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**Promoting formal urban agricultural based organisations in the
Greater Accra Metropolitan Area of Ghana: What factors influence
choice?**

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Promoting formal urban agricultural based organisations in the Greater Accra Metropolitan Area of Ghana: What factors influence choice?

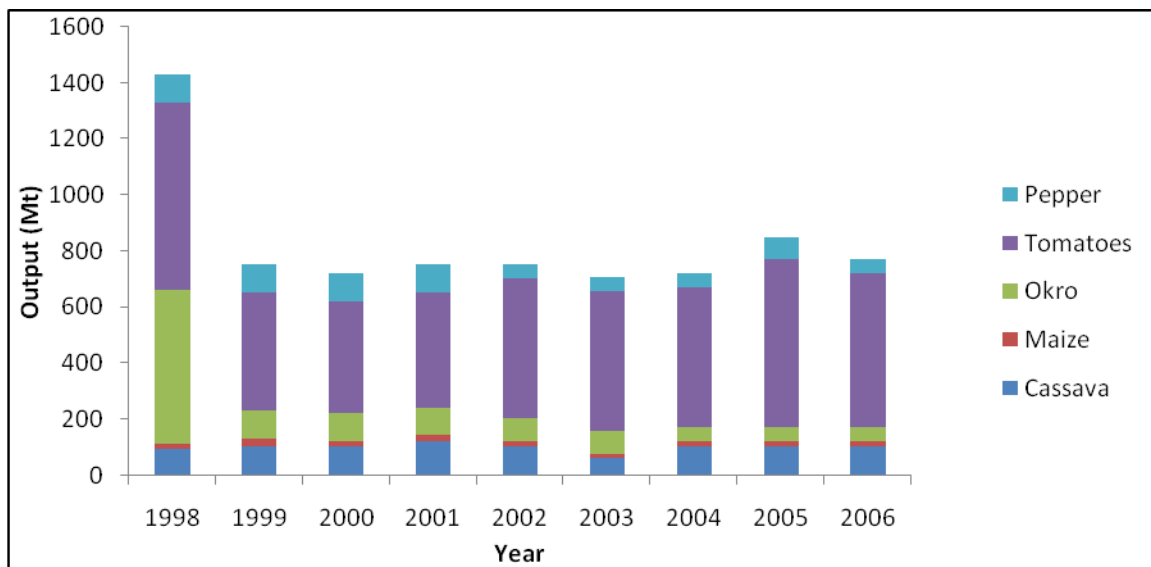
This study uses data from a survey of 326 members of agricultural-based organisations in the Greater Accra Metropolitan Area of Ghana to model choice of formal organisation. People engaged in farming, and who perceive that they would reduce production and marketing risk, increase commodity sales and profits, reduce costs, improve rate of performance and can have a high level of trust for the members and leadership of the organisation were more likely to join formal organisations. These are the tangible benefits that members of formal organisations will require to commit. The study reiterates the necessity of appropriate role sharing and cooperation between the various government, non-governmental organisations and patrons for the success of formal agricultural-based organisations in urban centres.

Key words: Urban agriculture, producer organisations, logit model

1.0 Introduction

Urban populations are growing, thus getting its agriculture empowered to contribute more to urban livelihood is needed. Ghana's Food and Agricultural Sector Development Policy (FASDEP II) recognizes the role that urban agriculture (UA) could play as a 'sustainable alternative means of livelihood for poor migrants engaged in it' (MoFA 2007:27). Urban poverty is currently estimated at 10.8 in Ghana; that of the Greater Accra Metropolitan Area (GAMA), consisting of two major cities, has increased from a low of 4.4 in 1998 to 10.6 in 2006 (GSS, 2007). Recent statistics on major local crops suggest that further boost in city agriculture is required as trends show irregular growth (figure i).

Figure i: Production of selected crops in the city of Accra, 1998-2006



The major constraints have been listed as inadequate policy support, inadequate knowledge on pest, disease, feed and water management techniques, inadequate access to credit and high cost of transportation (Obuobi et al. 2006). The required strength of resource-poor (or low-income) individuals in bargaining with authorities for policy measures, and other groups is thus watered down. It has been proposed that a major strategy for promoting UA is to ‘ensure that operators of urban agriculture are reached with needed information technology and input through farmers groups’ (MoFA 2007:33-39). Mere grouping is necessary but formal grouping is the sufficient condition. The belief is that formally organizing the people engaged in the UA enterprises (farm and non-farm) to have more formal alliances will improve their bargaining power (Adams and Goldsmith, 1999; FAO, 2006). The power that farmers gain will allow them to improve access to information on good agricultural practices and client requirements in general and pool resources to ease access to capital inputs, including improved technology (Bosc et al. 2001).

Farmers are not the only agricultural producers who need to organise into associations; other input dealers for feed, chemicals and water as well as processors and traders of the output are needed. The power that non-farm urban actors gain by being in formal groups would also allow them to improve access to information on managing stocks, proper product packaging and handling and farmer characteristics and expectation (USDA, 1990; Pickney, 2008). It ultimately leads to reduced transaction cost, thereby increasing net margins and the asset accumulation. In addition, the strong group would be a force to reckon with increasing the ability to lobby and effect changes in policy that would be better disposed to them (Hussein 2001; Cofie et. al. 2007) and the ripple effect

in terms of access to services, on the communities in which they reside could be numerous (Pickney, 2008). The democracy that formal producer organizations (or cooperatives) could foster has been demonstrated in many communities in the west (Haskell, 2004).

