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Institutional and governance factors influencing the performance of selected smallholder agricultural cooperatives in KwaZulu-Natal

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Abstract

This paper evaluates the impact of institutional and governance factors on the performance of 10 smallholder agricultural cooperatives in KwaZulu-Natal (KZN). Five of the cooperatives grow and market vegetables, three produce and market poultry, one is a beef production cooperative and another operates a bakery. The results of a cluster analysis suggest that the performance of the selected smallholder cooperatives is influenced by institutional and governance problems. Institutional problems give rise to low levels of equity and debt capital, reliance on government funding, low levels of investment, and subsequent loss of members. Governance problems are strongly linked to the absence of secret ballot, low levels of education, lack of production and management skills training, weak marketing arrangements and consequent low returns to members as patrons or investors. The conclusion is that appropriate institutional arrangements and good governance are important to the performance of enterprises initiated by groups of smallholders. South Africa's new Cooperatives Act prevents smallholder cooperatives from adopting good institutional arrangements. Alternative ownership structures such as close corporations and private companies offer better institutional arrangements and opportunities for equity-sharing partnerships.

Keywords: Traditional cooperatives; performance; institutions; good governance; cluster analysis

1. Introduction

Smallholders are potential drivers of agricultural development in less-developed regions (Machethe, 1990). Delgado (1998:1) argues that "Smallholder agriculture is simply too important to employment, human welfare, and political stability in Sub-Saharan Africa to be either ignored or treated as just another small adjusting sector of a market economy."

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Governments in less-developed countries have often promoted the use of cooperatives as organisations that could enhance the development of their small-scale farmers. Since 1994, the new democratic government in South Africa has been supporting the growth of cooperatives, especially among historically disadvantaged South Africans, as a strategy to alleviate poverty and create jobs. This government did not consider the Cooperatives Act of 1981 as a suitable vehicle for the development of cooperatives in the new economic and political era, and initiated a process of developing a new Act based on international cooperative principles. The new Cooperatives Act (No. 14 of 2005), under which a variety of cooperatives can register, was signed into law in August 2005. This Act recognises the cooperative values (such as self-help, self-reliance, self-responsibility and democracy) and argues that a viable, autonomous, self-reliant and self-sustaining cooperative movement can play a major role in the economic and social development of the country, particularly among the previously disadvantaged people (Republic of South Africa, 2005). However, the new legislation perpetuates the notion of traditional cooperatives (TCs), ignoring trends in developed countries where cooperative legislation has been amended to encourage investment by patron and non-patron members (Lyne & Collins, 2008).

A traditional cooperative (TC) is an organisation formed by a group of people who meet voluntarily to fulfil mutual economic and social needs through running a democratically controlled enterprise such that the benefits achieved through cooperation are greater than the benefits achieved individually (ICA, 2005). Some analysts argue that cooperatives have significant potential to contribute towards reducing poverty, enhancing empowerment and creating employment (Barton, 1989; Philip, 2003; Van Niekerk, 1988).

However, several factors have hindered the performance of smallholder cooperatives in developing countries. Research by Machethe (1990) on poor-performing and failed cooperatives in the former homelands of South Africa suggests that members did not clearly understand the purpose of a cooperative, their obligations and rights, or how to manage their business. Cooperatives' failure to provide transport for delivery of members' purchases, lack of membership identity with their cooperatives, and lack of understanding of members' roles were contributory factors. This could have resulted from members' ignorance, a lack of education and skills training and/or poor extension advice (Machethe, 1990).

Van der Walt's (2005) study on cooperative failures in Limpopo province indicated that poor management, lack of training, conflict among members (due mainly to poor service delivery), and lack of funds were important

contributory factors. Van Niekerk (1988) blamed the failure of cooperatives in South Africa's communal areas largely on poor management. Other authors (Barratt, 1989:2; Kherallah & Kirsten, 2002; Anderson & Henehan, 2003) highlighted access to start-up capital; experience and training in business management, marketing and accounting; levels of literacy; attitudes towards work; and the degree of cooperative community ethos as factors contributing to cooperative performance. Weak institutions (e.g., ill-defined property rights), inadequate capital, deficient support systems such as external monitoring and evaluation, and lack of a supportive policy environment have also contributed to cooperative failures (Lyne & Collins, 2008; Zulu, 2007). Ill-defined property rights, according to agency theory, give rise to a set of problems that undermine the efficiency of TCs in risky and differentiated markets (Kyriakopoulos, 2000). This study focuses on the effects of institutional and governance factors on the performance of selected smallholder agricultural cooperatives in KwaZulu-Natal (KZN). The study is important because it builds on previous work that highlights the importance of resolving institutional and governance problems in TCs (Cook, 1995:1159; Cook & Iliopoulos, 2000) and ways in which South Africa's cooperative legislation could be amended to mitigate these problems (Lyne & Collins, 2008).

According to the 2005/2006 report of the South African (SA) Registrar of Cooperatives, the number of registered agricultural cooperatives in South Africa increased by 79% from 256 in 2001 to 459 in 2004 (CIPRO, 2006). KZN recorded 57 new agricultural cooperatives in the year 2005 (Mthembu (2005) cited in Ortmann & King, 2007). Van der Walt (2005) reports that it is difficult to establish how many of the registered cooperatives are actually active and thriving. Some of the smallholder cooperatives have registered but are not operating at all. According to the KZN Department of Agriculture and Environmental Affairs (KZNDAEA), some of the associated factors that have contributed to this include: lack of proper co-ordination between cooperative members; poor financial and institutional support; lack of markets; no mentorship, monitoring and evaluation programmes; and a lack of entrepreneurial skills (Zulu, 2007). Therefore, there is a need to better understand the factors that have inhibited the growth and performance of smallholder agricultural cooperatives in KZN.

