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Analysis of Factors Influencing Caterers of the Ghana School Feeding Programme to Purchase Rice from Local Farmers in the Tamale Metropolis, Tolon-Kumbungu and Karaga Districts

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Abstract

The Ghana School Feeding Programme is the local version of the Home Grown School Feeding. Launched in 2005, the programme has three basic objectives; Poverty Reduction and Food Security, Reducing Hunger and Malnutrition and Boosting Domestic Food production in Ghana. Studies have shown that the programme have had tremendous impact on school enrolment, retention and malnutrition but the same cannot be said about its agricultural portfolio. Indications are that the programme has not succeeded in boosting domestic food production. Over the years no clear procurement procedures relating to the purchase of foodstuff have been followed. Linkage between the Ghana School Feeding Programme and local farmers is a subject matter that is under-researched. This study therefore seeks to assess the factors that influence Ghana School Feeding Programme caterers to buy rice from local farmers in the Tamale metropolis, Tolon-Kumbungu and Karaga districts of the northern of Ghana. The findings will be useful to policy makers and rice farmers in generally especially with regard to agricultural marketing opportunities created by the School Feeding Programme. Analysis of the Ghana School Feeding Programme's procurement of rice from local farmers was conducted using a probit regression model. The willingness of caterers to buy rice from the local farmer which is a binary choice is the dependent variable and the factors which are hypothesized to influence the decision of the caterer are the independent variables. The results show that majority of caterers buy rice from local millers and the market and very little from local farmers. The factors which had significant influence on the caterers to buy from the local rice farmer include, availability of storage facility, other jobs done by caterers, price of milled rice, easy location of rice farmers and delays in the payment of feeding bursaries. The Ghana School Feeding Programme Secretariat should employ caterers who are unemployed and do not have any other jobs doing. Also the provision of adequate storage facilities in schools and the early disbursement of feeding bursaries to caterers are essential in solving the problem of buying foodstuffs directly from farmers.

Key words

Access, Ghana School Feeding Programme, caterers, local rice, procurement.

Introduction

Ghana has a long history of school feeding programmes implemented by different development agencies, particularly in the north of the country. The two most important players in School feeding in the country had been the Catholic Relief Services and the World Food Programme (Fisher, 2007). The Ghana School Feeding Programme (GSFP) is basically intended to stimulate the local economy through creation of additional demand for local farm produce, and to improve food security. This objective aligns closely with the United

Nations' Millennium Development Goals (MDGs) on hunger and poverty.

Rice constitutes a major staple on GSFP menu. It is normally cooked 3 times a week for the pupils. USAID (2009) cites (JICA, 2007 *ibid*) and reported that Ghana's rice production estimates range from 200,000 to 300,000 MT of paddy or roughly 120,000 to 180,000 MT of milled rice, the bulk of which comes from the Upper East, Northern and Volta Regions, Rice is the second most important cereal next to maize in Ghana and is fast becoming a cash crop to many rice farmers (Asare, 2010).

According to Anderson et al. (2005), locally produced foods provide the most sustainable and often most nutritious source of food for people who consume it. Using locally-produced food provides both an inexpensive and nourishing meal, and stimulates the local economy by creating reliable markets for agricultural products. However the authors admit that when School Feeding Programmes (SFPs) are first initiated, it may be necessary for them to rely in part on non-local foods for the first six months to a year while local agricultural production responds to increased demand and output is sufficiently increased

Studies by two NGOs, SEND Ghana and ESCASARD/SNV, independently concluded that there has been limited impact of the Ghana School Feeding Programme on local farmers (SEND, 2008) and (ESCASARD/SNV 2009). The 2007 action plan target of purchasing 80% of foodstuffs from local farmers was not achieved (GSFP/AOP 2010). With the exception of the Eastern region where more than 20% of food was bought from local farmers, in all the other regions in more than 50 percent of the schools, less than 20% of food was purchased locally. In 2009, the government of Ghana spent about 98% of GSFP budget on food items (GSFP/AOP 2010)

In Kenya and Nigeria key implementation strategies were adopted in their school feeding programmes¹ to boost the market of locally produced food. These strategies were Competitive tendering for food and transport with registered farmers and suppliers and, the food were purchased by cooks at local markets coordinated by local school meals committees (PCD 2009:2010)

¹ Eradicate Hunger in Kenya and the Osun State Home Grown School Feeding and Health Programme in Nigeria

Objective of paper: The main aim of the paper is to analyse the factors that influence Caterers of the Ghana School Feeding Programme to buy rice from local farmers in the Tamale metropolis, Tolon-Kumbungu and Karaga district of the Northern region of Ghana.

