The Health of Farmer-Based Organizations in Ghana
Organizational Diagnostics and Governance Implications

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1. Introduction

The United Nations declared 2012 as the International Year of Cooperatives (IYC), highlighting the contribution that cooperatives make to global socio-economic development and recognizing their impact on poverty reduction and social integration.[i] In particular, the IYC's campaign emphasized that cooperatives play a central role in rural development and contribute to the marketing of about half of global agricultural output. Agricultural cooperatives are thus increasingly recognized as key organizational forms for the promotion of inclusive agribusiness through economically profitable and socially responsible rural ventures. Cooperatives are expected to play a particularly important role in rural Africa where rural institutions and infrastructure remain underdeveloped (Hayami and Otsuka, 1992). Although agricultural cooperatives are widespread and proliferating across the African continent (Develtere et *al.*, 2008), their contribution to the development of inclusive agribusiness remains highly contested (World Bank, 2007; Bernard et *al.*, 2008a; Francesconi and Ayerakwa, 2011; Francesconi and Heerink, 2010; Francesconi and Ruben, 2014). Many cooperatives appear to be dormant or unable to mobilize collective action (World Bank, 2007; Meinzen-Dick, 2009).

Despite this generally bleak scenario, some African cooperatives do manage to promote inclusive agribusiness development. Yet, for every success story there seems to be many failures. Why is that so? Arguably, this is because the underlying problems encountered by cooperatives in developing countries remain largely unknown (Ostrom, 2004). Due to the lack of cross-fertilization between agribusiness and development research, agricultural cooperatives operating in the developing world have remained black boxes (Cook and Chaddad, 2000). The need to open these black boxes is motivated by numerous studies (see Hayami and Otsuka, 1992; Reardon and Barrett, 2000) suggesting that the limited agro-industrialization observed in developing countries can be attributed to the excessive attention paid to the development of production technologies and the limited progress made in terms of organizational design.

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Agriculture has always been the dominant sector in the Ghana economy. The sector employs about 60 percent of the economically active population and contributes about two-thirds of foreign exchange earnings. Staple crops—roots and tubers—contribute about two-thirds of agricultural gross domestic product. Cocoa, the largest foreign exchange earner in the sector, contributes 12–13 percent. The country has made major efforts since the mid-1980s to diversify into and develop non-traditional exports, horticulture in particular. As a result, a significant non-traditional agricultural export subsector has emerged with considerable foreign exchange earned from horticulture crops such as pineapple, yam, bananas, cashew nuts, shea nuts, cottonseed, and kola nuts. Additionally, fish products and cocoa have seen their exports growing (Kolavalli et al., 2010). Ghana's agricultural sector is characterized by smallholdings and traditional practices. Around three-fourths of farm holdings are less than 3 hectares in size (Chamberlin 2008). Maize and cassava are the most common smallholder crops. Production systems and technology are mainly traditional, based on intercropping and use of simple implements and hand tools with little use of modern inputs such as improved varieties and fertilizers and other agrochemicals. Crop production is largely rainfed, with less than 1 percent of the cultivated area irrigated. Favourable weather conditions and world market prices for cocoa have contributed to recent rapid growth in agriculture, with the bulk of the growth coming from area expansion. However, productivity in the food crops that smallholders dominate has been rather variable and stagnant in many areas. Access to input and output markets has been identified as a key constraint to smallholder development (Chamberlin, 2008). Over the last decade or so, the government of Ghana has been trying to transform its agricultural sector to include small farmers. Transformative goals for small farmers include increased participation in markets and higher productivity, enabled in part by better access to and use of input and credit markets. Therefore, reducing access constraints is an important goal in Ghana's current rural development dialogue and one strategy to do so has been the commercial development of Farmer-Based Organizations (FBOs) (Salifu et al., 2010).

