Financial, Public and Regional Economics

The Growth Enhancement Support Scheme: Productivity and Shortcomings among Rice Farmers in Ekiti State, Nigeria

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Abstract: Increasing access to improved farm inputs at a subsidized rate has urgently become the focus of government programmes. This study therefore examined the effect and shortcomings of GES Scheme on rice farmers' productivity. A cross-sectional data of 160 smallholder rice farming households was selected through multistage random sampling technique from three major rice-producing local government areas. The total number of communities randomly selected was six. The data were collected using a well-structured questionnaire and the objectives were analysed using descriptive statistics and Total Factor Productivity (TFP) index. The results revealed that the average age of the rice farmers in the study area was about 46 years. More male farmers (73.1%) were involved in the Scheme than their female counterparts. Among the registered rice farmers, 58.7 percent received telephone alerts for the subsidized inputs (fertilizer and seeds), but not all the farmers were able to gain access to the inputs due to cash constraint, missing names at the redemption centres, untimely supply, among others. The results from the TFP index showed that the participants were productive. They had an average of 10% net gain from the cost incurred in production. Using the TFP index, it was revealed that rice farmers in Gbonyin local government area are the most (80%) productive among others. It was therefore recommended that timely supply of inputs should be ensured and an efficient monitoring team should be in place to check inadequacies in this Scheme.

Keywords: GES; Productivity; Rice; TFP Index and Shortcomings

JEL Classification: Q16; O13; D13

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1. Introduction

Agricultural policy in Nigeria has witnessed several changes since the colonial and post-independence years. (Yusuf, 2004) In 2004, the Nigerian government implemented the National Economic Empowerment and Development Strategy (NEEDS). NEEDS acknowledged that agricultural productivity and food security were critical to long-term stability and diversification of the economy. In 2006, Abuja, Nigeria, hosted the Africa Fertilizer Summit under the auspices of the African Union (AU), the New Partnership for African Development (NEPAD) and the Government of Nigeria. (Yawson et al., 2010) An important output of that summit was the Abuja Declaration on Fertilizer for African Green Revolution, in which AU member states set out to increase fertilizer intensity to an average of 50 kg/ha by 2015.

Increasing access to improved farm inputs has urgently become the focus of government programmes. According to Akande et al. (2005), the Nigerian government continues to work on state-led interventions to improve agricultural productivity which have been less effective due to a number of reasons such as: the Nigerian state's failure to take the first necessary steps in agricultural modernization, the military dictatorship's focus on the oil sector rather than agriculture, the State's failure to define a proper role for the state in the agrarian structure, untimeliness of subsidized input supply for the programme and corruption in the area of subsidized farm input diversion to unintended beneficiaries.

The GES Scheme (an electronic wallet program) is the transformation of the agricultural subsidy policy that was in place which will address some of the shortcomings. (Akinwumi, 2012) It was designed as a component of the Agricultural Transformation Agenda (ATA) of the Federal Government. The broad objectives of the GES Scheme are to achieve food security through increased productivity at macro level, increase household income for the farmers at the micro level in order to improve their livelihood and to remove the usual complexities associated with fertilizer distribution**;** shifting the provision of subsidized fertilizer away from a general subsidy to genuine small holder farmers and making Nigeria self-sufficient especially in rice production and to ban rice importation by 2015. (Tiri et al, 2014)

Rice is one of the priority crops in this Scheme. Its availability and price have become major determinants of the welfare of the poorest African consumers. (WARDA, 2006) Rice has become an important staple food crop in Africa with a growing demand that poses an economic challenge for the African continent. About 90 per cent of Nigerian food need is produced by small-scale farmers cultivating tiny plots of land and depend on rain-fed rather than irrigation system thereby leading to shortage in supply-demand relation in rice production. (Ogundele & Okoruwa, 2006) These and more other reasons have resulted in low agricultural output and farm incomes. Thus, making it increasingly difficult for the country to achieve self-

sufficiency in food production and meeting the first goal of the Millennium Development Goals (MDGs) which is to eradicate extreme poverty and hunger by 2015. (FEPSAN, 2012) For this purpose, this study was therefore designed primarily to assess the effects of the GES Scheme on rice farmers' productivity and income in Ekiti State.