Methodology

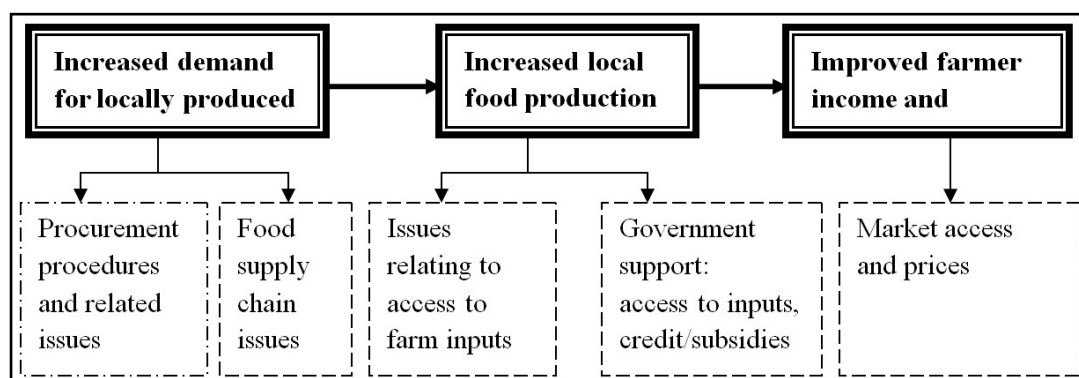
1. Theoretical and conceptual framework

Marketing is the most important aspect in the development process of an economy. This is due to the fact that development primarily means expansion in productive activities in the economy. However there cannot be continuous expansion in production unless the commodities produced are actually sold out and, selling depends on the proper marketing conditions (Prasad and Prasad, 1995).

Figure 1 illustrates the conceptual framework of the possible impacts of the Ghana School Feeding Programme on domestic food production. It shows that increased demand for local foodstuffs would lead to increased domestic food production which is intended to increase farmers' income and well being in the end. As indicated in the boxes with broken lines, increased domestic food production would involve food supply and procurement issues where individuals and groups are involved. Increased domestic food production means farmers would have to get more inputs which require the support of government especially in terms of access to credit and subsidies.

2. Method of analysis

The HGSP model which specifically illustrates the theory of change posits that by using a structured demand approach to make strategic



Source: Adapted from GSFP/AOP (2010)

Figure 1: Possible impacts of the GSFP on domestic food production.

use of public procurement, the local economy will be stimulated by the flow of direct benefits primarily to targeted groups and indirect benefits via multiplier and spill-over effects to local population more widely (Sumber and Sabates 2010). Maxwell (2007) argued that procurement of food locally for publically-funded school feeding framework is important for two reasons; there is growing recognition among stakeholders of the benefits of substituting domestically produced for imported commodities and secondly governments' demand for domestically produced commodities is predictable and seen to provide an opportunity to structure demand for a significant quantity of domestically produced food.

The paper adopted a supply chain model of assessment to determine how a structured demand could facilitate the procurement of rice from local farmers by making available information on prices and procurement costs from various sources in the supply chain. Based on the available sources of rice supply to the caterer, the Probit model was used to further determine the factors that influence GSFP caterers to buy rice from local farmers

3. The probit model

Following the works of Kuhar and Juvancic (2010), Kasteridis et al. (2007) the probit model was adopted in the analysis of factors influencing GSFP caterers to buy rice from local farmers.

Model specification

$$Pr(Y=1/X) = \Phi(X\beta) \quad (1)$$

Where Pr denotes probability and Φ is the Cumulative Distribution Function (CDF) of the standard normal distribution. The parameters β are typically estimated by maximum likelihood. In their study on 'Determinants of purchasing behaviour for organic and integrated fruits and vegetables in Slovenia' Kuhar and Juvancic (2010) used the probit model and following Greene (1997), the model was built around a latent dependent variable and was specified as:

$$y_i^* = \beta X_i + \varepsilon \quad (2)$$

Where y_i^* is an unobserved frequency of quality and vegetables purchase, β is the vector of unknown parameters and X_i is a vector of explanatory variables (which may be continuous or discrete).