Although FBO is somewhat of a catch all term for any form of aggregation of rural dwellers, the

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common denominator is that these are organizations owned by the individuals using their services. According to agribusiness theory (Cook, 1995; Cook and Illiopoulos, 2000; Sykuta and Cook, 2001; Cook and Chaddad, 2004), FBOs can thus be considered as patron-owned (or user-owned) cooperatives, as opposed to investor-owned firms. In 2010 there were approximately 10,000 grass-root (or primary) FBOs in Ghana, comprising approximately 350,000 farm households (Salifu et *al.*, 2010). Policies promoting the commercial development of FBOs have been justified by the need to trigger the development of inclusive agri-business that provides social and economic benefits to rural smallholders. Similar policies aiming to re-vamp and re-invent cooperatives in order to move towards a more socially responsible economy are observed in many other parts of the world (European Commission and EURICSE, 2013). However, it is unclear whether FBOs are indeed contributing to promote inclusive agribusiness in Ghana, as the health status of many of these organizations appears to be suboptimal.

In this paper, we use primary data on 500 Ghanaian FBOs collected through semi-structured interviews and risky dictator games (RDG) to test the validity of the cooperative life cycle theory and formulate a measure of cooperative health. We define cooperative health as the alignment of heterogeneity in risk preferences and the effectuation of collective investments. We then use cluster and correlation analysis to categorize FBOs on the basis of their health and correlate these typologies with various performance indicators. Our findings reveal that organizational health is generally low as there are only a few organizations that manage to provide member-farmers with both risk-sharing and cost-saving opportunities. Further, healthier FBOs experience stronger growth in membership while health is lower in FBOs that have been established for the purpose of benefitting from external incentives. The paper proceeds as follows the next section describes the history of smallholder cooperation in rural Ghana; the third section sets out the cooperative life cycle framework as elaborated by agribusiness scholars; the fourth section describes our data while the fifth section presents our empirical results; the paper concludes by linking our results to the theoretical framework and deriving policy implications.

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2. History of smallholder cooperation in Ghana

In pre-colonial Ghana agricultural production was organized into communities of subsistence smallholders governed on the basis of kinship and hierarchical principles (McPhee, 1926; Buell, 1928; deGraft-Johnson, 1958; Grischow, 2006). The risk associated with subsistence farming was commonly shared within a community through different revolving (or rotating) schemes (Strickland, 1933; Young et al., 1981; Tsekpo, 2008; Salifu et al., 2010). These schemes, commonly known as Nnoboa and Susu, were meant to facilitate the exchange of labour, food and other resources among community members in times of need. Interestingly, this form of traditional schemes for mutual insurance can be still found nowadays in Ghana as well as many other parts of Africa, for example: La tontine in Senegal, Les greniers villageoises in Burkina Faso and Niger, Idir and Iqub in Ethiopia and so forth (Salifu et al., 2010; Francesconi and Ayerakwa, 2011). Although they continue to serve important social protection functions, arguably their contribution to agribusiness development has been rather negligible (Salifu et al., 2010; Francesconi and Ayerakwa, 2011).

Colonial authorities recognizing the social importance of these community-based arrangements for risk-sharing purposes, decided to leverage them in order to establish cooperatives that could facilitate the bulking and commercialization of agricultural products. This approach was viewed as a way to guide Ghanaians through a critical stage of economic growth without tearing the social fabric. Colonial authorities thus invested in the development of cooperatives to facilitate the extraction of agricultural produce (especially cocoa) to be sold on the world market. This investment strategy implied a reduction in transaction costs, boosting Ghana's agricultural production and commercialization, but also fostered problems of elite capture. Because investments were often allocated by colonial authorities on the basis of political considerations, cooperative leaders became less accountable to their member-farmers. Corruption and embezzlement thus became widespread in cooperatives discouraging broad-based participation. Yet, when colonialism came to an end in 1957, the newly independent state continued to support this highly centralized and inefficient cooperative model

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through investments in parastatals and by 1960 cooperatives were marketing about 40 percent of the total cocoa production. (Strickland, 1933; deGraft-Johnson, 1958; Young et *al.*, 1981; Grischow, 2006; Tsekpo, 2008; Salifu et *al.*, 2010).