Despite the huge potential of this program in the country, there are dearth of literatures on the assessment of the GES program on productivity among the rice farmers in Nigeria. FEPSAN (2012) worked on the monitoring report on GES Scheme while Tiri et al (2014) focussed their work on the review of GES Scheme and the challenges of food scarcity in Nigeria. These works failed to look at the effect on the productivity of rice farmers. This dearth of studies on the assessment of public programs particularly on GES Scheme in Nigeria and more specifically in this study area has led to inadequate information concerning the actual effect of the program on the rice farming households' productivity. This paper therefore seeks to bridge this gap in knowledge. In assessing the effect on productivity, this study adopted the use of Total Factor Productivity (TFP) Index.

2. Conceptual Framework

2.1. Farm Input Subsidies and its Effect on the Agricultural Outputs

Agricultural input subsidies are defined as grants (or loans, if repaid at below the market price) given to a farmer as a means of reducing the market price of a specific input used in agricultural production. (Harman, 1998) Agricultural input subsidies are a potential way of incentivising farmers to purchase inputs that they are unable or unwilling to obtain at market rates; for example, because they lack access to credit or find or expect the inputs to be unprofitable at market prices given existing knowledge about their benefits, and so on. Input subsidies could thus provide a means for achieving higher agricultural productivity, improved food security and, through lower food prices and pro-poor economic growth. In addition, agricultural subsidies if in right quantities could be used to break the "vicious" cycle of poverty experienced especially by small-scale farmers. This is because they help improve productivity and per capita income of farmers (Harman, 1998) which is at the heart of this study.

The figure 1 presents the point at which the Farm Input Support Program (FISP) was being exogenously introduced in order to improve the productivity and per capita income of farmers. Prior to this exogenous intervention (through subsidy), the farmers have been experiencing a cyclic process of low productivity which resulted into low incomes and low incomes brought in low savings that led to poor asset/capital accumulation. Introducing FISP to farmers makes the adopters of such program purchased farm inputs at a much cheaper price whereby resulted into

reduced cost of production. The end result is higher productivity, improved per capita income, higher savings and higher asset accumulations. Its eventual outcomes would be food security/sufficiency for the populace and lower cost of production materials especially for the agro-allied industry.

The food security status of the household has an impact on the level of agricultural productivity in the farm. When individuals face very severe food insecurity either because of limited access and/or utilization (poor health), it affects their abilities to act as a source of labour supply and reduces their food production possibilities. (Asenso-Okyere et al., 2011) The relationship also works in the opposite direction, as agricultural productivity affects food security directly by increasing the available supply of food, particularly for subsistence households, and indirectly by increasing incomes.

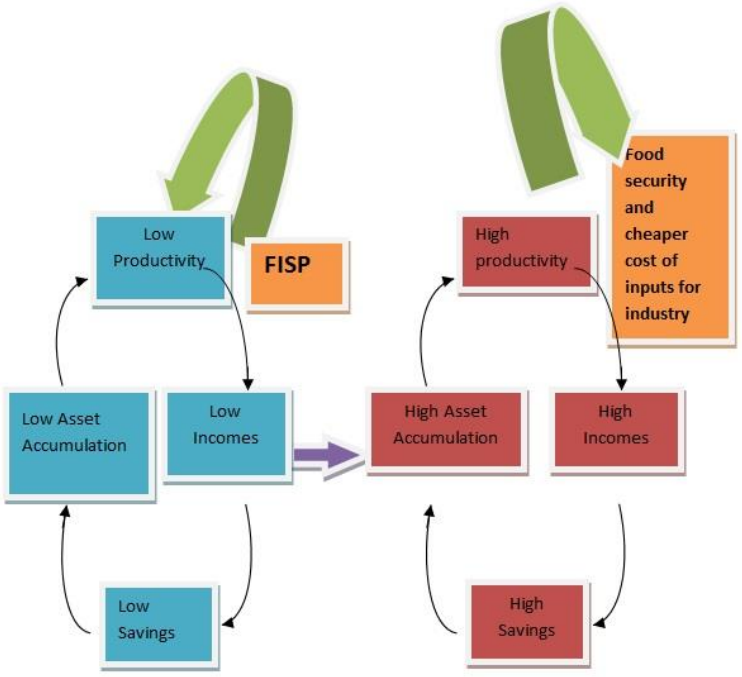

Figure 1. Likely Effect of Farmer Input Support Program (FISP)