4. Empirical model specification

For the purpose of this study the probit model is restated as follows;

$$WLN = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \varepsilon \quad (3)$$

Where; WLN is the dependent variable which is a binary choice (1 for caterer buys paddy rice from local farmer and 0 otherwise). β_0 is the intercept, the β_s are the regression coefficients of the independent variables X_1, X_2, \dots, X_7 , and ε is the error term.

The independent variables, which describe GSFP caterers' willingness to purchase paddy rice from local farmers, are described as follows;

- **Processing cost (X_1):** This a continuous variable measured in Ghana cedis. An estimated average processing cost for an 80kg of paddy rice was used and the cost build up was, transportation, boiling, milling and labour expenses. The a priori expectation for this variable is negative. As the processing cost of paddy rice increases, GSFP Caterers would be more willing to buy milled rice from middlemen to save cost rather than buy paddy rice from the farmers.
- **Distance from caterer/GSFP school to the local market and the mill (X_2):** This is a continuous variable indicating the distance in kilometres between the caterer or GSFP School and the local market on one hand and the milling site on the other. This variable has a positive or negative apriori expectation. It is expected that as the distance between the market place and the caterer or the school gets longer, there is the tendency for the caterer to buy paddy rice from the farmer who may be closer to a GSFP school in lieu of milled rice in order to save travel time and transportation cost. Similarly, the longer the distance between the local mill and the caterer/GSFP school, the less the probability of her willingness to buy paddy
- **Availability of Storage facility (X_3):** This is a dummy variable equal to 1 if a caterer has access to storage facility and 0 otherwise. As paddy rice is more bulky than milled rice, it is expected that if storage facilities are available the caterer will be more willing to buy paddy rice from the farmer than milled

rice from the local market since the caterer will have enough storage facility to store the bulky paddy rice, especially during the peak season when prices are low

- **Price of milled rice (X₄):** This is continuous variable measured in Ghana cedis. This represents the average price for a 120kg of milled rice purchased from local millers. The study used the price of local millers because they constitute about 50% of the caterers' sources of supply. From the caterers' point of view milled rice is a substitute to paddy rice and the effect of the price of milled rice has positive a priori expectation. As the price per 120kg of milled rice increases, relative to the price and processing cost per 160kg of paddy, the demand for paddy rice from the farmer would also rise.
- **Student population in GSFP School (X₅):** The population of school pupils in a GSFP school is hypothesized to influence caterers' willingness to buy rice from the farmer positively. As the number of pupils enrolled in the school increases the caterer would have more mouths to feed which implies that the demand for rice would be higher and the caterer would like to buy paddy rice in bulk at relatively cheaper price from the farmer than milled rice from local miller or the market. This variable was estimated using the total student population handled by each caterer
- **Other jobs done by caterer (X₆):** This is a dummy variable equal to 1 if a caterer is engaged in multiple jobs and 0 otherwise. Some of the caterers are engaged in other jobs some which are often full time regular employment. So it is expected that caterers will be less willing to buy paddy rice from the farmers because of the time involved in processing and milling. The caterers could use this additional time to do the other jobs if they buy milled rice from the local miller or the market.
- **Whether caterer easily locates the rice farmer (X₇):** This is also a dummy variable equal to 1 if caterer can easily locate the rice farmers and 0 otherwise. It is expected that if a caterer can easily locate the farmer, it will affect his or her willingness to buy rice from the farmer positively. From the conceptual framework, a greater proportion of the GSFP is being run in the rural areas where majority of rice farmers are located. Therefore

if a caterer is living closer to the farmer, they are more likely to buy from the farmer than from the market. The GSFP also requires that caterers buy local foodstuff from the communities where the programmes are run.

- **Years of Formal Education (X₈):** This is a continuous variable measured in years. The years of formal education is expected to have a negative impact on caterers' willingness to buy rice from the farmer. As the level or years of education obtained by the caterer increases, they are less willing to buy paddy rice from the farmer. This is because from the survey data, there was a positive correlation between years of formal education and multiple jobs of caterers. Caterers who had more years of education were mostly doing other jobs in addition to the catering services. So it is expected that years of formal education will affect caterers' willingness negatively.