This situation began to change in the 1980s when policy reforms led to the gradual disengagement of the state from many functions and services related to agricultural production and commercialization. Under growing international pressure for liberalization and efficiency-enhancing structural adjustment, investor-owned firms (IOFs) were expected to replace parastatals in agricultural value chains. However, these expectations were seldom fulfilled: in some cases, the withdrawal of the state was tentative at best, leading to minimal change in cooperatives. This was particularly true for key value chains such as cocoa. In many other cases where abrupt state withdrawal was not followed by the rise of private investments, entire cooperative structures collapsed leading to an institutional vacuum, which hampered the participation of smallholders in the market.

At the onset of the new millennium and with increasing market globalization, these institutional caveats became particularly evident. Thus while liberalization may have enabled FBOs to actively seek better output market conditions for their members, particularly for cocoa, it has been argued that these organizations have largely been left to fend for themselves against new private companies entering the market. As the market for cocoa and chocolate outside Ghana is one with relatively few large players, value adding is difficult, smaller players such as FBOS are at a disadvantage and the market is prone to speculative behaviour.

Recognition of this institutional vacuum refocused attention on FBOs and particular the need to develop new-generation market-oriented cooperatives. The planned transformation of FBOs in Ghana was thus essentially driven by the need to address the marginalization of smallholder farmers in global markets while avoiding a return to the centralized and inefficient cooperative model of the past. The transformation was facilitated by the decision of the Ghanaian government to revise the cooperative

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law (the Cooperative Societies Decree from 1968) so as to formally recognize FBOs as autonomous

agribusiness entities. In addition to this, FBOs could be expected to benefit from important external

incentives. In fact, since FBOs were expected to contribute to a reduction in transaction costs and risks

associated with agricultural development, FBO membership soon became an essential pre-condition for

farmers to benefit from such programs. This realization also led to a further increase in the number of

FBOs (Tsekpo, 2008; Wanyama et *al.*, 2009; Salifu et *al.*, 2010).

Arguably, the most important example (in terms of budget size) among the incentive schemes

put in place so far to promote rural development was the agricultural program of the Millennium

Development Authority (MiDA).[ii] Between 2008 and 2011, MiDA supported 1,242 FBOs throughout the

country in order to increase their productivity and commercial competitiveness. In particular, MiDA

provided the members of selected FBOs with both technical training on agricultural practices and

starter packs that contained fertilizer, improved seeds, protective clothing and cash. MiDA also

provided national banks with significant funding to be used as credit collateral for FBOs willing to make

value adding investments that could enhance their integration in agricultural value chains.

While the previous paragraphs describe the history of organizations for smallholder

cooperation in Ghana, we have not assessed the level, extent, or intensity of the collective domain or in

other words the array of collective activities of an organization that is, the number and type of activities

that are carried out collectively. It is important to do so because, regardless of their underlying

purpose, many FBOs appear to be dormant engaging in little or negligible collective action. Clearly,

having in place the organizational infrastructure does not automatically imply collective action

(Meinzen-Dick, 2009). Below we describe and further develop the concept of cooperative health and

explain why it may be compromised.

3. **Theoretical Framework**

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As mentioned, Ghanaian FBOs can be defined as user-owned cooperatives. The analysis of similar organizations in the United States led agribusiness scholars to develop the cooperative life cycle framework (Cook and Chambers, 2007). In particular, this framework specifies that the health of a cooperative evolves according to a life cycle. In simplified terms, this theory states that a cooperative is formed when there is an economic justification, subsequently experiences a period of membership growth and good performance until problems arise that eventually either lead to the collapse or the re-invention of the organization. However, since this theory is based on protracted analysis of US-based agricultural cooperatives, its validity in different contexts and especially in developing countries remains to be ascertained.