This paper aims to gain a better understanding of the characteristics of smallholder agricultural cooperatives in KZN and to identify institutional and governance constraints affecting their performance through an in-depth analysis of 10 case studies. Identifying performance constraints is important if cooperative development is to be achieved in the future. The paper is

structured as follows: Section 2 provides an overview of theories about relationships between the performance of TCs and their institutional and governance arrangements. Section 3 describes the case studies and their characteristics. Qualitative and quantitative results of the study are presented in section 4, followed by conclusions and policy recommendations.

2. Institutions, governance and cooperative performance

2.1 Definitions of performance, institutions and governance

Performance is difficult to measure and interpret in the case of cooperatives, which generally aim to pay their members the best price for the products received, or to charge the lowest possible price for the inputs and services supplied (Dess & Robinson, 1984; Kyriakopoulos *et al.,* 2004). Several authors (e.g., Gassenheimer *et al.*, 1989; Yavas *et al.*, 1989; Read & Miller, 1990; Clarke, 1991; Harrington *et al.*, 1991) define performance as improved product quality, productivity, technical efficiency, service capabilities of a firm, and logistical performance (which include an organisation's ability to meet promised delivery dates), leading to sustainable profits. According to Dess and Robinson (1984), two popular measures of economic performance are return on assets and growth in sales. In this study, cooperative performance is defined in terms of key performance indicators (KPIs) such as generating a net surplus; access to equity and debt capital; reduced reliance on government funding; investment in growth assets such as poultry pens and vegetable tunnels; skills training of cooperative members; and good marketing arrangements.

Institutions are the "rules of the game" of a society or, more formally, the humanly-devised constraints that structure human interaction (Klein, 1999; North, 2000; Kherallah and Kirsten, 2002). Institutions comprise of formal (laws, contracts, markets) and informal (norms, traditions, customs, value systems, sociological trends) rules of conduct that facilitate transactions between, or govern economic decisions within, organisations (Kherallah & Kirsten, 2002). This study investigates institutional arrangements and governance factors that characterise smallholder agricultural cooperatives in KZN and which affect their performance. In particular, it examines rules governing membership, voting rights, the distribution of net surpluses, capital gains and the tradability of shares.

King (2002:1) defined corporate governance as "…holding the balance between economic and social goals and between individuals and communal goals, with the aim being to align as nearly as possible the interest of

individuals, corporations and society". Good governance is characterised by discipline, transparency, independence, accountability, responsibility, fairness and social responsibility (King, 2002). In this study, governance indicators are defined in terms of electoral procedures, financial audit, training and access to information and meetings.

2.2 Inter-relationships between performance, institutions and governance

The objective of the analysis is to test the theoretical proposition that good cooperative performance is dependent upon sound institutions and good governance. The conceptual model in Figure 1 argues that sound institutional arrangements and good governance both have a direct impact on good performance. In turn, sound institutional arrangements are influenced by good governance and *vice versa*.

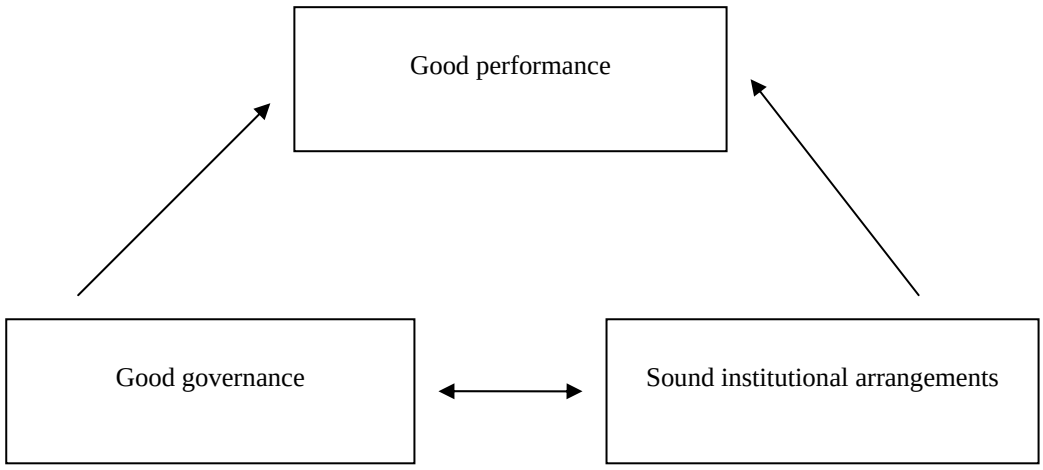

Figure 1: Postulated relationships between cooperative performance, institutional arrangements and governance

A growing literature stresses that governance, broadly defined as the process whereby societies or organisations determine how power is exercised, whom they involve and how they render account (Graham *et al*., 2003; Saner & Wilson, 2003), is important for economic growth. In this study, governance includes a cooperative's decision making processes and its capacity to implement its decisions (Landell-Mills & Serageldin, 1992), and is characterised by transparency (openness), accountability and participation. Together with good institutions, good governance promotes an organisation's performance (North, 1990; Olson, 1965).

2.3 Some institutional and governance problems in traditional smallholder cooperatives

Membership of TCs is open, hence any producer can join by purchasing shares at their par (rather than their appreciated) price. There is generally no up-front investment other than a nominal membership fee and there is also typically no further commitment to patronise the cooperative. TCs follow a one-member, one-vote rule, regardless of the member's level of patronage or level of investment. Institutional problems faced by TCs include free rider, horizon, portfolio, control, and influence cost problems caused by vaguely-defined property rights (for a detailed analysis of these, see Cook, 1995). Free rider, horizon and portfolio problems are investment related whilst control and influence cost problems are decision-related (Nilsson, 2001).