Source: Google.com, modifications by the author

3. Materials and Method

3.1. The Study Area

The study was carried out in Ekiti State. It is one of the South-Western States created on the October 1, 1996. There is total number of sixteen local government areas in the State. The State is located between latitudes 7025 and 8005'N and between longitude 4045' and 5'46N East. The State is bounded to the North by Kwara and Kogi States while it is bounded by Osun State to the west. To the East of Ekiti State is Edo State and to the South is Ondo State. Ekiti State is a landlocked State; having no coastal boundary. The main occupation of Ekiti people is farming; producing crops such as yam, maize, cassava, rice, palm oil, and some vegetables. The popular local variety of rice produced in Ekiti State is known as "*IGBEMO"*.

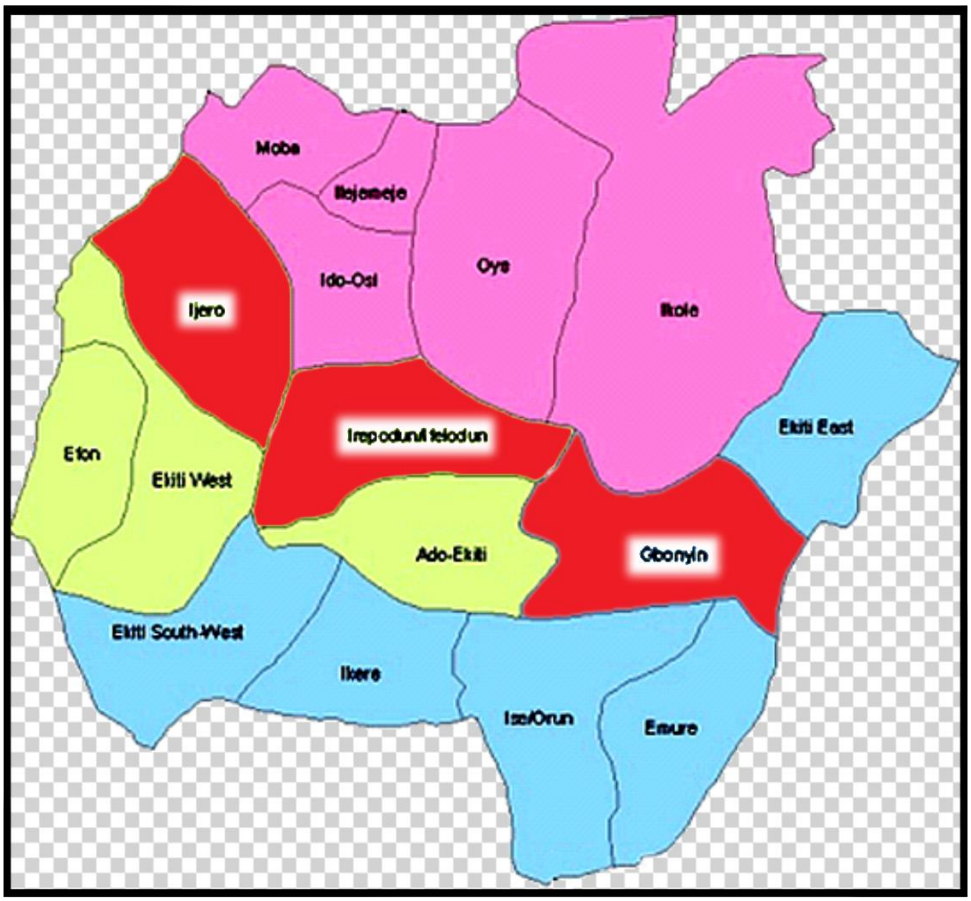

Figure 2. Administrative Map of Ekiti State Showing the LGAs.

