

THE EFFECTS OF HOUSEHOLD SIZE AND ITS COMPOSITION ON FOOD PRODUCTION AND CONSUMPTION IN PARTS OF NASARAWA STATE, NIGERIA

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Abstract

One of the problems facing developing countries today is that of food insecurity. Access to and consumption of adequate and appropriate food by households is an important component of food security. A study was undertaken to examine how household size and its composition influence food security in OK southern agricultural zone of Nasarawa State. Data were collected through the use of structured interview schedule administered on 200 household heads. Findings revealed that household sizes were relatively large and tine composition is highly heterogeneous in nature. There was a significant difference between food production (2064.49 Kcal) and consumption (2564.69 Kcal) in the study area and this could lead to serious food insecurity. The various food items consumed include yam, cassava, rice, sorghum, Meat/Fish/Poultry products; indicating a good dietary diversity. The factors that were observed to have a significant effect on food production were cropping system, household size and farm size. Food consumption was significantly influenced by household size and number of crop enterprises only. It was concluded that increasing farm productivity through improved technologies can help to reduce the shortfall in thefoodproduction levels.

Keywords: Householdsize, foodsecurity, Nasarawa State

INTRODUCTION the developing world especially in a country like Food security refers to the ability of the household to Nigeria continues to be a major public policy secure either from its own production, or through challenge, and one that is complicated by lack of purchases adequate food for meeting the dietary information on the location, severity, and causes of needs of all its members (Maziya-Dixon *et al.*, food insecurity (Smith *et al.*, 2006). The current 2004). Garrett and Ersado (2007) noted that study seeks to describe the sizes and compositions of different households tend to have diverse households in the study area, determine the food requirements resulting in the consumption of production level per household in the study area, varying food items at different rates. Household determine the adult food consumption level per decisions on how to allocate resources between household, examine the relationship between food food spending and other needs have widespread production and consumption and to identify implications for well-being of family members. factors determining food production and According to Begum (2002) to find out the adult consumption within the households.

persons, their physical activities, gender and their MATERIALS AND METHODS

ages have to be noted. From the adult consumption The research was conducted in Nasarawa South unit, the individual food consumption rate agricultural zone of Nasarawa State which consists of (measured as Kcal/person/day) is calculated. A 5 Local Government Areas (LGAs):- Awe, Doma, study by FAO (2000) shows that food consumption Keana, Obi and Lafia. A cross sectional survey rate will continue to rise in developing countries, research design was employed in the study with moving from an average of 2626Kcal in the 1990s to farm households as the target population. Focus nearly 3000 Kcal in 2015. Sanusi *et al.* (2006) also group discussions and personal interviews were reported that Ihe level of food insecurity has conducted to generate the required data. A continued to rise steadily since the 1980s. It rose multistage random sampling technique was used to from about 18% in 1986 to about 41% in 2004. The average national per capita daily calorie intake increased from 2050 kcal in 1979-1981 to 2430 kcal in 1989 -1991 and to 2700 kcal in 2000-2002 (FAO, 2004). Also, the proportion of undernourished people decreased from 13% in 1990-1992 to 9% in 2000-2002 (FAO, 2005). Reducing food insecurity in 2000-2002 (FAO, 2005). Reducing food insecurity in 200 households. The research scientists and the enlist information from the respondents. Data were enumerators had a pre-survey of fifteen days to collected through the use of structured interview familiarize themselves with the study area. The schedule administered on household heads and the enumerators were trained for 5 days on how to

women in the house. This was done by 5 U = Error termenumerators for a period of 20 days. Information collected focused on household size and Regression model for factors affecting food

composition, household food production, consumption: household food consumption and socio-economic $Y = f(X_1, X_2, X_3, X_4, X_5, U)$ Where: features of the households.

Analytical Techniques

Simple descriptive Statistics such as mean and standard deviation were used to satisfy objective i. In order to determine the food production level (objective ii), households were asked to recall the yields from all crops grown during the production year of 2009/2010. The weight in kilograms of each crop yield was then recorded in a format which contains all types of crops which is grown in the area. In addition, the equation was selected based on the t- statistics, R^2 cultivated land size and price of the harvested value and the conformity of the estimated crops during harvesting period was obtained parameters with apriori expectations. from the survey. The crop yields were converted to RESULTS AND DISCUSSION energy equivalents using the method of Merrill Size and Composition of Households and Watt (1973). The aggregated yield value of The result of the study as presented in Table 1 each household was taken as an indicator for the revealed that 94% of the households had between 6 food production level of the households. and 10 male adults while 91.5% had between 1 Households' food consumption (objective iii) was and 5 female adults. Similarly, 90% of the estimated using the total value of food consumed households had between 6 and 10 young males by the household, including own production, and while 95 % of the households had between land 5 the number of different foods and food groups young females respectively. The average consumed in a week period of time. If the intention number of male adults, female adults, young is to correlate household consumption with other males and females were 8,6,7 and 3 persons household variables, as well as to analyze respectively. This implies that the household consumption patterns and their determinants, FAO sizes were relatively large and the composition recommended using at least four days of recall per was heterogeneous in nature. household. Thus total food consumption for the last 7 days before the interview date was taken as household food consumption level. Α students't-test was used to satisfy objective iv. Two separate regression models were used to

identify the factors affecting food production and consumption respectively (objective v). follows:

Regression model for factors affecting food production:

 $Y = F(X_1, X_2, X_3, X_4, X_5, U)$

Where:

Y - Household food production level (Kcal)

X, = Household size (actual number)

 X_2 =Farming experience (years)