An obstacle often faced by TCs is their difficulty to raise capital necessary to finance long term strategies (Cook & Iliopoulos, 2000). TCs have constrained access to debt and equity capital, being able to raise it only from owner-patrons who have little incentive to invest because capital is not rewarded at market-related rates – investors cannot realise capital gains and dividends are capped (Hendrikse & Veerman, 2001; Chaddad & Cook, 2004). Financial institutions have been hesitant to provide credit to cooperatives due to the high risks associated with lending to them (Ortmann & King, 2007). High risks are due to insufficient equity capital; the influence problem (caused by egalitarian voting rights), which prevents the majority investors from influencing investment decisions; poor financial record-keeping; and high transaction costs involved in granting small loans (Coetzee & Vink (1991), as cited by Ortmann & King, 2007). When equity and debt capital are constrained, the cooperative is unable to finance investments in growth assets such as poultry pens or vegetable tunnels, or in fencing to secure a cooperative's property from potential losses such as theft. In order to ensure its long-term sustainability, a cooperative needs adequate capital for both its initial development and its ongoing operation (Ling, 2005; Crow, 2006). Difficulty in raising capital implies that smallholder farmers in developing regions are usually dependent on government donations and/or soft loans for initial capital (Magingxa & Kamara, 2003).

According to Crawford (1997), an attempt to divert the purpose and resources of cooperatives to the support of particular political objectives adversely affects cooperative development. Ngubane (2008), a KZNDAEA extension officer based in the Msunduzi sub-district, expressed the view that only a minority of smallholder cooperative members had a genuine interest in developing their cooperative. The Deputy Manager of agricultural

cooperatives in KZN put it more bluntly, stating that some smallholders established cooperatives to access government grants rather than to develop a business (Zulu, 2007). An 'influence problem' is anticipated when members of a cooperative have divergent interests and equal voting power. Democratic voting rights tend to discourage more entrepreneurial members from investing in a TC because they face the prospect of their capital being used to finance assets preferred by risk-averse members who hold majority voting power. This 'influence problem' also discourages lenders from financing TCs and could leave many of KZN's smallholder cooperatives dependent upon external aid for their survival. The divergent interests of members could also manifest in a 'portfolio problem' because members of a TC cannot transact equity shares at their market value. This problem leads to sub-optimal investment by members because they are unable to diversify their own portfolios to reflect personal risk preferences.

The institutional problems described in this section relate mainly to marketing cooperatives. All of the cooperatives examined in this study are production and marketing cooperatives. Production cooperatives face an additional and potentially more damaging institutional problem if members are not rewarded for their own level of labour input.

The performance of cooperatives also depends on educating and training cooperative members, and enhancing their knowledge of cooperative principles and members' rights (Ortmann & King, 2007). Birchall (2004) argues that cooperatives that lack capital and business management capacity have had a rather disappointing history in developing countries.

3. Data collection and characteristics of selected cooperatives

3.1 Data collection

This study is based on 10 smallholder agricultural cooperatives in KZN that were selected to serve as detailed case studies. An updated list with the names of smallholder cooperatives in KZN was obtained from the KZNDAEA who work closely with these cooperatives. Due to funding and logistical constraints, the areas of study were limited to the Ethekwini and Umgungundlovu Districts (the latter comprising of two sub-districts, namely Camperdown and Msunduzi), which incorporate the major cities of Durban and Pietermaritzburg in KZN. Five of the selected cooperatives were from the Ethekwini District, three from the Msunduzi District and two from the Camperdown District. The case study cooperatives were selected with the help of extension officers from those districts. They were selected because they

had been operating for at least two years and were willing to participate in the study. Data were collected from the selected cooperatives during October and November 2007 using structured questionnaires and in-depth interviews with the chairpersons, management committees and other members of the selected cooperatives. The data were analysed using descriptive and cluster analyses.

3.2 Characteristics of selected cooperatives

Five of the cooperatives grow and market vegetables, three produce and market poultry, one is a beef production cooperative and another runs a bakery on the basis of value adding. Members of the bakery cooperative produce and sell bread, buns and muffins. Thus, all the selected cooperatives were effectively producer cooperatives marketing their own produce, and were traditionally structured (i.e., one-member, one-vote). With regards to total membership, the smallest cooperative had five members while the largest had 17 members. Five of the 10 selected cooperatives were established and registered in 2005; two were established in 2004; two in 2003; and one in 2002.

Reasons provided by cooperative members for joining cooperatives included the need for community development, creation of employment, affirmative action, (i.e., to provide employment to previously disadvantaged women and orphans), and to provide food security for the members' families. For example, the chairperson of the beef cooperative stated that their members joined for reasons of employment creation and to provide meat and milk products to members and the local community. With regards to the gender composition of the selected cooperatives, three cooperatives comprised of members of one gender only. For example, the bakery cooperative and a vegetable cooperative comprised of only females, and another vegetable cooperative of only males. In seven of the case studies, the majority of members were older than 40 years of age. Two vegetable cooperatives and the beef cooperative had no members less than 40 years of age. The highest qualification obtained by the chairpersons of the selected agricultural cooperatives was grade 12 and the lowest qualification was grade 7. Table 1 shows the initial capital structure of the selected cooperatives.

Nine of the case studies obtained at least some of their initial capital from the government in the form of a grant and/or donation. For example, vegetable cooperative 2 obtained fencing equipment, fertiliser and use of a tractor as a donation from KZNDAEA. The beef cooperative obtained 50 Nguni cows from the KZNDAEA as a donation. Cooperatives with loan amounts less than R100000 were charged an interest rate of 11% whilst loans greater than R100000 carried a prime interest rate of 14% at the time of the survey. Table 2 shows the implications of equity and debt capital constraints faced by the study cooperatives to finance growth assets.