What would make UA producers participate in farmer-based organization, particularly formal ones, becomes an issue. In 2005, a study by the Food and Agriculture Organisation (FAO) in ten citiesⁱ in the developing world showed there is correlation between formalisation and performance of associations. For the Ghana case, it was observed that those associations who had registered with government's Department of Cooperatives or the Registrar Generals' Department had better access to technical information and assistance from extension agents and other non-governmental organisations. It means that certain tangible and benefits are important determinants of participation in formal organisation. Further analysis of the structure and conduct of the urban agro-based organisations and the determinants of choice of formal associations have been made. This paper presents the results and clarifies the necessity of appropriate role sharing and cooperation between government, non-governmental organisations and patrons for the success of formal producer organizations. Governmental agricultural development units (ADUs) in all urban areas are called upon to do more, for, if the current rising incidence of urban poverty would be halted and turned around agriculture's role would need to be intensified and the place of farmer-based organizations should be highlighted.

The rest of the paper is organized into five sections: overview of agricultural production in the GAMA; Brief on structure and conduct of producer organisations; the methodological approach; the data collection; results and discussion; and conclusion.

2.0 Overview of agricultural production in the Greater Accra Metropolitan Area

Agricultural production covers farming and post-harvest activities. In the Greater Accra Metropolitan Area men dominate farming activities that include irrigated vegetable farming, livestock keeping, ornamental production, seasonal food crops (maize and cassava) farming, fishing and non-traditional farming (snail, grass cutter, beekeeping and mushroom production) (see also Asomanin-Boateng, 2002; Amar-Klemesu and Maxwell, 1998 and Cencosad, 1994). Food processing and trading (particularly retailing) are the post harvest activities dominated by women. Most of the farmers, processors and traders learn by doing. Training programmes were occasionally organised by government's agricultural services directorate and non-governmental organizations (NGOs). The Heifer International Ghana is one key NGO which facilitates training of small animal farmers (including ruminants and Grasscutter). The Livestock Development Programme and the Women in Food and Agricultural Development, of the Ministry of Food and Agriculture, also supported training in processing of yogurt and soy products.

Apart from knowledge, urban agricultural producers' need of physical resources such as land, water, labour and capital items is well understood. Land in the GAMA has economic value; the fees for leases are high since demand for residential use is high. Hence, many people who want to engage in crop farming (outside of their own yard) squat on yet-to-be developed open spaces, after informal agreement to vacate land with

land owners. It means that such farmers need to be in viable groups to negotiate favourably with land lords. Livestock raising is usually in farmers' own backyards and many processors operate from home or use spaces along major roads. Water for agriculture is also scarce in the GAMA, in that the area lies in the coastal savanna zone and receives annually, 810 mm rainfall in 80 days (Obuobie et al, 2006). Without a well organised group farmers cannot pressure government to provide well organised irrigation facilities or finance borehole drilling, pumps and drip irrigation. Since treated water supplied by the Ghana Water Company and other retailers is deemed expensive some vegetable farmers use untreated waste water during the dry season.

The labour market is well developed but agricultural labour is also perceived expensive, ranging between GH¢0.70 and GH¢1.00 per bed for weeding or transplanting operation. Farmers and processors tend to compliment hired labour with own labour and that of families and friends, often for in-kind rewards. Capital in the form of funds, tools and equipment, feed, improved seed and agrochemicals/veterinary drugs are available, but too expensive for most urban farmers to invest in. As a result some farmers produce under unhygienic (weeds and other insect pests and diseases) conditions and use under recommended rates of agrochemicals and veterinary drugs. With formal associations, the binding function of education and assurance of pure unadulterated produce will result.

There is a legal framework for urban agriculture in Ghana; it is its widespread knowledge among urban farmers and its enforcement that has been questioned. For instance, there is the national land policy, *'which prohibits any activity, including agriculture, within drainage reservations (area within 100 m away from water bodies). The penalty for offenders is a fine not exceeding 200,000 cedis [US\$22.00] and/or six*

years imprisonment’ (Obuobie et. al., 2006: 128). Again, the metropolitan assembly bye law states that:

‘no person shall keep any swine, cattle, sheep or goat within the area of administration of the GAMA and without a permit issued by the GAMA for that purpose which shall be determined in accordance with the fee-fixing resolution’.

In the case of the ‘growing and sale of crops bye-laws (1995)’:

‘no person shall grow crops at a place other than on land within his premises unless he/she has registered with the medical officer of health furnishing his/her name and address and the description of the site where the crop is to be grown. No crop shall be watered or irrigated by the effluence from a drain from any premises or any surface water from a drain, which is fed by water from a street drainage. No person who has a discharging wound or sore or symptoms of any infectious disease shall take part in the growing or sale of crops. Also no crops shall be sold, offered or displayed for sale at any other place than in a market, stall, store, or kiosk. No crop declared unfit for human consumption shall be sold, offered or displayed for sale as human food. A person who contravenes this bye-law commit an offence and is liable on summarily conviction to a fine not exceeding hundred thousand cedis [US\$111] or in default of the payment of the fine, to a term of imprisonment not exceeding three months or to both’.