Source: (ekitistategov.com, 2014)

3.2. Data Collection and Sampling Techniques

Across-sectional data was used and it was collected with the aid of well-structured questionnaire, administered on rice farming households. It was collected on socio-economic and farm characteristics of rice farming households. A multi-stage sampling technique was used to select representative households for the study. The first stage was the purposive selection of the rice-producing Local Government areas (Gbonyin, Ifelodun/Irepodun & Ijero) in the state. The second stage was the random selection of two communities in each LGA. The third stage was the random selection of rice farming households in the selected communities. In all, a total of 160 questionnaires were administered and used for analysis. SPSS and STATA statistical packages were used for the data entry and analysis respectively.

3.3. Analytical Techniques

Descriptive statistical tools such as table, frequency, percentage, mean, etc. were used to analyse the socio-economic characteristics and shortcomings in the Scheme and Total Factor Productivity Index was used to measure the productivity among the rice farmers.

3.4. Estimation of Rice Farmer's Total Factor Productivity (TFP) Index

The Objective 2 was analysed using the Total Factor Productivity Model index as adopted by Key and McBride (2003) and Rahji (2007). Aggregate (total) factor productivity index in this study was measured by the ratio of the total value of farm output (Naira), to the value of total inputs (Naira) used in farm production process. This approach is consistent with the reports of other scholars like Obasi (2000), Olayide and Heady (1982) and Rahji (2007).

$TFP = Q/TVC$ .....(1)

Where Q =Total Output and TVC = Total Variable Cost.

Following Key and McBride (2003); Bamidele *et al.,* (2008) and Ukoha *et al.,* (2010), individual farm TFP can be measured as the inverse of unit variable cost. This is so since TFP is the ratio of the output to the Total Variable Cost (TVC) as shown in equation 3.

TFP = $\frac{Y}{TVC} = \frac{Y}{\Sigma PiXi}$ ..... (2)

But since

AVC = $\frac{TVC}{Y}$ then TFP = $\frac{Y}{TVC} = \frac{1}{AVC}$ ..... (3)

Where Y = quantity of rice produced in kg and TVC = Total Variable Cost (N), Pi = unit price of variable input used or output produced and Xi = each quantity of variable input used such as labour, seed fertilizer, herbicides, insecticides and

transportation. This methodology ignores the role of Total Fixed Cost (TFC) as this does not affect both the profit maximization and the resource-use efficiency conditions. Besides, it is fixed and as such a constant.

4. Results and Discussions

4.1. Socio-economic Characteristics of the Respondents

Age of the Respondents: Table 1 showed that majority (40.7%) of the respondents fell within 41-50 years of age followed by the ag**e** interval of 51-60 years. The average age of the respondents sampled was about 46 years. This implies that majority of these respondents were energetic and still in their productive age which is good for the labour-intensive type of agriculture we practise in Nigeria. This finding is in line with that of Mustapha, et al., (2012) carried out in Borno State and Matanmi et al (2011) in Patigi LGA in Kwara State.

Gender of the Respondents: The results also revealed that majority (73.1%) of the rice farmers were men while 26.9 percent of the respondents were women. This is in line with the findings of Adenegan et al (2018).

Household size: the table revealed that 69.5 percent (majority) of the respondents had a household size of 6-10 members. The mean household size was 7 persons. This result strengthens the findings of Mustapha et al., (2012); Omotayo (2016), in which the majority of the household size fell within 6-10 members.

Variety of rice planted: The results showed that most of the respondents (36.9%) planted both (improved and local) rice varieties together in a season, 33.1% planted local rice variety while 30.0% of the respondents planted improved rice variety. This suggests that the rice farmers in the study area are still holding on to their local variety despite the availability of improved variety.

Farming experience: The table revealed that 44.5 percent and 43.5 percent of the respondents had 1-10 years and 11-20 years of rice farming experience respectively. This could assist the rice farmers in adopting new agricultural technologies. This is in line with the results from Matanmi et al., (2011) that found that majority of the rice farmers in Patigi local government area of Kwara State, had 1-10 years of rice farming experience but slightly different from the findings of Mustapha et al., (2012) with majority having 11-20 years of rice farming experience.