Table 1: Initial capital structure of selected smallholder agricultural cooperatives, KwaZulu-Natal, 2007

Case study	Number of members	Equity capital (R)	Estimated value of grants/ donations/ other support for cooperatives (R)	Loans from Ithala Bank (R)	Interest rate on loans (%)**	Est. total initial capital investment (R)***
Vegetable cooperative 1	11	1 000	- A vegetable tunnel, seedlings, fertiliser and advice on tomato production from Film Flex (a private organisation) valued at R10 000 in 2005. - Extension support in the form of marketing strategies training from KZNDAEA*.	163 400	Prime	174 400
Vegetable cooperative 2	8	800	- Fencing worth R10000, fertiliser worth R1 500 in 2005, and tractor for ploughing as a service from KZNDAEA.	0		12 300
Vegetable cooperative 3	5	300	- R20000 grant from KZNDAEA. - Technical advice on vegetable production as a service from KZNDAEA.	5 000	11	25 300
Vegetable cooperative 4	17	1 100	- Technical advice on vegetable production as a service from KZNDAEA.	0		1 100
Vegetable cooperative 5	6	2 500	- No grant or donation received.	0		2 500
Beef cooperative	11	0	- 50 Nguni cows and feed worth R250 000 in 2005 as a donation from KZNDAEA.	0		250 000
Bakery cooperative	7	1 000	- R100 000 grant from KZNDAEA.	150 000	Prime	251 000
Poultry cooperative 1	8	240	- Technical support on poultry production as a service from KZNDAEA. - Three poultry pens, brooders, feeders, chicks valued at R75 000 in 2005 from KZNDAEA.	200 000	Prime	275 240
Poultry cooperative 2	12	500	- Two weeks training on poultry production training from Further Education and Training (FET) College in Ethekwini District at a cost of R25 000 in 2005. - Poultry pen, brooders, feeders, chicks valued at R25 000 in 2005 from KZNDAEA. - Chicks and feeds at R2 500 in 2005 from Social Welfare.	0		53 000
Poultry cooperative 3	8	3 000	- Two weeks training on good business management skills and cooperative functions from FET College in Ethekwini District at a cost of R25 000 in 2004. -Technical advice on poultry maintenance from KZNDAEA as a service.	0		28 000

** KZNDAEA = KwaZulu-Natal Department of Agriculture and Environmental Affairs*
***The prime interest rate at the time of survey in November 2007 was 14%*
****Includes equity capital, loans, and estimated value of grants and donations*
***Source**: Selected cooperatives and Ngubane (2008).*

Table 2: Implications of equity and debt capital constraints faced by the selected cooperatives to finance growth assets, KwaZulu-Natal, 2007

Case study	Implications of equity and debt constraints
Vegetable cooperative 1	- Currently operating on school premises with one vegetable tunnel, growing tomatoes in one season per year to generate funds. This makes it impossible for them to maintain a continuous supply of vegetables all year round and, hence, to generate regular income.
Vegetable cooperative 2	- Lack of adequate water supplies for their produce - Inadequate farm equipment, such as a tractor, to assist with land preparation.
Vegetable cooperative 3	- Currently using school premises which has no room for expansion - Inadequate farm equipment (such as a tractor), irrigation system for their vegetables and shortage of labour considering the cooperative comprises of five members only.
Vegetable cooperative 4	- Dry soil and lack of irrigation water for their vegetables - Lack of fencing creates more problems for them since animals such as cattle, goats and sheep graze in their fields if they are not guarded.
Vegetable cooperative 5	- Inadequate finance to erect a cold room to keep fruits and vegetables fresh.
Beef cooperative	- Lack of finance for daily operations since their cattle will only be sold in 2009 as per government order.
Bakery cooperative	- Limited baking equipment, which is a problem in that the cooperative cannot satisfy the demand for bread
Poultry cooperative 1	- Inadequate finance to repay the loan, purchase chicken feed and increase poultry pens for production.
Poultry cooperative 2	- Financial constraints for their daily operations such as supply of chicken feed and vaccines, and fencing.
Poultry cooperative 3	- Inadequate finance for daily operations and, hence, depend on the government for funding to finance daily operations.

Many of the case studies cannot afford to hire labour and purchase other operating inputs, which may suggest that these cooperatives are not sustainable. Members of eight of the study cooperatives were required to contribute equal labour hours and shared profits equally. However, members of two of the case studies (vegetable cooperative 1 and beef cooperative) contributed different labour hours but shared profits equally. Equal profit sharing for equal labour effort may not fully address the "labour free-rider" problem as members have an incentive to shirk while benefiting from the work of others. There is an implicit assumption that management can monitor labour effort and enforce the rule.

All of the selected cooperatives mentioned limited equity and debt capital for financing growth assets as one of the factors influencing their performance in terms of growth and diversification. Whilst some of the poultry cooperatives lost their chickens to theft due to lack of physical infrastructure (fencing), other cooperatives faced problems of inadequate farm equipment and implements such as poultry pens, tractors and irrigation systems. The poultry and vegetable cooperatives indicated that they required the installation of

more poultry pens and vegetable tunnels, respectively, in order to improve their performance. The highest turnover (gross income) for the vegetable cooperatives in 2006/2007 was R36 000 and the lowest was R2 300. With regards to poultry cooperatives, the highest turnover was R150 000 and the lowest was R4 800. The bakery cooperative had a turnover of R180 000 in 2006/2007 and the beef cooperative did not generate any income at the time of the survey since the cooperative was still breeding cattle.

