# Examining the Impact of Linking School Feeding Program on Smallholder Farmer Income and Household Food Security Status

**Bulus Barnabas, Miroslava Bavorova, and Mustapha Yakubu Madaki**

Czech University of Life Sciences Prague, Department of Economics and Development, Czech Republic

**Czech University of Life Sciences Prague**
**Faculty of Tropical AgriSciences**

## Introduction

- The Home-grown school feeding program (HGSF) link smallholder farmers with caterers (Bundy et al., 2018).

- HGSF stimulate economic activity and which in turn improve food security status (Gelli, et al. 2016).

### Objectives

- Determine the smallholder farmers household food security status
- To analyze if linking smallholder farmers with HGSF activities increase household food security status

### Materials and method

**Study Area**

- The northeast Nigeria has a total population of 23,558,674 (NBS, 2020). Three state were selected for the study namely; Adamawa, Bauchi, and Gombe state.

### Data collection

- Quantitative questionnaire survey was used to collect 240 smallholder farmers observations by the researcher using quota sampling during June 2018.
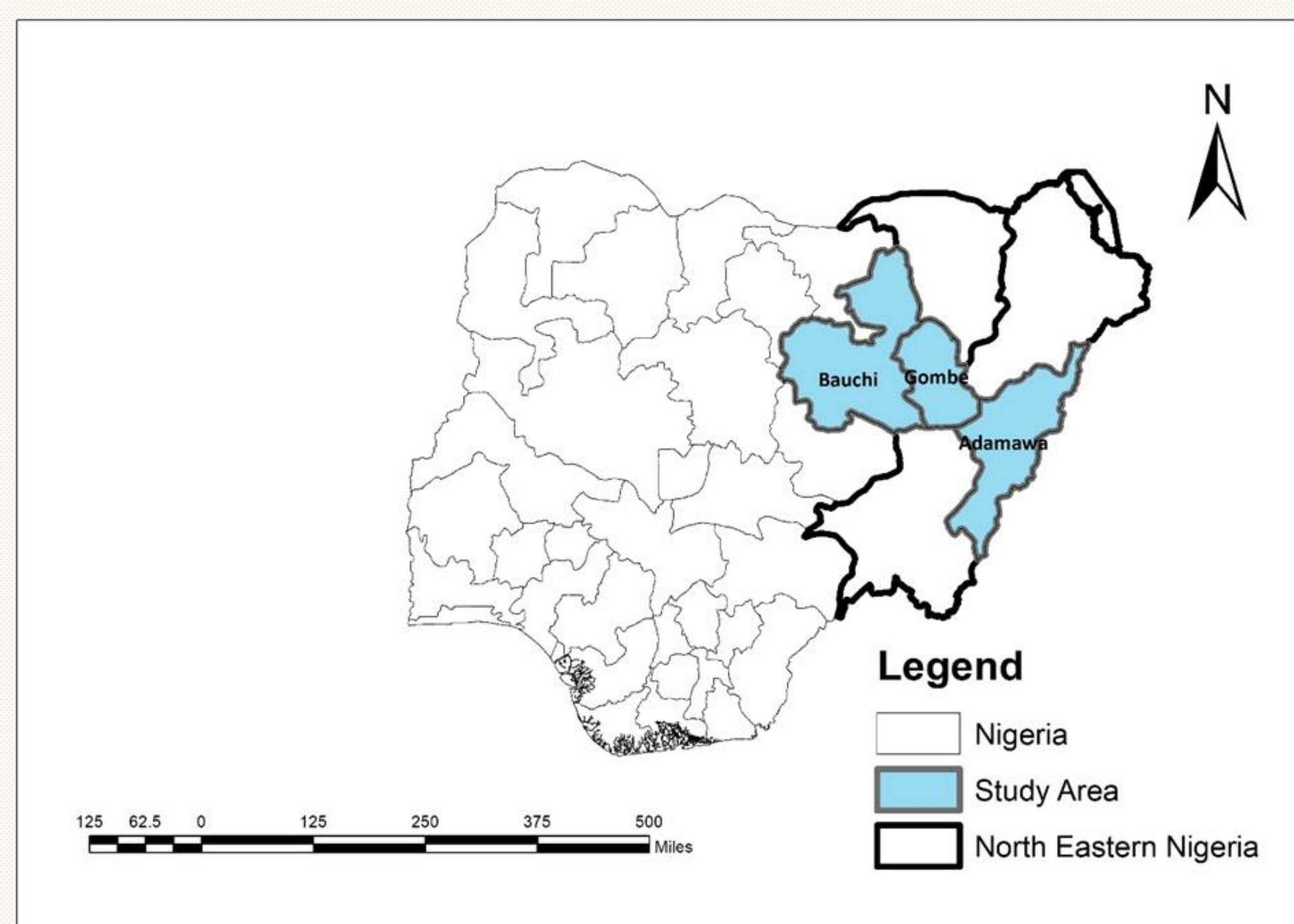
Figure 1. Map of Northeast Nigeria showing the study area