Farmers need an economic justification to self-organize and collective action is often thought of as an effective means to reduce transaction costs because it enables the exploitation of important economies of scale in accessing markets (Berdégué, 2001 Poulton et *al.*, 2010). Scholars such as Sexton and Iskow (1988) and Staatz (1987) specify that the establishment of cooperatives is usually justified by the need to better connect farmers to markets. However, it is also clear that when markets are fraught with imperfect information this gives rise to externality-like effects (Greenwald and Stiglitz, 1986) and public incentives may be needed to trigger collective action through cooperatives. In line with this argument, institutional scholars (Olson, 1965; Varughese and Ostrom, 2001) conclude that in the absence of external incentives farmers do not always (nor often) decide to self-organize. This is particularly true in Africa where FBOs appear to be established in anticipation or during development programs (COPAC, 1995; World Bank, 2007). The economic justification of self-organization of smallholders goes hand in hand with an organization design phase. Cooperatives are typically established on the basis of equity principles, members' property rights tend to be vaguely defined, allowing for cross-subsidization or patronage defined as the support that a member bestows upon another given differential usage of the services provided by a cooperative (Cook and Illiopoulos, 2000; World Bank, 2007).

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Following the phase of economic justification and organizational design, cooperatives tend to experience a period of growth in membership and good performance due to their ability to take advantage of economies of scale and scope. As they grow and time passes, FBOs tend to experience increased heterogeneity in members' socio-economic preferences. Although this process contributes to increased risk-sharing, under vaguely defined property rights it can also give rise to the free-rider problem. This problem arises if some members benefit from an organization without paying the cost (Ostrom, 2004). A common example in the context of developing countries is members that obtain inputs on credit from their FBO but avoid repayment by selling their agricultural output individually (also known as the side-selling problem) (Francesconi and Ruben, 2014). The free-rider problem may eventually give rise to collective shirking or in other words the lack of willingness of members to invest in/contribute to their organization and the inability of the organization to provide services that connect member-farmers to markets.

Nilsson et *al.* (2012) argue that the problems faced by agricultural cooperatives in Europe arose when growth in membership led to a transcendence of initial community boundaries, resulting in increased member anonymity and the erosion of social capital, which has been defined by Putnam (2000) as consisting of social networks and the norms of reciprocity and trustworthiness that arise from them. Low levels of social capital induce organizations characterized by vaguely defined property rights to invest an increasing amount of resources in monitoring members' activities and enforcing sanctions. However, as monitoring and enforcement costs increase, revenues tend to decrease and to be increasingly captured by rural elites. This is what Cook and Chambers (2007) define as the agency-cost problem. Therefore, the growth of a FBO is bound to be limited by the rise of either agency-cost or free-rider problems. The recognition of these problems motivates the decision to either dismantle or re-invent an organization.

Overall, this framework suggests that the health of a FBO evolves according to a life cycle

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whose three main phases are characterized by: 1) start-up incentives and design 2) growth and glory and 3) problems (Figure 1). Yet, the definition of cooperative health remains somewhat unclear. Cook and Chambers (2007) suggest that indicators of organizational health should capture the degree of alignment between financial and non-financial performance. In a similar vein, Ostrom (2011) stated that in the developing world the success of collective action organizations depends on a combination of social and economic factors.[iii] Ruben (1997) further qualifies this statement suggesting that the success of FBOs in developing countries depends on both risk-sharing and efficiency-enhancing devices. Agribusiness scholars recognize that a key function of cooperatives is to reduce on-farm risk (Sexton and Iskow, 1988; Cook *et al.*, 2008). Farmers seek to mitigate uncertainty at the level of the farm by transferring risk to the organization, in such a way as to spread it among the members. Mazzocco and Saini (2012) further explain that in cooperatives, risk-sharing increases with the degree of heterogeneity in members' risk preferences. Heterogeneity in members' preferences described by Cook and Chambers (2007) as the main source of equity and inefficiency in cooperatives may thus be related to the attitude to risk. It follows that heterogeneity in members' risk preferences can either foster risk-sharing or free-riding. To address the inefficiencies that give rise of the free-rider problem, FBOs need to centralize input and output flows through investment in physical (for example warehouses, processing equipment, vehicles) and human resources (managers, technicians and so forth). However, when efficiency-enhancing investments are effectuated when social capital is low they can result in agency-cost problems, leading to elite capture and minimizing risk-sharing opportunities. Hence, we conclude that the health of an FBO depends on the degree of alignment between the heterogeneity in risk preferences and collective investments (Figure 1).