Without farmers and traders of urban agricultural produce assuring food safety, the media tends to voice out the negative activities of city producers, no matter how occasional the occurrence may be. Such reports yield mixed results; there are occasions when low patronage of urban vegetables have resulted.

3.0 Brief on structure and conduct of producer organisations in GAMA

Some of the individual actors in the urban agricultural sector have had to cooperate to learn and change attitudes. In addition they have called for structures that help adhere to the byelaws. These associations are either formal or informal. The formal organizational structure and conduct involve: legitimization (formal registration) with the Department of Cooperatives or the Registrar Generals’ Department, adequate

size of membership (20 or more), open membership, democratic control, joint assets and or stock, functional organizational structure and book keeping and accounting. The cooperatives registered with the department of Cooperatives (of the Ministry of Manpower, development and Employment) have to float shares, distribute savings according to patronage, educate members, ensure pure and unadulterated products, enforce regular meetings and foster linkage with external support institutions.

All the formal organizations encountered in this study met the minimum requirements: each had a constitution that specified meeting times, role of executives, responsibilities of members, dues and other fund raising (Appendix i). All of them were also linked with governmental and non-governmental development partners. However, only two (the Grasscutter cooperative societies) had adhered to the shares floating arrangement. The rest raised funds by only contributing membership dues (mode GH¢1.00/month). They all had elected leaders (chairperson, vice chairperson, treasurer, and secretary), fixed meeting dates and planned programmes. The programmes concerned general welfare discussions, seminars on accessing credit, training in good agricultural practices and seeking ways of external linkage.

The informal organizations were not registered with any government department; leadership was not always democratic; those who organise serve as interim leaders and continue till as long as there is no call for change. Patronage of association activities was low in that people attended meetings when there was beneficial information to be received. The information usually bothered on financial contributions to be made for social welfare gain (bereavement, marriage or child birth) or opportunity to link with financial support institutions. Such groups, unlike the formal do not strive for adequate

internal capacities, legitimization, external linkages, information channels, self-reliance and group dynamics, resources and capacity to manage growth.

4.0 Methodological approach

Urban agriculture is defined by this study as the practice of agriculture (including crops, livestock, fisheries, and forestry activities) within or surrounding the boundaries of cities for income-earning or food-producing activities. The farmers and fishers relate to other actors who supply inputs or distribute output. Hence, agricultural based organization is defined broadly to include those voluntary membership associations that have members who supply inputs to farms, cultivate crops, raise livestock (including poultry and fish), process food and/ or trade in finished food products. In the Greater Accra Metropolitan Area of Ghana, actor groups including water venders, agro-chemical/machinery dealers, food/non-food crop farmers, livestock keepers, fresh produce traders and processors were targeted (Appendix i).

Since the organizations were voluntary, sustaining their existence and performance would depend on membership patronage and the benefits members gain. Indeed, basic principles of economics suggest that economic efficiency results only where there was pure competition, allowing neither collusion among individual enterprises nor interventions that restrict entry and information or resource flow (see McConnell and Brue, 1999). It means that group formation will not achieve efficiency in the market. It would only serve the interest of members of the group. Hence, Parkhe (1993) observed that members of organizations would be consistent patrons if only they

see decreases in transaction costs, increases in flexibility, increase in knowledge and decreases in business risk (including that for production and marketing). Adams et al. (1999) also contended that where the alliances among the individuals in an organization are a fuzzy one (loose or without formal contract) it is only through trust that the advantages of cooperation can emerge. In an earlier study, Hill (1990) showed that, overtime actors whose decision rules stressed cooperation and trust, rather than opportunism came to dominate the population of players in a cooperative. Such actors first assess their own businesses in terms of motives and preferences to determine the optimum governance structure it wants to belong to (Hill, 1990; Adams et al. 1999). Individuals (or firms) would determine the optimum governance structure by considering the type of alliances available with respect to its attributes, viz., provision of tangible assets (physical assets and human resources), intangible assets (shared knowledge or data) or both (Adams et al. 1999).

By deduction, it can be argued that effective urban agricultural based organisations will be possible where groups that emerge strive for adequate internal capacities, legitimization, external linkages, information channels, self-reliance and group dynamics, resources and capacity to manage growth (FAO, 2007). These factors contribute to the trust building and reduction in transaction costs required by such alliances. If we thus assume that formal organizations are characterized by the governance structure that improves tangible assets and trust building, then an empirical model will be used to characterize the governance choice decision for individuals and to determine some of the important motives. In order for an individual urban agricultural actor to effectively determine the group to belong to, formal or informal (optimum

governance structure) it must not only assess his/her own enterprise characteristics but also the appropriateness of the (formal or informal) organisation, given the transaction involved. For any particular individual some structures are more appropriate than others. To belong to a formal organization then is a choice function.

Empirically, the best statistical model would be one that captures the discrete choice of the decision maker. A multinomial logit model (MNL) is most often used in areas of study where researchers are investigating decision choices of individuals (Ben-Akiva and Lerman, 1985) and when the dependent variable is believed to be discrete, nominal or random (Liao, 1994; Green, 2003). For the current study, the objective of the model is to determine the governance choice, in terms of the type of group joined based on individual actor characteristics. The dependent variables are group types and the independent variables are group attributes. The dependent variables used in this analysis were: 1) formal organizations (FO) and 2) informal organizations (IFO). Since the dependent variable takes only two categorical values, (0,1) a simple logit is modeled.

