was sampled.

2.4 Method of Data Analysis

The analytical tools used in this study to achieve stated objectives include both descriptive and inferential statistics. Descriptive statistics, food security index and logit regression model were used to achieve stated objectives. These are further explained below:

2.4.1 Descriptive Statistics: This analytical tool was used to examine the socio-economic characteristics of maize famer in the study area. These include their gender, marital status, household size, age, level of education etc. Descriptive statistics involve the use of mean, mode, range, frequency distribution tables, percentages etc.

2.4.2 Food Security Index: The study followed Omonona (2007) who stated that a household is considered food secure if it attains at least two – thirds of the average per capita food expenditure per month of the sampled households and considered food insecure if it falls below two-thirds of the average per capita food expenditure.

Fi   = $\underline{\text{per capita food expenditure for the ith maize farmer}}$

2/3 mean per capita food expenditure of all household

Where Fi = food security index

Where Fi $\geq$ 1= food secure ith household

Fi$\leq$ 1= food insecure ith household

2.4.3 Logit Model: To determine the socioeconomic factors influencing food security, a logit model following Ahmed *et al.* 2015 with little modification in explanatory variable was used to achieve stated objective three.

Model Specification

The model is stated implicitly thus: -

$Fi_i = f (Z_1, Z_2, Z_3, Z_4, Z_5,)$ ………..………………………… (6)

It is explicitly stated thus: -

$Fi_i = \beta_0 + \beta_1Z_1 + \beta_2Z_2 + \beta_3Z_3 + \beta_4Z_4 + \beta_5Z_5 + u_i$ …………… (7)

Where: -

Fi_i = Food Security Status (Yes=1, Otherwise = 0)

Z_1 = Beneficiary of E-wallet System (Yes=1, No= 0)

Z_2 = Education (Years)

Z_3 = Access to Credit Facilities (Yes=1, Otherwise = 0)

Z_4 = Sex (Male=1, Otherwise = 0)

Z_5 = Marital Status (Married=1, Otherwise = 0)

u_i = Error term

Statistical package for social science (SPSS 20) was used to determine all these mentioned above.

3. RESULTS AND DISCUSSION

3.1 Socioeconomic Characteristics of Maize Farmers in the Study Area

Table 1 shows the dominance analysis of respondent. From the results Majority (52.5%) of the maize farmers in the study were male. From the study out of every 2 maize farmers there is one female in the study area. This result is not unconnected with the cultural and religious believes that males should provide for their household hence they tend to be more involved in maize farming to meet earns meet for their family. This is perhaps male farmers benefitted more from the scheme. This result is in line with Torjape *et al*., (2017). Also, Majority (68.8%) of the maize farmers in the study were married. From the study there were more couples than singles. This suggest that majority of the household is expected to be food secured given that two is assumed to be better than one. Food insecurity incidence is expected to be less in married household. However, this opinion is contrary to that of Oyebanjo *et al*., (2013) who revealed that incidence of food insecurity was highest among the married household heads with an incidence of 0.62 even though majority (79.6) of his respondent where married. Furthermore, Majority (77.6%) of the maize farmers in the study were educated with mean age was calculated to be about 36.99 years. This indicates that the respondents are in their active age and can engage in diverse income generating opportunities hence expected to be food secured. The mean farming experience and monthly food expenditure was 9.6 years and ₦27, 250 respectively. 50% of the maize farmers in the study had access to food. It means that half of the respondents are relatively not food secured. This will affect maize production in the study area. For maize output to increase there is need for adequate man power since most of the cultural practice is still being done manually in Nigeria. A farmer needs to be well fed to gain the requisite energy needed for farming activities. 77.5%

and 70 of the maize farmers in the study said they sometimes had access to balance diet and utilize the limited food they respectively. This means that maize farmers occasional eat substandard food just to survive. Balance diet is key to meaningful life and high life expectancy.