< FIGURE 1 >

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The progression of an organization through the life cycle appears purely driven by internal dynamics. However, external incentives such as those provided by policy and project interventions for establishment and performance of organizations also need to be taken into account. Meinzen-Dick (2009) and Hoff and Stiglitz (1993) suggest, for example, that FBOs are often dormant (or passive) in developing countries because they were largely established to attract external support and thus lack an economic justification while Platteau (2004; 2007) stresses that the external support channelled through these organizations has reinforced elite capture in many parts of rural Africa thereby compromising leadership.

4. Data

To test the validity of the framework depicted in Figure 1 in the Ghanaian context we use primary data on 500 FBOs collected in 2010 under the direct supervision of one of the authors. The organizations sampled for this study were randomly selected from a list compiled by the Ministry of Food and Agriculture (MoFA), which included only organizations at the village level (i.e. no unions, federations or other forms of apex organizations). Although this list cannot be considered as nationally representative, it included 3,052 FBOs out of a total population estimated at approximately 10,000 units. The list covered six (out of ten) administrative regions, and all three main agro-ecological zones of the country (coastal, rainforest, sahelian). The geographic distribution of the 500 FBOs in our sample is presented in Table 1. Data collection activities were carried out by a team of 17 MSc students from three Ghanaian Universities (Accra, Tamale, and Kumasi), using digital questionnaires and games uploaded onto smart-phones. Interviews and games were conducted with three board members (president, secretary and treasurer) from each sampled organization.

< TABLE 1 >

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The board members were first asked a combination of open and structured questions about their organizations. In addition to this, the three board members were asked to play a simple game aiming to assess the degree of heterogeneity in their risk preferences under equity rules and thus the potential for risk-sharing. This game combines classic risk and dictator game theory (see Binswanger, 1981) into what Bohnet and Zeckhauser (2004) define as a risky dictator game (RDG). In this type of game the behaviour of a player depends on his/her expectation about other players' behaviour. In this game participants could gain real money but could not lose any of their own, as per the Do no harm policy applied by the International Food Policy Research Institute for experiments involving human beings. This game was designed to estimate the degree of heterogeneity in members' risk preferences in organizations characterized by vaguely defined property rights. As the property rights of members of a cooperative tend to be vaguely defined, the degree of heterogeneity in members' risk preferences is expected to provide a proxy measurement for the amount of risk-sharing taking place in an FBO. Experimental approaches to measure risk preferences have been commonly used by economists particularly in settings where one cannot obtain reliable estimates of risk preferences through classic survey techniques or eliciting certainty equivalents (Binswanger 1980). Game outcomes in symbiotic relationship with survey data have proved extremely useful in explaining the clash between the theoretical prediction that self-interested individuals do not act collectively (see The tragedy of the commons by Hardin, 1968) and evidence indicating that collective action is instead widespread (Ostrom, 2000).

The game was played as follows. The three board members were asked to play the game twice. A first round was played with negligible amounts of money at stake, for demonstration purposes, while the outcomes of the second round were used for the analysis. First, the three players were split in such a way that they could not see or hear each other. Second, they were

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explained the rules of the game. Third, they were asked to pick one of the risk options given in Table 2. Fourth, players were gathered in a central place and a coin was tossed. Fifth, players' individual payoffs were calculated on the basis of their risk choices and the outcome of the coin toss (head or tail). Finally, the aggregate payoff was calculated and shared equally (as per the equity rule of the game) among the three players.

The validity of the outcomes of this game - for the purpose of measuring the degree of heterogeneity in members' risk preferences and thus the degree of risk-sharing within an FBO - relies on three assumptions. The first assumption is that differences in the risk preferences expressed by the three board members provide a good enough representation of the degree of heterogeneity in the preferences of all members within an FBO. Technically this assumption is valid as members have elected the board of their organization to represent them and their interests. Of course empirical reality may differ from this technical reality but our data reveal that in over 90 percent of organizations decisions are taken through member-voting; that rule of law is assured through a constitution while sanctions are used on members that do not comply with these rules and regulations. All these constitute elements of a democracy and ensure the representativeness of the centralized authority (see also Grossman and Baldassarri, 2012). The second assumption is that FBO members have incomplete knowledge about the preferences of other members. The third assumption is that members' property rights within an FBO are vaguely defined. This assumption has been discussed at length in the theoretical framework above.