Variable	Definition	A priori Apriori Expectation
X ₁	Ave Annual Processing cost of paddy rice in GH¢	-
X ₂	Distance from milled rice supplier to school (km)	+
X ₃	Availability of storage facility (Yes=1, No=0)	+
X ₄	Price of milled rice per bag/120kg	+
X ₅	Student population measured in numbers	+
X ₆	Caterer doing other jobs (Yes=1, No=0)	-
X ₇	Easy locating a rice farmer (Yes=1, No=0)	+
X ₈	Delays in the release of bursaries to caterer (Yes=1, No= 0)	-
X ₉	Caterers Years of formal education	-

Dependent Variable (WLN: Caterer buys paddy from Farmer (Yes = 1, No = 0)

Source: own processing

Table 1: Summary of variable definitions and a priori expectation.

5. The study area

The study was conducted in the Tamale metropolis, Tolon-Kumbungu and Karaga districts of the Northern region of Ghana (Figure 2). The northern regions of Ghana (Upper East, Upper

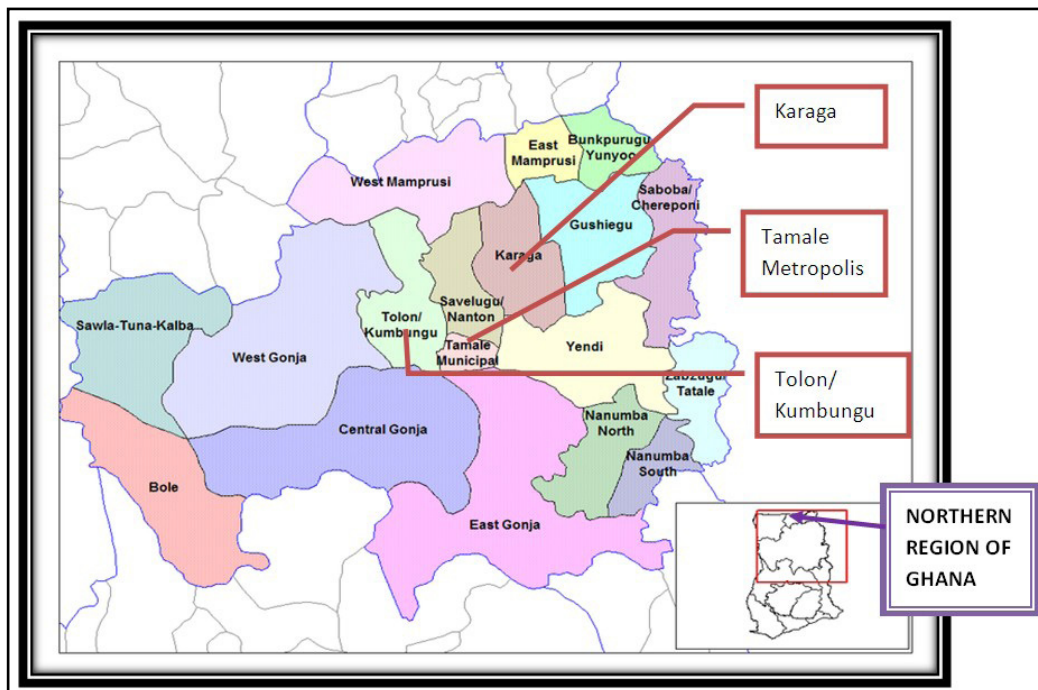
West and Northern regions) are relatively poor and rural households, especially women and their young daughters, lack physical and economic access to food. This perhaps necessitated the introduction of school feeding and food aid programmes by the multinational organisations in the north in the 1950s (WFP 2007a).

In Tamale metropolis it is estimated that about 60% of the people are engaged in agriculture. The major crops cultivated include maize, rice, sorghum, millet, cowpea, groundnuts, soya bean, yam and cassava. Farmers in the Metropolis and rural Tamale in particular are smallholder subsistence food producers with few income earning opportunities due to low productivity. The farmers lack off-farm employment and are vulnerable to natural calamities such as unreliable rainfall and bush fires (MoFA, 2010). Total land holders in the metropolis in 2006 were 33,614 of which 23,018 holders representing 68% were producing rice (Seidu 2008). Low agricultural productivity and marketing of agricultural produce are the most prominent challenges in the agricultural sector in the metropolis. In the Northern region, Tamale Metropolis has the highest number of pupils enrolled in schools under the programme with an estimated 13.5% of the 50,597 pupils

benefitting in the entire region as at (GSFP stats, 2011).