The next section presents a cluster analysis to test the theoretical proposition that good cooperative performance depends on good institutional arrangements and good governance.

4. Cluster analysis

The basic aim of cluster analysis is to find the "natural groupings", if any, of a set of individuals (cases or variables). Whilst cluster analysis can be used in several ways, the kind of cluster analysis utilised in this research is a way to form similar sets of variables rather than similar sets of cooperatives (Chatfield & Collins, 1980). The purpose of the analysis is, therefore, to draw inferences about theoretical propositions and not about a population of cooperatives. In essence, cluster analysis aims to allocate a set of individuals/variables to a set of mutually exclusive groups such that the individuals/variables within a group are similar to one another while individuals/variables in different groups are dissimilar (Chatfield & Collins, 1980:212). Hierarchical clustering is appropriate for small samples (typically $n < 250$) and can also be applied to qualitative (dummy) variables (Garson, 2008). In this study, cluster analysis is used to test the proposition that good cooperative performance depends on good institutional arrangements and good governance.

4.1 Institutional, governance and performance indicators

Table 3 represents the variables used for the cluster analysis, their definitions, the constructs to which they relate and the relevant scores (0 or 1). Decisions regarding the desirability of these attributes were informed by the New Institutional Economics (NIE) literature (Williamson, 2000; North, 1990; Cook, 1995; Kherallah & Kirsten, 2002). NIE is concerned with the social, economic and political institutions that govern everyday life (Kherallah & Kirsten, 2002).

Table 3: Indicator variables observed in the cooperative case studies, KwaZulu-Natal, 2007

Variable	Definition of variables	Score	Empirical construct
Surplus	Is the cooperative generating a net surplus or price advantage for its members?	Yes = 1, No = 0	**Performance Indicators**
Lowequity	Low levels of equity capital?	No = 1, Yes = 0	
Reliance	Was the cooperative financed mainly with government grants/loans?	No = 1, Yes = 0	
Lowasset	Low levels of growth assets?	No = 1, Yes = 0	
Lossmem	Loss of membership?	No = 1, Yes = 0	
Skillstrain	Did the cooperative members obtain skills training for the enterprise (e.g., poultry, vegetables)?	Yes = 1, No = 0	
Lackmark	Poor market arrangements?	No = 1, Yes = 0	
OpenMem	Non-members qualify for the same prices paid by/to members?	No = 1, Yes = 0	**Institutional indicators**
PropSurp	Net surpluses are/will be distributed in proportion to individual equity contributions?	Yes = 1, No = 0	
CapGains	Members can buy shares that can appreciate in value?	Yes = 1, No = 0	
Horizon	New members pay par value to join the cooperative?	No = 1, Yes = 0	
Influence	Voting rights to elect directors are proportional to individual equity contributions?	Yes = 1, No = 0	
Unity	Members share same investment preferences?	Yes = 1, No = 0	
Labinput	Members are rewarded according to their labour input?	Yes = 1, No = 0	
Election	Directors duly nominated and elected at annual general meeting (AGM)?	Yes = 1, No = 0	**Governance indicators**
Ballot	Voting by secret ballot?	Yes = 1, No = 0	
Audit	Annual accounts subject to independent audit?	Yes = 1, No = 0	
Lackinfo	Audited accounts accessible by all members?	Yes = 1, No = 0	
Notice	Sufficient notice period for AGM?	Yes = 1, No = 0	
Minutes	Minutes of AGM available to all members?	Yes = 1, No = 0	
Education	Management of the cooperative is trained?	Yes = 1, No = 0	

Seven of the variables presented in Table 3 were selected as indicators of enterprise performance. These variables are *surplus, lowequity, reliance, lowasset, lossmem, skillstrain and lackmark*. *Surplus* reveals the ability of the business to reward members. The variables *lowequity* and *reliance* suggest that the study cooperatives are not creditworthy in the eyes of private sector lenders or investors; hence, the enterprises are constrained to raising their capital through government donations and loans. Financial institutions have been

hesitant to provide credit to smallholder cooperatives due to the high risks associated with lending to them (Ortmann & King, 2007).

Low equity and debt have implications for the availability of growth assets for these cooperatives (*lowasset*). From the members' perspective, performance is measured by the variables *surplus, lossmem* and *skillstrain*. There has been a loss of members *(lossmem*) from the majority of the study cooperatives since they registered due to financial constraints, which resulted in some members losing hope, and some members misusing cooperatives to pursue political goals. The availability of a market (*lackmark*) and transport for cooperatives' produce is crucial to the overall performance of cooperatives.

Seven of the variables presented in Table 3 were selected as institutional indicators. These variables are *openmem, propsurp, capgains, horizon, influence, unity* and *labinput*. Although cooperative membership is open to new members, o*penmem* reflects that non-members qualify for the same prices paid to/by existing members, so creating an external free-rider problem. As expected in a TC, returns are not proportional to individual investment (*propsurp).* In TCs shares are non-transferable and non-appreciable (*capgains)* creating a disincentive for members to invest (Chaddad & Cook, 2004). The variables *horizon* and *unity* suggest the possibility of free-rider problems since the gains from cooperative action can be accessed by individuals that did not fully invest in developing the gains, whether those individuals are new(er) members or non-members. In TCs all members of a cooperative have equal voting power (one-member, one-vote). *Influence* suggests that members are discouraged from investing because their voting rights are not proportional to their individual equity contributions. Failure of production cooperatives to reward members according to their labour input (*labinput*) creates an incentive for members to shirk.