 $X_3 =$ No. of crop enterprises (actual number)

X₄=Farm size (hectares)

 X_5 = Cropping system (Dummy, 1= mixed cropping, 0 = otherwise)

Y = Household food consumption level (Kcal)

 $X_i =$ Household size (actual number)

X₂=Farming experience (years)

 $X_3 =$ No. of crop enterprises (actual number)

 $X_4 =$ Farm size (hectares)

 X_5 = Cropping system (Dummy, 1= mixed cropping, 0= otherwise)

U = Error term

Several forms of the models were tried and the lead

Food Production and Consumption Levels per Household

The total food production per household in energy equivalents was 2064.49 Kcal (Table 2). The Household daily food consumption is also presented in Table 2. The food consumed consists The models were specified in the general forms as mainly of yam, cassava, rice, sorghum and Meat/Fish/Poultry products indicating a good dietary diversity (Table 3). The adult food consumption level per household in energy equivalent was 2564.69 Kcal. This implies that a short fall exists between food production and consumption in the State and this could lead to serious food insecurity problems for the households. FAO (2002) reported that important staples such as root and tuber crops have many advantages as food crops for household food security with cassava as possibly the most significant. The correlation coefficient further revealed that there was no significant relationship between food production and consumption in the State. This implies that increasing the production sources were obtained through purchase rather level will not lead to an increase in consumption as than from direct production. certain food items especially those from animal

A	Г	D (
	Frequency	Percentage
No. of Male adults		
1-5	11	5.5
6-10	188	94.0
11-15	1	0.5
Total	200	100.00
No. of Female adults		
1-5	183	91.5
6-10	13	6.5
11-15	4	2.0
Total	200	100.00
No. of Male young		
1-5	19	9.5
6-10	180	90.0
11-15	1	0.5
Total	200	100.00
No. of Female young		
1-5	190	95
6-10	8	4.0
11-15	2	1.0
Total	200	100.00

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Table 2: The significance of the difference between per capita food production and food consumption among households

Estimate	Food production level (Kcal)	Food consumption	Level (Kcal)
Maximum	2387.13	2964.01	
Minimum Average Standard Deviation Difference	1890.35 2064.49 39.08 500.20	2089.81 2564.69 68.23	

t-value = 8.4 * Correlation coefficient -0.33^N

Food type	Frequency*	Percentage	
Yam.	180	90	
Cassava flour/ garri	170	85	
Maize	70	35	
Rice	100	50	
Millet	70	35	
Sorghum	80	40	
Meat/Fish/Poultry products	100	50	

Table 3: Household daily food type consumed

'Multiple responses were allowed

Table 4: Regression result of the factors affecting	g food	production in farn	1 households
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Variable	Regressio	on coefficient	Standard error	t- value
Constant	3.69		0.16	22.50
Household size	0.59		an	5.31***
Farming experience	-0.16		an	-117
No. of crop enterprises	0.04	2	0.13	0.30
Farm size	0.42		0.90	4.69***
				*- significant at 10%
Cropping system	0.23		0.13	1.68*
R ² 304 F-value -	16.57***	***-significant a	t 1%	

Table 5:	Regression	result of the	factors a	ffecting f	food consu	nption ii	ı farm ho	ouseholds

Variable	Regression coefficie	ent Standard error	t- value
Constant	0.92	0.20	4.61
Household size	0.99	0.13	7.158***
Farming experience No. of	0.09	0.17 0.38	0.53 2.22** -1.20
crop enterprises Farm size	0.17 -0.13	0.11	
Cropping system	-0.08	0.16	-0.52

**= significant at 5% *significant at 10%

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Factors Affecting Food Production

The double-log form of the regression model gave the best fit to the data and was adopted as the lead equation in the determination of the factors affecting food production. The result is presented in Table 4. The R^2 value indicates that the variables included in the model explained about 30% of the variation in food production. The factors that were ot served to have a significant and positive effect on food production were cropping system, household size and farm size. An increase in any of the variables would likely lead to an increase in the household food production level. This could be as a result of increases in labour supply, farming area and diversity in crop production arising from a shift from mono cropping. The regression results also revealed that food production was not significantly affected by farming experience and number of crop enterprises.

Factors Affecting Food Consumption

The double-log form of the regression model gave the best fit to the data and was adopted as the lead equation. The R^z value indicates that the variables included in the model explained only 32% of the variation in the food consumption pattern of the households. The factors that had a significant and positive influence on food consumption in the study area were household size and number of crop enterprises. The implication here is that an increase in either of the factors will lead to an increase in the food consumption pattern of the households. The high household size in the study area further supports this finding. Similarly, increasing the variability of crop enterprises will also result in an increase in the household food consumption pattern as variety is introduced into the dietary system of the household. The regression results also show no significant relationship between farming experience, farm size and cropping system and food consumption. This implies that household food consumption did not respond significantly to changes in the above mentioned variables.

CONCLUSION

The findings of the study revealed a good dietary diversity in food consumption but with a short fall

in the household food production relative to consumption levels in the State. Larger households are likely to consume more food and the deficits in their production level are made up for through purchase. Improving the productive efficiency of crop production can help to reduce the shortfall in the food production level.

RECOMMENDATIONS

Based on the findings of the study, the followings are recommended;

1. Policy measures aimed at improving access to agricultural inputs and credit are pertinent in order to increase the productivity of farming households' thus bridging the gap between food production and consumption.

2. Large household sizes were found to significantly affect food consumption in the study area. Therefore, strategies for effective community involvement in the design and implementation of programmes aimed at imparting knowledge about family planning to household are recommended.

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