Tolon/Kumbungu district is one of the districts created by the erstwhile Provisional National Defence Council (PNDC) Law 207 in 1988 with Tolon as its Capital. The district was carved out of the then West Dagomba District Council (WDDC). It covers an area of about 2,741 square kilometres and forms about 3.9% of the total land size of the northern region. The district shares borders with the West Mamprusi District to the north, West Gonja to the west and south and with the Savelugu-Nanton District and Tamale Metropolis to the east. In 2010 output of rice from the district was 39,360 metric tons representing 21.2% of total output from the northern region and second to Tamale metropolis in that particular year. The average yield was 3.20 metric ton per hectare. Other major crops produced in the district include cassava (55,000 metric tons), yam (40,920 metric tons), maize (26,190 metric tons) and groundnuts (17,542 metric tons) (MoFA, 2011).

Karaga district was carved out of the then Gushegu/Karaga District and officially inaugurated in August, 2004. The district is located in the North-Eastern part of the Northern Region. It has a total area



Source; http://ghana-net.com/Documents/776px-Northern_Ghana_districts.bmp

Figure 2: Map showing the study area and the districts.

of 2,958 Kilometres square. It shares boundaries with four districts; West and East Mamprusi to the North, Savelugu/Nanton to the West and Gushegu to the Southeast. Major traditional crops cultivated in the district include maize, sorghum, millet, soya bean, groundnuts, cowpeas, cassava, rice and yam. According to MoFA (2011), rice constitutes the second largest crop after Soya Bean in the district where the area put under cultivation for crop rose from 2000 hectares in 2006 to 4120 hectares in 2010 showing more than 50% increase in area cultivated within the period. In terms of output there has been a tremendous increase in rice output from 6000 metric tons in 2006 to 50,238 metric tons in 2010 with an average of 3.2012 metric ton per hectare in that year.

6. Sampling procedure

A purposive sampling technique was employed in this study with a sample size of 150 comprising 100 rice farmers and 50 GSFP caterers. Sixty (60) farmers were sampled from Tamale metropolis and 20 farmers each from Tolon-Kumbungu and Karaga districts. The farmers were selected based on proximity to GSFP schools with at least one rice farmer selected randomly from the community where a GSFP school was located while the sampling of caterers was based on number of pupils being fed in the schools with preference given those with large enrolment since the demand for rice by the GSFP caterers was conceptually identified as 'derived demand'; more numbers implied more mouths to feed and hence higher demand for foodstuffs.

Results and discussions

1. Characteristics of rice farmers

Table 2 indicates that rice farming is dominated by male across the three districts. Even though there are some female farmers in the northern region, the purposive sampling technique used, could not capture female rice farmers in the sampling frame. On the whole majority of the sampled farmers have household sizes between 2 and 10, while farmers with household sizes between 31 and above are in the minority.

Almost all the farmers are aged between 26 and 59 years, an indication that the farmers include both young and adults. Also 93% of the respondents have up to 6 years of formal education which is an indication of high illiteracy rate among

the farmers. Over half of the farmers do not belong to any FBO and this could be a challenge in linking farmers to the GSFP because it could be easier dealing with groups than individual farmers. Also majority of the farmers grow rice as the only crop.

2. Characteristics of GSFP caterers

Table 3 shows the socio economic characteristics of GSFP caterers. In sharp contrast to the gender of rice farmers, the caterers are females. Inferring from the statistics, majority of GSFP caterers are engaged in other forms of employment and from the survey data, some of them are regular public service employees especially those in Tamale metropolis with very few number engaged in the catering services only. Majority of the caterers are also adults suggesting that they could cope with the physical requirement of the catering activities and be able to do effective bargaining in procurement. Heckler et. al. (1989) have shown that adults transfer such skills to teenagers in the family setting and this has been identified as the primary socialization agent for each new generation. That socialization process includes the development of a large set of skills and knowledge relevant to acting as consumers or buyers in a complex marketplace. Unlike the farmers the caterers have undergone more years of formal education. About 72% of them have obtained formal education from 7 and up to 15 years (from Junior High School to Tertiary level). This could be the reason for majority of them being in regular full time employment.