Seven of the variables presented in Table 3 were selected as indicators of governance. These variables are *election, ballot, audit, lackinfo, notice, minutes and education*. The variables *election* and *ballot* reveal the possibility of institutional flaws of TCs, leading to an influence problem (Cook, 1995). According to the Cooperatives Act of 2005, an audit *(audit)* of the affairs of a cooperative must be conducted annually to ensure that financial statements are drawn up in conformity with generally accepted accounting practices. In addition, cooperatives are required to provide a report on whether their assets and facilities are being properly managed and the operations of a cooperative are being conducted in accordance with cooperative principles. They should also provide information on any other matter the auditors are required to report on in terms of a cooperative's constitution (Republic of South Africa, 2005).

Positive scores on the variables a*udit, lackinfo, notice* and *minutes* indicate that provisions for good governance stipulated by the Cooperatives Act of 2005 have, in fact, been implemented. Access to necessary skills for members and education of management *(skillstrain* and *education*) are expected to have positive implications for the ability of members to improve overall performance of their cooperative (Ortmann & King, 2007).

Ranking the cooperatives according to the seven indicators of performance (listed in Table 3) distinguishes the vegetable cooperatives 3, 4 and 5, and the poultry cooperatives 2 and 3 as better performers (since they contain the most good characteristics or positive attributes of performance) and vegetable cooperatives 1 and 2 as the worst performers (since they contain the least number of positive attributes of performance). The ranking is presented in Table 4.

Table 4: Ranking of cooperative case studies according to performance indicators, KwaZulu-Natal, 2007

	Enterprise performance indicators *							**Total positive attributes**	**Ranking**
	Surplus	Lowequity	Reliance	Lowasset	Lossmem	Skillstrain	Lackmark		
Vegetable cooperative 3	1	1	0	0	0	1	1	4	**1**
Vegetable cooperative 4	1	0	0	0	1	1	1	4	**1**
Vegetable cooperative 5	1	0	1	0	0	1	1	4	**1**
Poultry cooperative 2	1	0	0	0	1	1	1	4	**1**
Poultry cooperative 3	1	0	0	1	1	1	0	4	**1**
Poultry cooperative 1	1	0	0	0	0	1	1	3	**6**
Bakery cooperative	1	1	0	0	0	1	0	3	**6**
Beef cooperative	0	0	0	1	0	1	0	2	**8**
Vegetable cooperative 1	0	0	0	0	1	0	0	1	**9**
Vegetable cooperative 2	1	0	0	0	0	0	0	1	**9**

Notes: *For all enterprise performance variables, 1 represents the presence of a positive attribute or good characteristic, and 0 otherwise. Scores are based on cooperative members' responses.

4.2 Cluster analysis of variables

In this study, cluster analysis was applied to the 21 indicators representing the three constructs in the empirical model; good performance, good organisational institutions and good governance indicators (Table 3). The specific aim of the analysis was to identify 'natural groupings' of these 21

variables. This was done by minimising the squared Euclidean distance within a decreasing number of clusters containing an increasing number of positively related variables. In this way, a relatively small number of clusters or natural groupings can be identified, each containing a reasonably homogenous group of variables. The conceptual model of performance (Figure 1) proposed in this study predicts that the 'natural groupings' identified by cluster analysis should contain a healthy mix of variables drawn from each of the different constructs because positive relationships are expected between sound institutional arrangements, good governance and good enterprise performance. In other words, **the natural groupings detected through cluster analysis should not coincide with the empirical constructs, as this would indicate the absence of strong positive relationships between the empirical constructs.**

4.3 Interpretation of results

Cluster analysis revealed two distinct natural groupings or clusters of variables. The mean Euclidean distance within clusters increases markedly from 2.318 to 5.057 when the number of clusters diminishes from two to one, indicating a sudden loss of homogeneity within the group of variables when fewer than two clusters are retained (Table 5). The cluster analysis undertaken in this study shows that institutional and governance variables affect performance in quite distinct ways as there is little mixing of these constructs in the clusters. There is little overlap between positive institutional and governance indicators, which is not consistent with the theoretical model illustrated by Figure 1. Perhaps this is because the cooperatives complied with the good governance requirements of the new Cooperatives Act and also with its bad institutional arrangements. Nevertheless, positive indicators of good institutional arrangements are correlated with the positive indicators of good performance captured in Cluster 1. Similarly, the positive indicators of good governance are correlated with the positive indicators of good performance captured in Cluster 2.

Table 5: Inter-relationships between performance, institutional and governance indicators, selected smallholder cooperatives, KwaZulu-Natal, 2007

Causal indicators	Openmem	Propsurp	Capgains	Horizon	Influence	Unity	Ballot	Education	Labinput	Election	Audit	Lackinfo	Notice	Minutes
Performance indicators	**Cluster 1**								**Cluster 2**					
Lowequity														
Reliance														
Lowasset														
Lossmem														
Surplus														
Skillstrain														
Lackmark														

Key:
Variables measuring institutional arrangements
Variables measuring governance problems

4.3.1 Cluster 1

Cluster 1 identifies positive relationships between the four performance indicators *lowequity, reliance, lowasset* and *lossmem*; six institutional variables *openmem, propsurp, capgains, horizon, influence* and *unity*; and two governance indicators *ballot* and *education*. Cluster 1 linked the subset of performance indicators that measure the 'equity capital problem' to institutional arrangements that discourage investment. *Openmem* indicates an external free-rider problem, which occurs when current members and non-members use resources for their individual benefit but property rights are not sufficiently well defined to ensure that current members or non-members bear the full costs of their actions and/or receive the full benefits they create. *Propsurp* indicates an internal free-rider problem, which arises when members of the cooperative are rewarded for patronage even if they invest very little in the cooperative. *Capgains* indicates a portfolio problem because members of a TC cannot transact equity shares at their market value. *Horizon* indicates members' disincentive to invest since shares in a TC traditional cooperative cannot appreciate in value, so new members free ride on the investments and efforts made by existing members without paying the full price for their shares. *Influence* indicates the inability of potential investors and lenders to influence the cooperative's investment decisions when voting power is not proportional to individual investment. Where benefit and voting rights are allocated in proportion to individual member investment, the investment and

the influence problems would be eliminated. The institutional variable *unity* indicates that differing members' goals negatively impacts cooperative performance. According to Von Pischke and Rouse (2004), harmonising members' interests and the cooperative's interests is the key to effective capitalisation.