Farm size: Indicated that majority (50.0%) of the farmers cultivated 1-3 hectares of rice farm. This corresponds with the findings of Fakayode (2009); Omotayo 2016 in which majority (61.25%) of the respondents of that study had 1-3 hectares of rice farms. This implies that they were small scale rice farmers which happened to be the major target of the GES Scheme. 9.3 percent and 33.0 percent cultivated below 1.0

hectare and 4-6 hectares respectively. 1.6 percent of the respondents cultivated above 10 hectares of rice farmlands.

Table 1. Socio-economic Characteristics distribution of the rice farmers

Variables	Frequency	Percentage	Mean	Std deviation
Age (years)				
21-30	13	6.2	45.9	9.7
31-40	33	20.7		
41-50	65	40.7		
51-60	39	24.2		
> 60	10	6.2		
Total	**160**	**100**		
Gender				
Male	117	73.1		
Female	43	26.9		
Total	**160**	**100**		
Household size				
1 - 5	16	23.9	6.8	2.6
6 - 10	35	69.5		
11 - 15	29	6.3		
>15	1	0.6		
Total	**160**	**100**		
Rice Variety Planted				
Improved	48	30.0		
Local	53	33.1		
Improved & Local	59	36.9		
Total	**160**	**100**		
Farming experience (years)				
1 - 10	71	44.5		
11 -20	69	43.2		
21 -30	12	7.3		
>30	8	5.0		
Total	**160**	**100**		
Farm size (ha)				
<1.0	15	9.3	3.5	2.7
1.0-3.0	80	50.0		
4.0-6.0	53	33.0		
7.0-9.0	10	6.2		
>10.0	2	1.6		
Total	**160**	**100**		
Source of inputs				
Agro-dealer	79	49.4		
Open market	81	50.6		
Total	**160**	**100**		

Source: Field Survey, 2015

4.2. Status of the Respondents under the GES Scheme

The information provided in the Table 2 revealed that out of 143(89.38%) of the registered farmers, 84 (58.7%) received telephone alerts/SMS which reads thus: "*You are entitled to 12.5 kg of improved rice seed bag, 1 bag (50 kg) of NPK and 1 bag (50 kg) of Urea*". Out of these 84 farmers that received the alerts under the e-wallet system, only 58 (69.95 percent) actually collected. This means that 26 (30.05%) of those that received alerts did not have access to the subsidy for various reasons ranging from farmers' faults to government's inadequacies. These were displayed in the Table 3. 34.62 percent, 30.77 percent, 23.08 percent and 11.54 percent did not have access to it due to: lack of cash at the period when they received alerts for subsidized inputs, loss of phone/poor network (through theft or phone damage), missing names at the redemption centres (farmers would not find their names on the list even though they received telephone alerts) and finally, delay in supply (not supplied at the appropriate time of planting).

Table 2. The GES Status of the Respondents in the Selected Areas

GES RESPONSE	Proportion that Registered		Proportion that Received Telephone Alert		Proportion that Actually Collected Subsidy	
	Freq.	**Percent**	**Freq.**	**Percent**	**Freq.**	**Percent**
Yes	160	100.0	101	63.1	75	74.3
No	-	-	59	36.9	26	25.7
Total	160	100.0	160	100.0	101	100.0

Source: Computation from field survey data, 2015

Table 3. Constraints to Accessing the Subsidized Inputs (Fertilizer and Seeds)

Reasons for non-collection of Input	**Frequency**	**Percentage**
lack of cash	9	34.62
Loss of phone/Misplacement of SIM card	8	30.77
Missing names	6	23.08
delay in supply	3	11.54
Total	26	100.0