A formal organization is a group (an alliance) where the partners utilise both tangible and intangible assets that are jointly held. The agreement is held together through the use of a constitution (contract) and tangible and intangible measures of success are used; a tangible measure such as return on investment (ROI) is used. Adams et al. (1999) calls a group with such characteristics a mixed alliance (MA) since it combines characteristics from both a tangible asset-based alliance (TAA) and an intangible asset-based alliance (IAA) giving it a hybrid nature. In terms of the survey, those respondents who defined the motives of joining a group as: to decrease costs and risk, share assetsⁱⁱ, physical resources, receive training, receive credit, penetrate a new

market, increase market share, conduct R&D, coordinate marketing or human resources were coded in the binomial model to be formal organizations. In an informal organization physical assets are not a feature of the alliance. Instead, it is based on shared assets such as shared knowledge only. In terms of the survey, those respondents who defined the motives of joining a group as either: reduce risk of non-recognition by authority, penetrate a new market, secure space, or to increase social welfare, were coded in the binomial model to be informal groups. The empirical model created for this study is shown below (Equation 1).

Pr (FO) =

$$\alpha + \beta_1 Farm + \beta_2 Trust + \beta_3 Profit + \beta_4 Risk + \beta_5 Cost + \beta_6 Rate + \beta_7 Know + \varepsilon \quad (1)$$

where:

FO = Formal organization

Farm = The organisation is either farm or non-farm based.

Trust = The level of trust displayed in the group.

Profit = Satisfaction with the organization related to increasing sales and profit.

Risk = Satisfaction with the organisation related to decreasing business risk.

Cost = Satisfaction with the organisation related to decreasing costs.

Rate = Performance of the firm, after joining organization, as compared with other individuals in the same sector.

Know = Knowledge by the producer of the existence of groups in the same enterprise.

Hypotheses

From the theoretical model a set of hypotheses have been established reflecting the relationship between individual actor and organizational characteristics and the probability of selecting a formal organisation.

The independent variables were:

1. Whether or not the organization was farm-based or non-farm based (Farm). This variable addresses the question of knowledge level between group members, where farmers are more likely to share identity than non-farmers. Hypothesis 1: Farm-based groups (HFarm) would be positively correlated with FOs. This is also supported by Egyir et. al. (2006) who found that formal groups in Accra were likely to be farmers, while informal groups were likely to be traders. Farmers needed to lobby authorities not to strictly enforce bye laws and company policies that prohibit farming on unused or restricted areas; others ought to be in performing groups to receive technical information and assistance from recognized development partners.
2. The level of trust present in the organisation (Trust). This was a direct question as to the role that trust played in one's satisfaction with the group. Hypothesis 2: trust (HTrust) was hypothesized to be positively correlated with FOs. This was surmised as FOs do not use only constitution (or contracts) to enforce the alliance. Trust was believed to be prominent in this relationship; unlike rural communities, urban communities are made up of migrants from diverse backgrounds. Generally, unfamiliarity breeds suspicion; it leads to stereotyping and

misunderstanding. Leadership integrity and relationship with recognized authorities improves trust and the confidence that the group members need to sustain their commitment.

- 3-5. Whether or not satisfaction with the alliance was related to increasing sales and profit (Profit), or reducing risk (Risk) and costs (Costs). These variables addressed the level and role of calculable and specific measures as critical to being in an organisation. Informal (and loose) organizations are fuzzy alliances and are by definition based on intangible goals often allowing each member to value the benefits of the alliances individually while formal (strategic) alliances allow each member to value the benefits individually as well as jointly. Hypothesis 3-5: increasing sales and profit (HProfit), decreasing risk (HRisk) and decreasing cost (HCost) are ways in which individuals measure the success of alliance (see also Adams, 1999). Profit is highly measurable and as such was hypothesized to be positively correlated with FOs. Risk is an intangible measure of success but its reduction is critical to the survival of urban agricultural actors thus it was surmised to be positively correlated with FOs. Joint acquisition and use of tangible assets as well as negotiation reduces both governance and production costs and is measurable; thus it can be hypothesized that cost (Cost) variable should be positively correlated to FOs.
6. How the performance of the individual compared to other individuals in the same sector (RATE). Hypothesis 6: rate, (HRATE), was expected to be positively correlated to FOs, as the attribute is related to measurability and more likely to be used by formal organizations which have tangible assets.

7. Whether formal organisations were a common strategy in the urban agricultural system; as measured by the knowledge of the individual of the existence of similar organisations (Know). Hypothesis 7: the standard knowledge (HKnow) was predicted to be positively correlated with FOs. This is because individuals with a greater understanding of formal organisation in their industry may be more partisan about following suite. Adequate knowledge of perceived benefits improves cooperation (Siegrist & Cvetkovich, 2000). Cooperators become less comfortable with, the informal non-committal, minimum-trust-based governance structure. FOs require more commitments of funds, time and energy of members and gives more tangible benefits to members. A positive relationship was expected between Know and FOs.