3. Analysis of GSFP caterers Procurement of rice

Table 4 below illustrates price and cost analysis based on 2011 estimates. The table virtually illustrates the cost benefit analysis of the GSFP caterers' procurement from the various sources of supply. From the survey data the average annual² consumption of paddy rice from farmers in the study districts in 2011 was 56,858.1kg. Total milled rice consumed was 142,144kg and out of this figure, 68 percent came from local millers and the rest from retailers. Comparing the prices and quantity levels, the procurement costs from the various sources have been estimated and the overall cost by the GSFP stood at GH¢ 209,167.60 (at farm gate, local miller and retailers prices). However if the GSFP caterers were to buy all the rice from the farmer the total expenditure would have been GH¢167,163.66

² An average of 195 school days in each academic year

Characteristic		Tamale Metro	Tolon-Kumbungu	Karaga	Total
Gender	Male	60	20	20	100
	Female*	0	0	0	0
	Total	60	20	20	100
Age (Years)	20-40	36	11	7	54
	41-60	20	9	13	42
	61 and above	4	0	0	4
	Total	60	20	20	100
Education (Years)	0	57	15	19	91
	1- 6	0	2	0	2
	7-14	3	3	1	7
	15 and above	0	0	0	0
	Total	60	20	20	100
Household size	0 ≤10	49	8	14	71
	11 ≤20	5	10	5	20
	21 ≤30	4	2	1	7
	31 and above	2	0	0	2
	Total	60	20	20	100
FBO Member	Yes	27	15	6	48
	No	33	5	14	52
	Total	60	20	20	100
Crops grown	Rice (only)	39	10	17	66
	Rice (major)	9	7	1	17
	Rice (minor)	12	3	2	17
	Total	60	20	20	100

* Female rice farmers were excluded in the sampling frame because of the purposive nature of the sampling technique used. Rice farmers who lived in a GSFP community were those selected.

Source; from survey data - December 2011

Table 2: Characteristics of rice farmers – categorical (% of farmers).

Characteristic		Tamale Metro	Tolon-Kumbungu	Karaga	Total
Gender	Male	0	0	0	0
	Female	30	10	10	50
	Total	30	10	10	50
Income Sources	Catering Only	8	2	1	11
	Catering Major	14	4	5	23
	Catering Minor	8	4	4	16
	Total	30	10	10	50
Age (Years)	18 ≤25	0	1	2	3
	26 - 40	17	8	8	33
	41 and above	13	1	0	14
	Total	30	10	10	50
Education(Yrs)	0	2	0	9	11
	1 - 6	3	0	0	3
	7- 14	23	9	1	33
	15 and above	2	1	0	3
	Total	30	10	10	50

Source: from survey data December

Table 3: Characteristics of GSFP caterers- categorical.

Source	Price (GH¢)	GSFP Consumption (Kg)	Procurement Cost (GH¢)	
			Others sources	From Farmer
Farmer: per bag (80kg)	50.50**	56,858.10	47,525.80	47,525.80
Local miller per 60kg* milled	65.00	96,230.00	104,249.17	80,993.58
Retailer (per 60kg milled)	75.00	45,914.00	57,392.63	38,644.28
Total		199,002.10	209,167.60	167,163.66

*Conversion ratio (80kg paddy = 60kg milled)

** Including processing cost of (GH¢) 5.50

Source: from survey data December 2011

Table 4: Comparative analysis of caterers' sources of rice supplies in 2011.

Explanatory Variable	Coefficient	Std Err	Prob	Marginal effects
Constant	-12.896	6.531	0.048	-
Processing cost	-0.002	0.004	0.629	-
Distance from market	0.048	0.152	0.752	-
Storage facility	2.416**	1.053	0.022	0.927
Price of milled rice	0.082**	0.036	0.024	0.044
Pupils population	0.008**	0.004	0.020	0.004
Other Jobs	-2.376***	0.690	0.001	-0.986
Easy farmer Location	3.040*	1.587	0.055	0.918
Delays in GSFP bursar	-0.105*	0.063	0.097	-0.424
Yrs of Education	-0.407	0.743	0.593	-
Dependent Variable;	Caterer buys from farmer or not (1= Yes, 0 = No) (N= 50)			
Log likelihood	-9.132116			
Wald chi2 (8 df)	29.22		*** significant at 1%	
Prob	0.0003		**significant at 5%	
Pseudo R ²	0.7353		*significant at 10%	

Source: from survey data December 2011

Table 5: Results of factors influencing GSFP caterers to buy rice from local farmers.

and government would have saved GH¢ 42,003.94 (about 20% of the total procurement cost from other sources).