< TABLE 2 >

The outcomes of the game are presented in Table 3 together with relevant survey data. In particular, game outcomes indicate that the average degree of heterogeneity in members' risk

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preferences (1.55) is slightly below the median value (1.65), suggesting that FBOs in which

preferences are rather homogenous prevail. Survey data instead shows that only 25 percent of

the organizations in our sample had made collective investments of any kind (in physical assets

and/or human resources). Table 3 also shows that the average organization in our sample

witnessed a 110 percent growth in membership since establishment. It is important to note that

the average organization was seven years old and had 35 members at the time we conducted the

survey. Table 3 also indicates that 16 percent of sampled organizations participated in the MiDA

program. Since MiDA was the largest support program taking place at the time we collected the

data for this study, participation in this program can be considered as a proxy for the exposition of

the FBOs in our sample to external incentives. Finally, board members were asked whether they

were mostly concerned with problems related to the lack of market-access or social cohesion.

Responses indicate that 86 percent of the FBOs in our sample are mostly concerned with

problems of market-access.

< TABLE 3 >

5. **Results**

The two indicators describing the degree of heterogeneity in risk preferences and the incidence of

collective investments are used to perform a cluster analysis (around median values) allowing us to

categorize FBOs on the basis of their health: homogeneous risk preferences and no collective

investments (type 1); heterogeneous risk preferences and collective investments (type 2); homogenous

risk preference and collective investments (type 3a) and heterogeneous risk preferences and no

collective investments (type 3b). The prevalence each of these four typologies is given in Table 4. In

particular, this table shows that most FBOs (39 percent) are of type 1 (homogenous risk preferences

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and no collective investments) while many others FBOs (35 percent) fall in typology 3b and thus experience a lack of collective investments and heterogeneous risk preferences. The rest are either of type 3a (15 percent) or type 2 (11 percent). Given that typology 2 is supposed to characterize healthy organizations, those that provide their members with both risk-sharing (due to heterogeneous risk preferences) and cost-saving (due to collective investments) services, we can infer that the health of sampled FBOs is generally poor.

< TABLE 4 >

The health typologies presented in Table 4 are subsequently correlated with three indicators capturing: i) the participation of an FBO in the MiDA program (as a proxy for external incentives), ii) the growth in membership recorded by an FBO since establishment and iii) the type of problem predominantly faced by an FBO (access-barriers to markets or lack of social cohesion). Results given in Table 5 show that: type 1 FBOs were significantly more likely to participate in the MiDA program (and thus to receive external incentives) compared to others. Table 6 shows that type 2 FBOs grew significantly more than others while Table 7 demonstrates that FBOs of type 3a and 3b are, respectively, significantly less and more likely to be respectively confronted with problems of market-access. These correlations stress the validity of the cooperative life cycle framework (as depicted in Figure 1) in Ghana. In line with this framework our analysis shows that organizational health is lower in FBOs that have been established to attract external support (by the MiDA project) or in those organizations that face significant problems. Furthermore our analysis shows that growth in membership corresponds to healthier FBOs.

< TABLE 5 >

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< TABLE 6 >

< TABLE 7 >

These findings thus stress the validity of the life cycle theory in the context of a developing country but, more importantly, we have added to this theory by devising a way to assess and measure cooperative health in FBOs in developing countries. Importantly, we find that the vast majority of the FBOs in our sample appear to be characterized by sub-optimal health and that this low health may explain why FBOs are often unable to provide their member-farmers with services that would enhance their participation in markets. Our findings do suggest that Ghanaian FBOs have the potential to simultaneously provide risk-sharing and efficiency-enhancing benefits to Ghanaian farmers. The realization of this potential may however require an important shift in the way FBOs are governed. Although incentive schemes can promote the establishment of FBOs, for FBOs to actually perform more efforts are required, in particular to prevent the misalignment between heterogeneity in members' risk preferences and collective investments.