5.0 Data collection

The data used for this study was collected from a survey of thirty agricultural based organisations in the Greater Accra Metropolitan Area of the Greater Accra Region of Ghana (see list in Appendix Table i). The researchers used a survey to contact farmers, traders, processors and service providers in the GAMA about their involvement with producer organisations. The total number of observations, 326 was dependent on targeting a minimum of 10 individuals in each of the 30 producer organizations. Initial focused group discussions with the organizations helped to understand elements of structure, conduct and performance. The structural elements related to formal registration, numerical strength, openness of membership, democratic control, access to assets and markets and functionality of organisational structure. The conduct elements

related to provision of shares, sharing savings, education of members, regular meetings and linkage with external support institutions. The performance elements related to use of improved technology, adequate savings with financial institutions, reduction in transaction cost and positive net margin of members.

A semi-structured questionnaire was then employed in the face-to-face interviewing of individual members who were selected randomly based on willingness to respond to questions at time of interviewing. In addition, the researchers attended monthly meetings organized by some (20%) of the associations to observe proceedings and have a better understanding of some of the assertions made during the group discussions. Since there is no formal statistics on urban agricultural based organisations in Ghana, the selection of the organizations was purposive, based on a list provided by the Metro Department of Cooperatives and Metro Department of Agriculture and also through snowballing, where organizations interviewed pointed to others they were aware of.

With binary scoring, each individual scored one if it was satisfied with the organisation it belonged and had high level trust in describing characteristics intergral to their satisfaction of the organisation; it scores zero otherwise. Respondents were asked whether sales and profit had increased, risk had been reduced and costs (transaction and production) had been decreased, as compared with before joining the organisation and when compared with other individuals in the same enterprise who were not in any organisation. They were also asked about their knowledge of organizations in the sector. The limitation of the study lies with the non-probability sampling method employed.

However, since official statistics is limited in its documentation, we take any biases for granted.

6.0 Results and discussion

6.1 Background of respondents

The results of the frequency analysis showed that about 50 percent of the respondents were involved in formally registered organisations and 50 percent were involved in informal organisations. The respondents were mainly farmers of livestock (27%) and crop (24%) produce; others were food traders (23%), processors (13%), and input dealers/service providers (13%). Of the cases studied, 47 percent said their organisations were very functional because they had regular meetings (minimum of six a year); 57 percent of respondents were satisfied with the results of the alliance. Some 63 percent of the respondents selected a high level of trust and 37 percent a low level of trust when describing characteristics integral to their satisfaction of the group. When asked what performance criteria best illustrated the respondents' satisfaction, 52 percent said sales and profit had increased, 64 percent felt that risk (due to ejection and market accessibility) had been reduced and 48 percent said that costs had been decreased. Rating the performance of the firm after joining an organisation, as compared with before the alliance, 82 percent felt overall performance had improved and 18 percent found that there had been no change. When compared with other individuals in the same enterprise after the alliance, 65 percent thought their performance levels had improved and 35 percent felt there had been no improvement. When asked about their knowledge of other

groups in their sector, 72 percent had previous knowledge of groups in their industry, and 28 percent did not.

6.2 Logit model results

6.2.1 Goodness of fit and coefficient estimates

In this study the empirical model was evaluated using two types of tests, goodness of fit (GOF) and coefficient estimates. The GOF tests, of which three were used, evaluate the overall performance of a chosen model. The three tests used were: 1) predicted outcomes; 2) pseudo R^2 ; and 3) chi-square. In terms of predicted outcomes the model had a 65 percent accuracy rate. The pseudo R^2 for this model was 0.55. Finally, a chi-square test was conducted to test whether or not all coefficients simultaneously equal zero. The pseudo log likelihood functionⁱⁱⁱ was 101.97. For this model ($\chi^2 = 77.07$; $p < 0.01$) the alternate hypothesis, which states that at least one of the predictors has a significant impact on the logit, is accepted.

The second evaluative measure of the performance of the model was to analyze the coefficient estimates. Two coefficient estimate tests were used in this study: 1) a global test for predictors and 2) the t -statistic. The global test for predictors was used to determine if any particular predictor has an effect on the logit. The marginal effects were also determined. When the predictors were tested individually, all but trust were significant at 0.01 level. Although trust was not significant at the 0.10, level it was significant at the 0.11 level of significance. Thus, these variables have a significant impact on the dependent variable. A t -test was used to determine the significance of the relationship between the independent and dependent variables. We take it that, if the sign

of the coefficient estimate is positive, the independent variable positively influences formal organisation choice (Liao, 1994). The results of the logit model are shown below (see Table i). Consistent with the hypothesis, and significant at the 0.01 level, the variable FARM is positively correlated with formal organization. Indeed, in the GAMA it is security of land for farming, receiving technical information and assistance and the possibility of countering negative press that drive people to cooperate.

Table i: Results of logit model

Variable	Coefficient	Robust SE	Marginal Effects
Farm	2.826*	0.444	0.572
Trust	0.464	0.345	0.107
SP	3.156*	0.481	0.631
Cost	2.159*	0.405	0.453
Rate	1.332*	0.418	0.319
Know	-1.657*	0.403	-0.321
Risk	1.243*	0.369	0.288
Constant	-4.454	0.596	-
<hr/>			
Number of cases	326		
Pseudo log likelihood	101.97		
Chi-square	77.07		
Pseudo R-square	0.55		
Percent correctly predicted	0.65		

With formal organization, farmers are able to link up with advocacy groups such as the Accra Working Group on Urban and Peri-urban Agriculture (AWGUPA)^{iv} that has created a platform for all stake holders in the sector to step up the education of producers and the general public and is pushing for the formulation of a specific policy for urban agriculture (AWGUPA, 2006).