Figure 2. Interacting with smallholder farmers in the study area

### Data analysis

- Food consumption score (FCS) was computed for household and farmers were categorized into: poor (<21), borderline (21.5-35) and acceptance (>35).

- Descriptive statistics in form frequency, percentage and mean to achieve objective one

- Binary probit Regression model was used to achieve objective two

### References

Bundy D, Silva Nd, Horton S, Jamison DT, Patton GC, Schultz L, et al. (2018) Re-imagining school feeding: a high-return investment in human capital and local economies.

Gelli et al. (2016). Evaluation of alternative school feeding models on nutrition, education, agriculture and other social outcomes in Ghana: rationale, randomized design and baseline data.

## Results

### Table 1. Demographic information of the farmer (N=240)

| Variables | Items | Percentages | Mean |
|---|---|---|---|
| Age of farmer | 20-30 | 10.4 | 42 |
| | 31-40 | 34.6 | |
| | 41-50 | 37.5 | |
| | 51 and above | 17.5 | |
| Gender | Male | 67.1 | |
| | Female | 32.9 | |
| Marital status | Single | 7.9 | |
| | Married | 88.8 | |
| | Widow | 3.3 | |
| Household size | <6 | 23.8 | 7.94 |
| | 6-10 | 57.6 | |
| | 11-15 | 12.9 | |
| | 16-20 | 4.1 | |
| | 12 and above | 1.6 | |
| Years of farming experience | 1-5 | 7.9 | 17.67 |
| | 6-10 | 17.1 | |
| | 11-15 | 16.7 | |
| | 16-20 | 25.8 | |
| | 21-25 | 11.3 | |
| | 26 and above | 21.2 | |
| Education qualification | Quranic Edu. | 30.8 | |
| | Primary Edu. | 2.1 | |
| | Secondary Edu | 35.0 | |
| | NCE | 20.0 | |
| | Graduate | 9.2 | |
| | Postgraduate | 2.9 | |
| Household with children benefiting SFP | Yes | 60.8 | |
| | No | 39.2 | |