6.   Conclusions and implications

Over the past decade, attention has focused on FBOs as important players in the transformation of rural Ghana. The government and donors have been actively promoting the transformation of FBOs into new-generation market-oriented cooperatives. Although these efforts are driven by the intention to foster socially inclusive agri-business, most FBOs appear to be unable to provide their members

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with services required for them to participate in markets. To understand why this is so, in this paper, we have used data on 500 FBOs to test the validity of the cooperative life cycle and have formulated a measure of cooperative health as a combination of heterogeneity in risk preferences and the ability to make collective investments.

We find that though external incentives have motivated farmers to self-organise, cooperative health is generally low. Both existing and newly established FBOs appear to either maximise risk-sharing between members while failing to mobilize resources for collective investments that should help member-farmers participate in markets or favour efficiency-enhancing investments while failing to enforce the necessary risk-sharing mechanisms to maintain internal cohesion. Only a few organisations appear to be able to "walk the line" or align the heterogeneity in members' risk preferences with the level of collective investments.

In terms of policy implications, more and better efforts need to be made in order to build up the managerial capacity of Ghanaian FBOs. This could be done in several ways. For example, in Ethiopia the government provides financial support to agricultural cooperatives in order to hire professional managers (Francesconi, 2009). Although this strategy reinforced the link between cooperatives and the state, it also proved beneficial for the growth of cooperative agribusiness in this country (Francesconi, 2009). This strategy could be further improved by training these cooperative managers on cooperative leadership using the life cycle framework as the main tool. Finally, as market access is clearly identified as one of the key problems that FBOs face when trying to service their members, due to for example the problem of side-selling, which may mean that the organisation is unable to bulk enough produce to negotiate a good price with a buyer, training may need to be given to member-farmers in order for them to develop more of a business mentality.

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Endnotes

   i.   http://social.un.org/coopsyear/

  ii.   MiDA was established on the basis of a collaborative agreement between the Ghanaian and US governments.

 iii.   This statement was made at the 2011 IASC conference held in Hyderabad-India.

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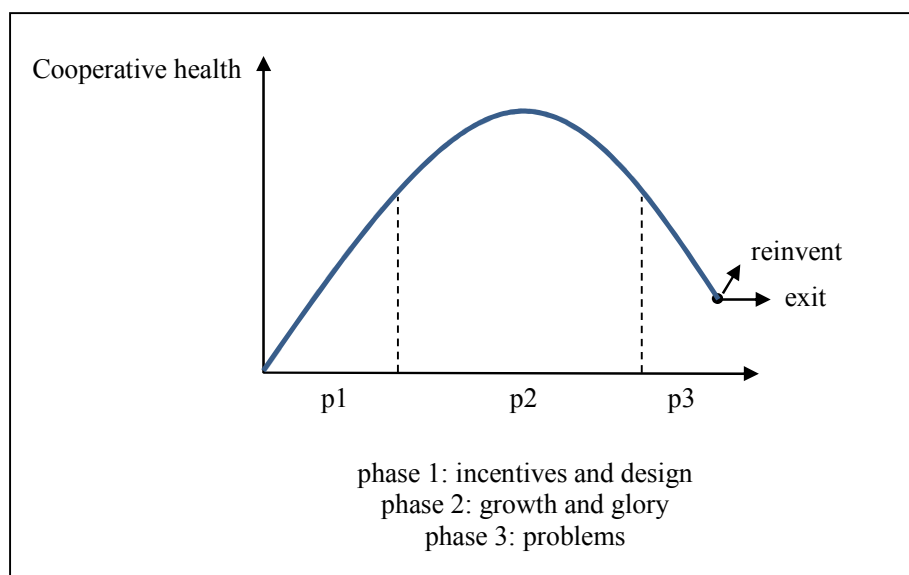
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Tables and Figures.