The sign on the estimated coefficient indicates that sales and profit were positively correlated with formal organization. This is consistent with the model, where satisfaction due to sales and profit performance was more associated with groups that require contribution for provision of tangible assets. The likelihood of increasing sales and profits by joining a formal organization would increase by over 60 percent. Indeed, formal organization respondents increased sales and profits by an average of 30 percent. New knowledge helped increase yields, expand fields (or number of animals), sell more in new space provided or supply higher quality service for higher fees. Cost was positively correlated with formal organization. It suggests that where the cost of production would be reduced due to joint asset holding, or free information or use of relevant and timely information to avert loss, producers would opt for formal organizations (see also coopscanada.com). The cost reduction was estimated at an average of 10 percent (inflation was not considered during the evaluation; cost reduction could be higher if inflation was catered for). Results of marginal effect suggest that the likelihood of reducing cost when one joins a formal organisation was 45 percent.

Reduction in risk is also positively correlated with formal organisation. The results show that risk reduction is seriously considered by those who make a choice of formal organizations. Indeed, formal organizations such as the Ablekuma Grasscutter

Farmers Cooperative Society (AGFCS) and Ga Adangbe Pig farmers Cooperative society (GAPFCS) have been assisted by the Heifer International (an NGO) to put up a Learning Centre where knowledge sharing is being facilitated by ‘master trainers’ sponsored by Heifer International and other NGOs such as the German Technical Cooperation (GTZ). Farmers who buy shares and pay dues consistently receive subsidised training and free animals to start their small animal business or hobby. The risk of poor knowledge and difficulty in gaining access to starter animals is reduced in this case.

Empirically, rate is significant at the 0.10 level, and it is positively correlated with formal organizations. People who join formal organizations need to see that their enterprise performance is better than those in none. When asked about the success of their ventures before and after associating with groups, 82 percent said the venture was doing better than before associating with their groups. The gains have not only been monetary; for instance, the Dzorwulu Vegetable Farmers Cooperative Society (DVFC) has been supported by the International Water Management Institute (IWMI), a research-based NGO, to participate in a video programme that showcases some best and worst practices in urban vegetable farming. Linkages with local and international development partners also come with guarantees for credit and a favourable disposition to the public. Members of the Nungua-Zongo Livestock Farmers Association (NZOLIFA) benefited from micro loans and community animal housing under the Agricultural Services Sub-Sector Improvement Programme (AgSSIP)^v funded Livestock Development Project.

Knowledge was used as an industry standard to determine if formal alliances were so prevalent as to be common. It was hypothesised that individuals involved in formal organisations were more likely to have information about their sector due to the nature of

the alliance. Knowledge was significant but negatively correlated with formal organisation, hence positively correlated with informal organisations. Although formal organisations are open membership, it requires initial funds commitment. That may be the deterring factor. For instance, members ought to pay membership fees, monthly dues and special contributions to cater for administration and organising. It was estimated that an average of GH¢450.00 (approximately US\$4.50.00) was needed in the first year of legitimisation and proper organising of a formal organization (Table ii). Informal organisations do not bear any administration and organising cost; meetings are irregular and there may only be contributions towards social welfare gain which is rotatory action.

Table ii: Estimation of cost of formal organisation of agricultural based' organisations in Accra (2007)

Activity	Cost (GH¢100)
Registration arrangements and fee	50
Bookkeeping and administration	120
End of year auditing of books	5
Monthly executive and general meetings	10
Special activities (skill training, seminars, Field visits- 3x per annum)	150
Miscellaneous	100
Total	435

Thus it is likely that when the cost of legitimisation and belonging to a formal organisation is minimum many informal organisations would cross over or more individuals would choose formal organisations. Otherwise knowing that informal organisations require minimum monetary and human resource is a motivation to stay with the informal.

About 57 percent of the respondents selected a high level of trust; the coefficient is positive as expected although significant at 11 percent. We take it that, because risk is high in transactions that are not fully contractual, high levels of trust are not only sufficient; they are also necessary (Ring and Van de Ven, 1992:492). People who are called upon to commit funds, time and energies want assurance of honesty; they expect to see people (particularly leaders) act ethically and they expect personal and tangible gains in strategic alliances. . In the survey, a voice from the focus group discussion intimated: *“I cannot trust my money to anybody; many of the people in the processed produce trade have migrated here like me and may be in business temporarily”* (Mama Akos, a plantain chips processor). Others were worried that: *‘leadership in all trader-based associations in the markets is undemocratic because the leaders call themselves Kings and Queens and are not subject to change even when they became ineffective’* (Nana Yaw, member, *Exotic Vegetable Sellers Cooperative Society, Agbobloshie*).

6.0 Conclusions

Urban agriculture is a growing phenomenon in the Greater Accra Metropolitan Area. As such, the institutional frameworks that support its growth need to be well understood in order to boost its sustainability. Formally organising the people engaged in the enterprises have been called for, yet the factors that influence people to select a formal or informal organisation has not been adequately documented. This study presented the results of a study carried out to assess the situation of low-income urban producers’ organizations and factors affecting individuals’ choice of formal organization in the GAMA. A total of 326 respondents from thirty low-income agro-based groups

were interviewed using a questionnaire that tracked the effect of individual and organisation attributes on the choice of organization. Conclusions were based on a logit model.