Ballot indicates governance problems since voting was conducted by show of hands as opposed to voting by secret ballot in all selected cooperatives. A simple show of hands can bias the election of directors in favour of individuals with power rather than competency. A positive score on the governance variable, *education*, links strongly to positive scores on the institutional indicators. That is, *education* is positively correlated to good institutional arrangements suggesting that education is a prerequisite for the application of good institutions ('rules of the game').

4.3.2 Cluster 2

This cluster indicates positive relationships between the three performance variables *surplus, skillstrain and lackmark;* one institutional variable *labinput*; and five governance variables *election, audit, lackinfo, notice* and *minutes. Labinput* indicates that failure to provide equal work effort for an equal share of profit creates a 'labour' free-rider problem that discourages labour effort. This problem could sink the cooperative long before other institutional problems become evident.

In the main, Cluster 2 highlights positive links between indicators of good governance (*election, audit, lackinfo, notice* and *minutes*) and good financial, training and marketing performance in the selected cooperatives. Cooperatives that performed well on these measures tended to conduct regular elections for directors, had their books audited (either internally or externally), notified members of meetings, kept minutes and made their records available to all cooperative members.

5. Conclusions and recommendations

Results of a cluster analysis of variables measuring three constructs (comprising performance, institutional and governance indicators) suggest that the performance of the 10 selected smallholder cooperatives was influenced by institutional and governance problems. Institutional problems, which stem from poorly defined property rights in traditional cooperatives, give rise to low levels of equity and debt capital, reliance on government funding, low levels of investment, and subsequent loss of members.

Governance problems are strongly linked with the ballot system (absence of secret ballot), low levels of education, lack of production and management skills training, weak marketing arrangements and consequent low returns to members as patrons or investors. Good governance of cooperatives promotes discipline, transparency, independence, accountability, responsibility, fairness and social responsibility.

To promote good institutions and good governance among smallholder cooperatives in South Africa may require amendments to the Cooperatives Act of 2005. Current government support for cooperatives provides an incentive for businesses to compromise their institutional arrangements in order to access financial and extension support services. The findings of this study call into question the policy of giving support to cooperatives over other forms of business organisations that smallholders could use to increase their income and wealth. It is recommended that government support for cooperatives be extended to include other types of cooperative-styled businesses such as new generation cooperatives. Property rights need to be clearly defined to ensure that current members or non-members bear the full costs of their actions and/or receive the full benefits for their investment. Hence, the Act could be modified to provide flexibility to reward member investment in the cooperative. With regards to egalitarian voting rights, it is recommended that the Cooperatives Act of 2005 could be amended to allow cooperatives flexibility to provide members with voting rights in proportion to their patronage, investment or shareholding.

This study examined smallholder cooperatives producing and marketing various agricultural products in KZN. Unfortunately, the cases selected for study did not display much variation on the institutional and governance variables thought to influence cooperative performance. Future studies of this type need more *a priori* information about the cooperatives selected for case study to ensure sufficient variation on the variables used to test theoretical propositions.

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References

Anderson BL & Henehan BM (2003). What gives cooperatives a bad name? Department of Applied Economics and Management, Cornell University [Online]. http://www.agecon.ksu.edu/accc/ncr194/Events/2003meeting/AndersonHenehan.pdf (Accessed 20/10/2007).

Barratt N (1989). The co-operative model as an instrument in the community economic development process. Institute of Social and Economic Research, Working Paper No. 41, Rhodes University, Grahamstown.

Barton DG (1989). What is a cooperative? In D Cobia (Ed.), *Cooperatives in agriculture*. New Jersey: Prentice-Hall. pp 1-20.

Birchall J (2004). Cooperatives and the Millennium Development Goals. International Labour Office (ILO), Geneva, Switzerland [Online]. http://www.ilo.org/ (Accessed 15/10/2007).

Chaddad F & Cook ML (2004). Understanding new cooperative models: an ownership-control rights typology. *Review of Agricultural Economics* 26(3):348-360.

Chatfield C & Collins AJ (1980). *Introduction to multivariate analysis.* 2nd ed. London: Chapman and Hall.

CIPRO (Companies and Intellectual Property Registration Office) (2006). *Annual report* [Online]. http://www.cipro.co.za (Accessed 04/09/2007).

Clarke RL (1991). The measurement of physical distribution productivity: South Carolina, a case in point. *Transportation Journal* 31(1):14-21.

Cook LC (1995). The future of U.S. agricultural cooperatives: a neo-classical approach. *American Journal of Agricultural Economics* 77(5):1153-1159.

Cook ML & Iliopoulos C (2000). Ill-defined property rights in collective action: the case of US agricultural cooperatives. In C Menard (Ed.). *Institutions, contracts and organization. Perspectives from New Institutional Economics*. Cheltenham: Edward Elgar.

Crawford IM (1997). *Agricultural and food marketing management*. Rome: Food and Agricultural Organisation (FAO).

Crow R (2006). Publishing cooperative: an alternative for society publishers. A SPARC Discussion Paper, The scholarly publishing and academic resources coalition [Online]. http://www.arl.org/sparc/bm~doc/cooperatives_v1.pdf (Accessed 20/06/2008).