4. Factors influencing GSFP Caterers to buy rice from local farmers

Table 5 presents the estimated results from the Probit model showing GSFP caterers' willingness to buy rice from local farmers. The LR statistic of 29.22 and a p-value of 0.0003 were reported suggesting that the whole model is statistically significant at 1 percent. The Pseudo R-square value of 0.7353 implies about 74% of the variation in the dependent variable is explained by variations in the explanatory variables. All the estimated coefficients had the expected sign. However the estimated coefficients that were not statistically significant

include processing cost of paddy rice, distance between the caterer and market and, the years of caterers' formal education. The negative signs for other jobs done by caterers and delays in feeding bursaries variables support the hypothesis that the probability that a caterer will choose to buy paddy rice from the farmer would decrease if the caterer has other jobs or if there are more delays in the release of feeding bursaries. If caterers have other jobs, they would not want to add rice processing to their income generating portfolios hence the desire to buy paddy rice from the farmer will decrease. On the other hand delays in the release of feeding bursaries to the caterers do not allow them to purchase from the farmer especially during rice harvesting season and more so as a result of some farmers

unwillingness to sell on credit. The coefficients with the positive signs support the hypothesis that the probability of a GSFP caterer choice to buy local rice from the farmer increases as price of milled rice which is a substitute to paddy rice increases or as more storage facilities are available to the caterer, or as the number pupils handled by the caterer increases, or if there is a high probability of a caterer locating the rice farmer easily.

The marginal effect for the 'other jobs' variable suggest caterers who have other jobs are about 1% less likely to buy paddy rice from farmers. This is possible because the caterer may not have enough time to process and mill the paddy rice relative to another caterer who is doing the catering as the only job. Similarly, a caterer who has a storage facility is also 1% more likely to buy paddy from farmers while a cedi increase in the price of milled rice increases the probability of caterers' choice to paddy rice from the farmer or farm gate by 0.044%

Conclusion

1. Conclusions

Rice farmers across the study districts do not have direct access to the Ghana School Feeding Programme as about 88% of GSFP caterers buy milled rice from local millers and other sources than paddy rice from local rice. This is largely due to the fact that 29 out of the 50 caterers have other jobs aside the catering services and therefore do not want to add rice processing to their income generation portfolios. Another factor that hinders farmers' accessibility to the GSFP market is delays in the release of feeding bursaries to caterers.

Factors that encourage the GSFP caterers to buy local rice from the farmers include, larger number of pupils being fed by the caterer, persistent increases in the price of milled rice, the existence of storage facilities in the GSFP schools and easy location of rice farmers. These point to a need to facilitate increasing economies of scale for caterers; large numbers of pupils, storage for stocking, and proximity of farmers.

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2. Policy recommendations

The recommendations are direct measures that can be executed to strengthen the relation between farmers and caterers, increase local purchase and make the situation for the market relation between these two groups more favourably .

In order to facilitate easy farmers' access to GSFP market, the GSFP secretariat and government for that matter should contract caterers on permanent basis focusing on those who can spend their time and energy to buy local foodstuffs including paddy rice directly from farmers. The disbursement of feeding bursaries should also be timely such that it coincides with the harvesting or peak period when prices of foodstuffs including rice are generally low. In this regard, it may also be possible for the government to assist caterers to obtain loans from banks in order to meet their demand schedules.

Government should support rice farmers by creating the necessary environment to make accessibility to the GSFP market more easily. This can be done by enlisting all farmers in the GSFP communities across the country and their detail submitted to caterers. A procurement manual detailing the procurement process which focuses on buying foodstuffs from farmers should also be initiated and a monitoring system developed to check compliance. The target farmers can be supported with credit facilities, fertilizer subsidy and other inputs to help increase their output and yield.

The GSFP Supply chain can be shortened if caterers buy rice directly from the farmers. This can be possible if government in collaboration with the Ghana Education Service provides adequate storage facilities in all GSFP schools. With this, caterers will not have much problem stocking paddy rice which they can buy from farmers. The list of all rice farmers in GSFP communities will assist caterers to locate farmers easily. From the literature caterers are assisted by cooks to provide food for the pupils. It is therefore possible for a caterer to handle more than a school so as to increase the number of pupils under her control.

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