It is shown that there are as many formal as informal urban agricultural based organisations in the Greater Accra Metropolitan Area. The non-farm organisations were slightly more than the farm-based organizations. The model demonstrated that a discrete choice or managerial decision is in fact being made as to choice of organisation. From survey summary statistics and the results of the logit it is clear that when individuals think about association, especially, formal organisations there is a continued reliance on traditional governance and evaluative measures, i.e., increasing sales and profit, reduced costs, and performance comparisons with the rest of the industry. Adams et al. (1999) say that when individuals in formal organizations are motivated by tangible assets the alliances are not fuzzy, but strategic thrusts requiring standard governance control. Although financial gain is important, some level of trust is necessary. It is also noted that farmers, who are more vulnerable due to insecurity of land and limited access to water and technical information, are more likely to join formal organisations than non-farmers.

Three major policy implications emerge for promoting formal urban agricultural based organisations: 1) When urban producers are organized formally, they would not only achieve better performance as a group but also as individuals. 2) Promoting and/ or sustaining formal urban agricultural based organisations would mean improving organisations' ability to maintain joint tangible and intangible assets that eventually reduce risk and improve performance of individuals. 3) For organisations with low income membership external support would be needed from both governmental and non-

governmental institutions. These would need to implement actions that build individual members capacity to increase sales and profits and foster trust in leadership. Then individual commitment of money, time and energies would improve and organisations would be self-reliant in the long run and growth can be managed adequately.

References

- Adams, C-L. and Goldsmith, P. D. (1999) Conditions for successful strategic alliances in the food industry. *International Food and Agribusiness review*. (2(2)): 221-248
- Adegeye and Dittoh, S. (1985) *Essentials of Agricultural Economics*. Centre for Agricultural and Rural Development. Nigeria: University of Ibadan.
- AWGUPA, (2006) *A Pilot project of the on public education and policy on urban agriculture*. Ghana: Accra Working Group on Urban and Peri-urban Agriculture.
- Asomanin-Boateng, R. (2002) *Urban cultivation in Accra: an examination of the nature, practices, problems, potentials and urban planning implications* *Science Direct* 26(4):591-607
- Ben-Akiva, M. and Lerman, S.R. (1985) *Discrete Choice Analysis: Theory and Application to Travel Demand*. Massachsettes: MIT Press.
- Cofie O.O., Larbi, T. and Danso, G. (2007) *Urban Agriculture in Accra, Ghana: Assessing Livelihood Potentials and Policy Mechanisms*. Ghana: International Water Management Institute.
- Cencosad, (1994) *Urban market gardens in Accra*. Centre for Community Studies, Action and Development and the Mega Cities Project. Accra, Ghana.

- FAO, (2007) The urban producers' resource book. A practical guide for working with low income urban and peri-urban producer's organizations. Rome: Food and Agriculture Organisation of the United Nations.
- FAO (2005). Proposal for a study on "urban and peri-urban agriculture: Towards a better understanding of low-income producers' organizations". Food and Agriculture Organisation of the UN, Rome, Italy.
- Freeman, D.B. 1991. A City of Farmers: Informal Urban Agriculture in the Open Spaces of Nairobi. Montreal: McGill University Press.
- Green, W.H. (2003) Econometric analysis. Fifth edition. New Jersey: Prentice Hall.
- GSS, (2001) Population and housing census 2000. Ghana: Ghana Statistical Services.
- GSS, (2007) Patterns and trends of poverty in Ghana. Ghana: Ghana Statistical Service
- Haskell, J. (2004) International co-op development promotes trade, democracy. Rural Cooperatives. USA: Rural Business-Cooperative Service.
- Hill, C. (1990) "Cooperation, Opportunism and the invisible hand Implications for transactions cost theory". *Academy of Management Review*, 15(3): 500-513
- Liao, T.F. (1994) Interpreting Probability Models: Logit, Probit, and Other Generalized Linear Models. Quantitative Applications in the Social Sciences. London: Sage.
- Maxwell, D. (1998) "Urban Agriculture: Unplanned Responses to the Economic Crisis." Chapter 6 in Holger Hansen and Michael Twaddle (Eds.), *Developing Uganda*, pp. 98-108. London: James Currey
- McConnel, C. R. and Brue, S.L. (1999) *Microeconomics. Principles, problems and policies*. USA: McGraw-Hill.
- MoFA, (2007) Food and Agricultural Sector Development Policy. Ghana: Ministry of

Food and Agriculture

- Obuobie, E., Keraita, B., Danso, G., Amoah, P., Cofie, O., Raschid-Sally, L., Drechsel, P. (2006). Irrigated Urban Vegetable Production in Ghana: Characteristics, Benefits and Risks Available at www.cityfarmer.org/GhanaIrrigateVegis.html.
- Pickney, D. (2008) A brief on cooperatives. USA: North Dakota Cooperatives Council
- Parkhe, A. (1993) "Strategic alliance structuring: a game theoretic and transaction cost examination of interim cooperation". *Academy of Management Journal*, 36(4): 794-829.
- Ring, S. and Van de Ven, H. (1994) Development process of co-operative interorganizational relationships. *The Academy of Management Review*, 19(1):90-118
- Rees, W. E. (1997) Why urban agriculture. Cityfarmer. Canada: Canada's office of urban agriculture
- Siegrist, M. and Cvetkovich, G. (2000) Perception of hazards: The role of social trust and knowledge. *Risk Analysis*, 20, 713-719.
- Smit, J. and Bailkey, M. (2006) Urban agriculture and the building of communities. In R. vanVeenhuizen, (2006) Cities farming for the future: urban agriculture for green and productive cities. Leusden, RUAF /IDRC/IIRR.
- Veenhuizen, V. R. and Danso, G. (2007) Profitability and sustainability of urban agriculture. Agricultural management, marketing and finance, Occasional papers (19). Food and Agriculture Organisation of the United Nations, Rome