NCE: National Certificate of Education
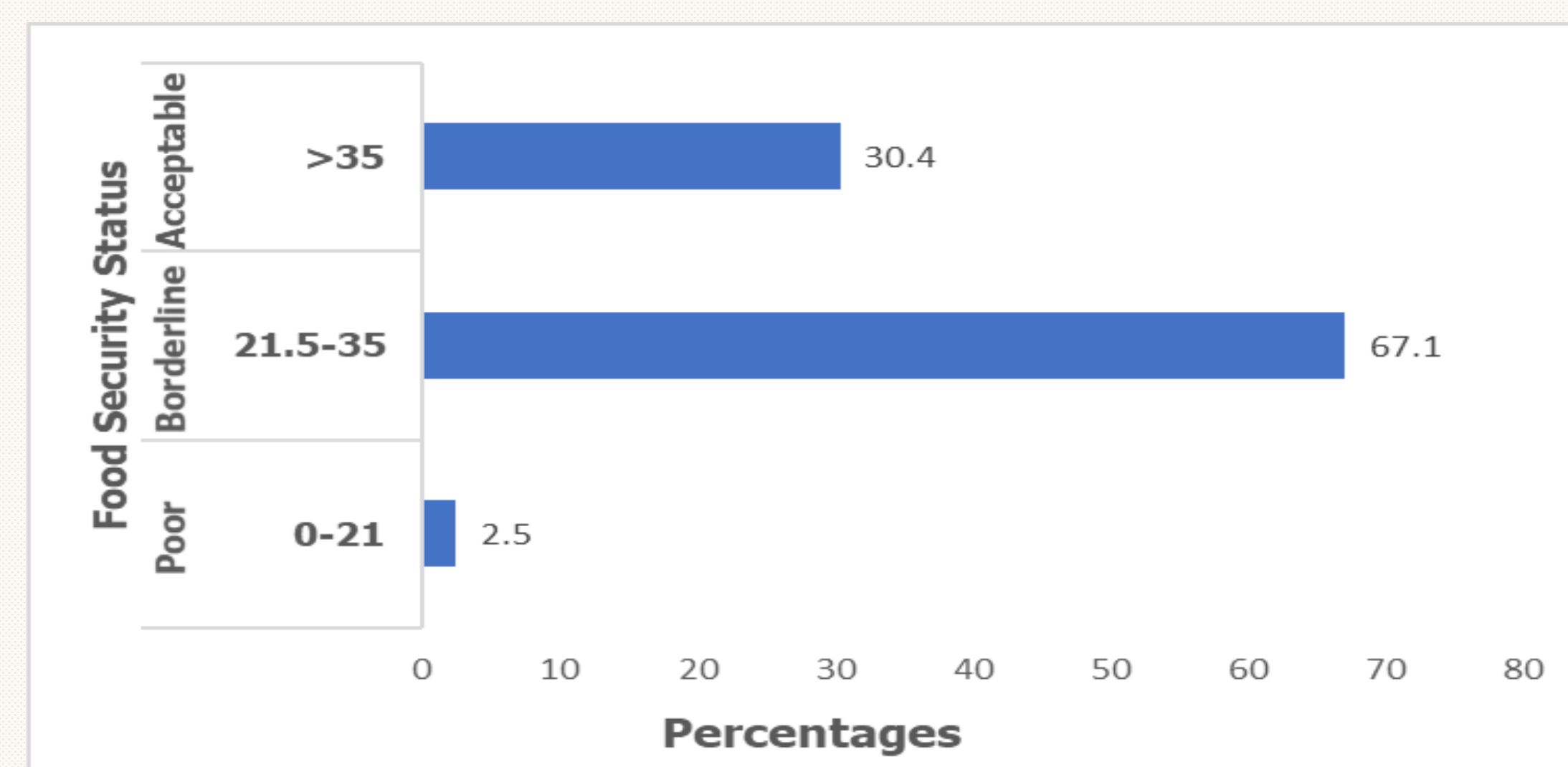SFP: School Feeding Program

Figure 3. FCS Food Security Status of the Farming Household

### Table 2. Factors affecting level of food security results of binary probit model

| Variables | Coefficient | Std. Err. | P-value | Marginal Effect |
|---|---|---|---|---|
| Age | -0.047 | 0.005 | 0.043 | -0.010 |
| Gender | 0.185 | 0.049 | 0.443 | 0.038 |
| Marital Status | 0.050 | 0.079 | 0.896 | 0.010 |
| Years of farming experience | 0.021 | 0.005 | 0.365 | 0.005 |
| Educational qualification | 0.088 | 0.143 | 0.188 | 0.019 |
| Household size | 0.048 | 0.008 | 0.188 | 0.010 |
| Household with children benefiting SFP | -0.026 | 0.052 | 0.914 | -0.006 |
| Access to SFP credit (Fund) | 0.195 | 0.054 | 0.435 | 0.042 |
| Farmers link to caterers | 0.619 | 0.421 | 0.015 | 0.102 |
| Farmers link to processor | 1.061 | 0.379 | 0.001 | 0.130 |
| Access to extension service delivery | 0.464 | 0.077 | 0.090 | 0.115 |
| Access to input subsidy | 0.548 | 0.073 | 0.062 | 0.136 |
| Access to market information | 1.147 | 0.314 | 0.234 | 0.374 |
| Membership in cooperative society | 0.687 | 0.240 | 0.408 | 0.199 |
| Number of observations | 240 | | | |
| Constant | -1.975 | 0.965 | 0.041 | |
| LR Chi (14) | 21.52 | | 0.089 | |
| Pseudo R² | 0.103 | | | |

### Conclusions

- Only about 30% of the households have the acceptable level of food security.
- Household food insecurity rises with increase in age of the household head.
- Farmers with access to extension services are more likely to be food secured. Thus, emphases on extension service delivery to be given.
- Access to input subsidy is likely to improved household food security status.
- Farmers link to caterers are more likely to be food secured.