Figure 1: The cooperative life cycle framework

Source: adapted from Cook and Chambers (2007)

Table 1: Geographic distribution of sampled organizations

Region	Number of Organizations	Share (%)
Greater Accra Region	43	8
Central Region	50	10
Volta Region	109	22
Eastern Region	144	29
Northern Region	93	19
Brong Ahafo Region	61	12
Coastal zone	202	40
Rain Forest zone	205	41
Sahelian zone	93	19
TOTAL	500	100

Source: Author's survey

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Table 2: Game's risk choices

First round (trial)			Second round		
Indicator	Heads (lose)	Tails (win)	Indicator	Heads (lose)	Tails (win)
0	0.5 GHC	0.5 GHC	0	2.5 GHC	2.5 GHC
1	0.45 GHC	0.95 GHC	1	2.25 GHC	4.75 GHC
2	0.4 GHC	1.2 GHC	2	2 GHC	6 GHC
3	0.35 GHC	1.25 GHC	3	1.75 GHC	6.25 GHC
4	0.3 GHC	1.5 GHC	4	1.5 GHC	7.5 GHC
5	0.2 GHC	1.6 GHC	5	1 GHC	8 GHC
6	0.1 GHC	1.9 GHC	6	0.5 GHC	9.5 GHC
7	0 GHC	2 GHC	7	0 GHC	10 GHC

Source: Binswanger, 1980

Note: GHC = Ghana cedi (US$1 = 1.45 GHC, April 2010).

Table 3: Data descriptives

Variables	Mean (Std.Dev.)	Min - Max
Growth in membership since establishment[a]	1.10 (2.08)	-0.83 - 14.8
Organizational problems (1=internal cohesion; 0= market-access)	0.14 (0.35)	0 - 1
Collective investments (1=yes; 0=no)	0.25 (0.43)	0 - 1
Degree of heterogeneity in risk preferences (σ)[b]	1.55 (0.75)	0 - 3.33
Participation in the MiDA program (1=yes; 0=no)	0.16 (0.37)	0 - 1
Number of observations	500	

Source: Author's data

[a] given that for a coop *i* the number of members at establishment is x_0, and the current number of members at the moment of the survey is x_t, growth is equal to: *$(x_t - x_0)/x_0$*

[b] given by the standard deviation, σ, in participants risk preferences for each game

Table 4: Organizational typologies

No. of Observations: 500	Homogeneous risk preferences	Heterogeneous risk preferences	Total
Collective Investments	15% (type 3a)	11% (type 2)	26%
No collective Investments	39% (type 1)	35% (type 3b)	74%
Total	54%	46%	100%

Source: Author's data

Table 5: Correlations between organizational typologies and participation in the MiDA program

No. of observations: 500	Participation in MiDA	Aggregate participation for other typologies	t-test
Type 1	0.49 (0.50)	0.37 (0.48)	2.06**
Type 2	0.05 (0.22)	0.12 (0.32)	-1.81*
Type 3a	0.09 (0.28)	0.16 (0.36)	-1.66*
Type 3b	0.37 (0.49)	0.35 (0.48)	0.34

Source: Author's data;

Notes: Standard deviations in parentheses (); * Denotes significance at the 10% level; ** Denotes significance at the 5% level.

Table 6: correlations between organizational typologies and membership growth

No. of observations: 500	Membership growth	Aggregate growth for other typologies	t-test
Type 1	1.14 (2.27)	1.07 (1.96)	0.32
Type 2	1.68 (2.38)	1.03 (2.04)	2.15**
Type 3a	0.81 (1.69)	1.15 (2.14)	-1.26
Type 3b	1.00 (1.90)	1.15 (2.18)	-0.77

Source: Author's data;

Notes: Standard deviations in parentheses (); * Denotes significance at the 10% level; ** Denotes significance at the 5% level.

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Table 7: correlations between organizational typologies and problems

No. of observations: 500	Lack of internal cohesion (as opposed to marketing problems)	Lack of internal cohesion among other typologies	t-test
Type 1	0.42 (0.50)	0.39 (0.49)	0.57
Type 2	0.10 (0.30)	0.11 (0.31)	-0.28
Type 3a	0.21 (0.41)	0.14 (0.34)	1.68*
Type 3b	0.27 (0.45)	0.37 (0.48)	-1.65*

Source: Author's data;

Notes: Standard deviations in parentheses (); * Denotes significance at the 10% level; ** Denotes significance at the 5% level.