Appendix i: List of agricultural producer organizations: structure and location

No.	Organization	Structure	Description of registration	Location
1	Ablekuma Grasscutter Farmers Cooperative Society	Formal	Registration with Department of Cooperatives	Accra Metropolitan Area
2	Ga Adangbe Pig Farmers Cooperative Society	Formal	Registration with Department of Cooperatives	Accra Metropolitan Area
3	Nungua Zongo Livestock Farmers Association	Formal	Registration with Registrar Generals' Department	Accra Metropolitan Area
4	Agro-input Dealers Association	Formal	Registration with Registrar Generals' Department	Accra Metropolitan Area
5	Dzorwulu Vegetable Farmers Cooperative Society	Formal	Registration with Department of Cooperatives	Accra Metropolitan Area
6	Feed Millers Association, Timber Market	Formal	Registration with Registrar Generals' Department	Tema Municipal Assembly
7	Progressive Grasscutter Farmers Cooperative Society, Atomic	Formal	Registration with Department of Cooperatives	Ga East Metropolitan Area
8	Livestock Traders Association, Ashaimang	Formal	Registration with Registrar Generals' Department	Tema Municipal Assembly
9	Marine-Drive Vegetable Farmers Association	Formal	Registration with Registrar Generals' Department	Accra Metropolitan Area
10	Exotic Vegetable Traders Cooperative Society	Formal	Registration with Department of Cooperatives	Accra Metropolitan Area
11	Mushroom Growers Association	Formal	Registration with Registrar Generals' Department	Accra Metropolitan Area
12	La Farmers Cooperative Society	Formal	Registration with Department of Cooperatives	Accra Metropolitan Area
13	Ashaiman Irrigation Farmers	Formal	Registration with Department of	Tema Municipal Assembly

	Co-operative Society		Cooperatives	
14	Ghana Agricultural Producers' and Traders Organisation	Formal	Registration with Registrar Generals' Department	Accra Metropolitan Area
15	Korlebu Vegetable Farmers Association	Formal	Registration with Registrar Generals' Department	Accra Metropolitan Area
16	Airport Vegetable Framers Association	Informal	-	Accra Metropolitan Area
17	Water Vendors Association, Adenta	Informal	-	Tema Municipal Assembly
18	Ornamental Plant Growers, Dzorwulu	Informal	-	Accra Metropolitan Area
19	Bamboo Sellers Association, Presec	Informal	-	Accra Metropolitan Area
20	Katamanto Poultry Farmers Association	Informal	-	Accra Metropolitan Area
21	Madina Zongo Plantain Chips Sellers Group	Informal	-	Ga East District
22	East Legon Plantain Roasters Group	Informal	-	Accra Metropolitan Area
23	Awudome Sheep and Goat Sellers Association	Informal	-	Accra Metropolitan Area
24	Madina Frozen Fish Sellers Association	Informal	-	Ga East District
25	Malam Atta Tomato Sellers Association	Informal	-	Accra Metropolitan Area
26	Agbobloshie Grain Sellers Association	Informal	-	Accra Metropolitan Area
27	Agbobloshie Yam Traders Association	Informal	-	Accra Metropolitan Area
28	Adenta-Barrier Foodstuffs Sellers Association	Informal	-	Tema Municipal Assembly
29	Tema C1 Butchers Association	Informal	-	Tema Municipal Assembly
30	Cantoments Vegetable Growers Association	Informal	-	Accra Metropolitan Area

END NOTES

ⁱ The cities that FAO studied included: 1. Accra, Ghana; 2. Antananarivo, Madagascar; 3. Cairo, Egypt; 4. Caracas, Venezuela; 5. Dakar, Senegal; 6. Harare, Zimbabwe; 7. Hyderabad, India; 8. Kinshasa, DR Congo; 9. Nairobi, Kenya; 10. Phnom Penh, Cambodia.

ⁱⁱ Smit and Bailkey (2006), for instance, specify seven types of capital [assets] to point out the building up of urban community capitals. In addition to natural, human, social, physical ('built capital') and financial capital ('economic capital'), the authors add 'political' and 'cultural capital'.

ⁱⁱⁱ A robust regression analysis was employed. This is to cater for any influential outliers that bias the prediction and distort the significance of parameter estimates. The robust regression is resistant to the influence of outliers.

^{iv} AWGUPA was initiated by the network of Resource Centres for Urban Agriculture and Food Security (RUAF). RUAF in Accra is hosted by the International Water Management Institute (IWMI).

^v The Agricultural Services Sub-Sector Improvement Programme is a World Bank funded project on sustaining food security and increasing foreign exchange earnings through export diversification (www.imf.org/external)