TABLE 1: SUMMARY STATISTICS OF SOCIOECONOMIC CHARACTERISTICS OF RESPONDENTS

Variables	Mean	Standard deviation	Coefficient of variation	Dominance analysis definition	Value
Sex				% of male respondent	52.5
Marital status				% of married respondent	68.8
Education				% of respondent with formal education	41.3
Monthly Food Expenditure	27250	16968.68	62.27%	% of respondent with monthly food expenditure between 16000 -30000	37.5
Age	36.99	10.54	28.49	% of respondent with age between 31-40	35
Farm experience	9.6	6.03	62.81	% of respondent with farm experience between 1-10	45
Access to Food				% of respondent that sometimes have Access to food	50
Access to Balance Diet				% of respondent that sometimes have Access to Balance Diet	77.5
Extent of Food Utilization				% of respondent that sometimes utilizes food properly	70.0

Source: Field Survey, 2019

3.2 Food Security Index

Majority (37.5%) of the maize farmers in the study spend between the figure of 16,000-30,000 naira on food monthly. Based on index used by Omonona (2007), a household is considered food secure if it attains at least two – thirds of the mean per capita food expenditure per month of the sampled households. Consequently, the maize farmer that spent at least ₦4,272.02 on food per month were categorized as food secure and those who spent below this value were categorized as food insecure. From table 2 below majority of the maize farmers were food secured. Meaning they spent above ₦4,272.02 on food per month. This in line with Iorlamen *et al.,* (2014) who revealed that 67.3% of the households were food secure while 32.7% were food insecure.

TABLE 2: FOOD SECURITY STATUS

	Frequency	Percent
Otherwise	39	48.8
Yes	41	51.3
Total	**80**	**100.0**

Source: Field Survey, 2019

3.3 Logit Regression of Determinants of Maize Farmers Food Security Status

The result on table 3 shows the determinants of maize farmers food security status. From the result E-Wallet beneficiary, Education, Access to Credit, Marital status where positive and significant in determining maize farmers food security status. E-Wallet beneficiary was significant at 1% which indicate that an increase in the maize farmers benefitting from E-wallet will increase their food security status by a factor of 5.8. This may be as a result of increase yield due to the inputs (fertilizer, seeds) the farmers received from the scheme. It is expected that as the level of participation increases, the probability of being food secure increases.

Education was significant at 5% which indicate that an increase in the maize farmers Education level will increase their food security status by a factor of 1.1. This suggests that the level of formal education could affect positively the maize farmer production and nutrition decision thereby reducing food insecurity intensity. This in line with the findings of Ahmed *et al*., (2015) who revealed that the coefficient of level of education was positive as expected *a priori*, and also significant at 1% level.

Access to Credit was significant at 1% which indicate that an increase in the maize farmers Access to Credit will increase their food security status by a factor of 6.7 Credit is an important means of investment and maize farmers who have access to credit can invest in preferred businesses and earned more income resulting in increased financial capacity and purchasing power of households, thus reducing the risk of food insecurity. This in line with the findings of Ahmed *et al*., (2015) who opined that the coefficient for credit consumption of the sample household was positive and also significant at 1% level suggesting that access to credit tended to positively influence the food security level of households.

Marital status was significant at 5% which indicate that more couples then to be food secured.

TABLE 3: LOGIT REGRESSION OF DETERMINANTS OF MAIZE FARMER FOOD SECURITY STATUS

Variables	B S.E	Wald	Exp(B)	B S.E
Benefitted from E-Wallet(X_1)	1.750	.646	7.330	5.756***
Education(X_2)	.110	.055	4.019	1.116**
Access to Credit(X_3)	1.898	.635	8.946	6.672***
Sex(X_4)	-.629	.705	.797	.533
Marital Status(X_5)	1.576	.733	4.626	4.834**
Constant	-3.793	1.002	14.316	.023

Source: Field Survey, 2019

*** = 1% significant; **= 5% significant

4.   CONCLUSION AND RECOMMENDATIONS

The study examined E-Wallet System of Inputs Distribution on maize farmers food security status in Gwagwalada, Abuja Nigeria. Based on the findings of this study, the E-Wallet system was significant in determining maize farmers food security status and it is hereby recommended that the program be sustained. Furthermore, accessibility to credit was positive and significant in determining maize farmers food security status. Hence, policies that will reduce the bottle necks around accessing credit facilities should be developed and implemented.

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