Source: Computation from field survey data, 2015

4.3. Total Factor Productivity Index of the Respondents

Aggregate (total) Factor Productivity in this study was measured by the ratio of the value of total farm output (Naira) to the value of total variable inputs (Naira) used in rice production process. In essence, productivity measures are the yardsticks of effective resource use. Total Factor Productivity (TFP) is deemed to be the broadest measure of productivity and efficiency in resource use. An increase in TFP, therefore, implies a decrease in unit cost of production. From the result of the

analysis, farmers that had TFP value of less than 1 were considered unproductive (resources under-utilized/lower returns) or having a net loss and greater than 1, productive (higher returns or net gain). Averagely, the result shows that the rice farmers were productive in rice production activities. This is shown by the productivity level of the farmers, which was averagely greater than 1 and from the analysis, none of the farmers had exactly TFP index value of 1. The result in the table 4 showed that the mean TFP index value of the farmers was 1.1; implying that on the average the farmers were productive/ had net gain in the rice production and having returns of ₦ 0.10 (10 kobo) from every ₦ 1.00 invested into the rice production activity. This implies that they had 10% gains from every ₦ 1.00 invested in the rice production activity. This suggests that the rice farmers only had marginal profits from their investment in rice production. Many of these farmers still remain in rice production activity in spite of this marginal gain because their livelihood or survival depends majorly on it and they also have taken it as a tradition and not as a real business.

Table 4. General Average Description of the TFP Index of the Respondents

Variable	Obs	Mean	Std. Dev.	Min	Max
TFP index	160	1.1	0.8	0.004	3.176

Source: Computation from field survey data, 2015

4.4. Distribution of Respondents TFP Index by Participants and Non-Participants

Table 5 revealed the productivity status of the participants and non-participants of the GES Scheme. Those that actually received the subsidy were termed participants and those that were registered but received not the benefits were termed non-participants. Therefore, the results showed that among the participants, majority of them (74.14%) were productive while 25.86 percent of them were not. On the other hand, among the non-participants, most of them (58.82%) were productive while 41.18% of them were not. Comparatively, this implies that the participants of the GES program were more productive (had better net gain) than the non-participants.

Table 5. Distribution of Participants and Non-participants by TFP Index

Participants			Non-participants	
TFP index	Frequency	Percentage	Frequency	Percentage
<1	15	25.86	35	41.18
>1	43	74.14	50	58.82
Total	58	100.0	85	100.0

Source: Computation from field survey data, 2015

4.5. TFP Index by Local Government Area

The table 6 indicates the comparison of TFP index across the selected local government areas (LGAs) in the State. The result showed that rice farmers in Gbonyin LGA were the most productive or had highest profit (net gain) in rice production activity. 80.0%, 56.0% and 52.0% got higher returns from their investments in rice farming in Gbonyin, Irepodun and ijero LGAs respectively. However, 20.0%, 44.0% and 47.27% of the rice farmers from Gbonyin, Irepodun and Ijero LGAs respectively had net loss. This means that most rice farmers in Ijero LGA did not get enough or profitable returns from their investments in rice farming. This could be as a result of the production system practised by the farmers, much pest infestation, and poor utilization of resources among others which could limit or reduce their net gain in rice production.

Table 6. TFP Index by Local Government Area

Productivity status	TFP index	Gbonyin		Irepodun/Ifelodun		Ijero	
		Freq.	Percent	Freq.	Percent	Freq.	Percent
Unproductive	<1	11	20.0	22	44.0	26	47.27
Productive	>1	44	80.0	28	56.0	29	52.73
Total		55	100.0	50	100.0	55	100.0

Source: Computation from field survey data, 2015

5. Summary, Conclusion and Recommendation

This study assessed the effect and constraints in accessing the GES Scheme on rice farmers' productivity in Ekiti State, Nigeria. Primary data was used with the aid of a structured questionnaire. 160 respondents (rice farmers) were randomly sampled via three LGAs. The study area shows that majority (40.7%) of the respondents are still in their active age with the mean age of 46 years. It was revealed that men (73.1%) were more involved in rice production than their female counterpart. Majority (50%) of the rice farmers cultivated rice farm of 1-3 hectares with an average rice farm size of 3.5 hectares.

Lack of cash (money) was considered as the major constraint in claiming the subsidized farm inputs followed by misplacement/loss of mobile phones and delay in supply. The TFP Index revealed that the participants were more productive than the non-participants and the rice farmers from Gbonyin local government area were the most productive or had the highest net gain. This implies that rice farmers from this LGA utilized their farm inputs most efficiently. It is therefore recommended that the credit availability should be made to these farmers to enhance their access to these subsidized farm inputs. In addition, strong monitoring should be put in place and subsidized farm inputs should be timely supplied to these farmers.

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