Delgado CL (1998). *Sources of growth in smallholder agriculture in Sub-Saharan Africa: the role of vertical integration of smallholders with processors and marketers of high value-added items*. Paper presented at the Inter-Conference Symposium of the International Association of Agriculture Economists, Badplaas, South Africa, August 10-16.

Dess GG & Robinson RB Jr (1984). Measuring organizational performance in the absence of objective measures: the case of the privately held firm and conglomerate business unit. *Strategic Management Journal* 5:265-73.

Garson GD (2008). Cluster analysis. Statsnotes from North Carolina State University [Online].
http://www2.chass.ncsu.edu/garson/pa765/discrim.htm (Accessed 02/08/2008).

Gassenheimer JB, Sterling JU & Robicheaux RA (1989). Long-term channel member relationships. *International Journal of Physical Distribution & Logistics Management* 19(12):15-28.

Graham J, Amos B & Plumptre T (2003). *Principles for good governance in the 21st century*. Policy brief No. 15. Institute on Governance, Ottawa, Canada.

Harrington TC, Lambert DM & Christopher M (1991). A methodology for measuring vendor performance. *Journal of Business Logistics* 12(1):83-104.

Hendrikse G & Veerman C (2001). Marketing cooperatives and financial structure: a transaction cost economics analysis. *Agricultural Economics* 26:205-216.

ICA (International Cooperative Alliance) (2005) [Online]. http://www.ica.coop/ (Accessed 18/07/2007).

Kherallah M & Kirsten JF (2002). The New Institutional Economics: applications for agricultural policy research in developing countries. *Agrekon* 41(2):110-133.

King ME (2002). *King Report on Corporate Governance for South Africa 2002*. Parklands: Institute of Directors in Southern Africa.

Klein PG (1999). New Institutional Economics. Working paper. Department of Economics, University of Georgia [Online]. http://encyclo.findlaw/0539book.pdf (Accessed 25/06/2008).

Kyriakopoulos K (2000). The market orientation of cooperative organizations: learning strategies and structures for integrating firm and members. Assen, The Netherlands: Uitgeverij Van Gorcum.

Kyriakopoulos K, Meulenberg M & Nilsson J (2004). The impact of cooperative structure and firm culture on market orientation and performance. *Agribusiness* 20(4):379-396.

Landell-Mills P & Serageldin I (1992). Governance and the external factor. In *Proceedings of the World Bank Annual Conference on Develop*m*ent Economics 1991*. Washington, DC: World Bank.

Ling CK (2005). Dairy cooperative growth challenges: technology, ingredients (proteins) and equity financing. Research report 206. United States Department of Agriculture (USDA), Washington, DC, USA.

Lyne MC & Collins R (2008). South Africa's new Cooperative Act: a missed opportunity for small farmers and land reform beneficiaries. *Agrekon* 47(2):180-197.

Machethe CL (1990). Factors contributing to poor performance of agricultural cooperatives in less developed areas. *Agrekon* 29(4):305-309.

Magingxa LL & Kamara AB (2003). Institutional perspectives to enhancing smallholder market access in South Africa. Paper presented at the 41st annual conference of the Agricultural Economics Association of South Africa (AESA), October 2-3, Pretoria, South Africa.

Ngubane Z (2008). Personal communication. Extension Officer, KwaZulu-Natal Department of Agriculture and Environmental Affairs, Allerton, Pietermaritzburg, KwaZulu-Natal, South Africa.

North D (1990). *Institutions, Institutional Change and Economic Performance*, Cambridge, Cambridge University Press. UK.

North DC (2000). A revolution in economics. Chapter 4 in: C Menard (Ed.). *Institutions, contracts and organisations: perspectives from New Institutional Economics.* Edward Elgar: Cheltenham.

Nilsson J (2001). Organizational principles for cooperative firms. *Scandinavian Journal of Management* 17(3):329–356.

Olson M (1965). *The logic of collective action: public goods and the theory of groups*. USA: Harvard University Press.

Ortmann GF & King P (2007). Agricultural cooperatives I: history, theory and problems. *Agrekon* 46:40-68.

Philip K (2003). Co-operatives in South Africa: their role in job creation and poverty reduction [Online]. http://www.sarpn.org.za (Accessed 04/04/2007).

Read WF & Miller MS (1990). The state of quality in logistics. *International Journal of Physical Distribution & Logistics Management* 21(6):32-47.

Republic of South Africa (2005). *Cooperatives Act 2005*. Government Gazette Vol. 482 No. 27912 [Online]. http://www.info.gov.za (Accessed 08/06/2007).

Saner M & Wilson J (2003). Stewardship, good governance and ethics. Policy brief 19. Institute on Governance, Ottawa, Canada.

Van der Walt L (2005). *The resuscitation of the cooperative sector in South Africa*. Paper presented at the International Co-operative Alliance XXI International Cooperative Research Conference, 11-14 August 2005, Cork, Ireland.

Van Niekerk JAS (1988). *Cooperative theory and practice*. Silverton: Promedia Publications.

Von Pischke JD & Rouse JG (2004). *New strategies for mobilising capital in agricultural cooperatives*. Rome: Food and Agriculture Organization (FAO) of the United Nations.

Williamson OE (2000). The New Institutional Economics: taking stock, looking ahead. *Journal of Economic Literature* 38: 595-613.

Yavas U, Luqmani M & Quraeshi ZA (1989). Purchasing efficacy in an Arabian Gulf Country. *International Journal of Physical Distribution & Logistics Management* 19(4):20-25.

Zulu G (2007). Personal communication. Deputy Manager of Agricultural Cooperatives in KZN, KwaZulu-Natal Department of Agriculture and Environmental Affairs, Cedara, KwaZulu-Natal, South Africa.