Staff Paper P06-4 January 2006

Staff Paper Series

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Small-scale farmers in South Africa: Can agricultural cooperatives facilitate access to input and product markets?

Gerald F. Ortmann[1] and Robert P. King[2]

Summary

Small-scale (communal) farmers in South Africa have limited access to factors of production, credit and information, and markets are often constrained by inadequate property rights and high transaction costs. The objective of this research is to investigate whether agricultural cooperatives - considered by the South African (SA) government as organizations that could help promote community and economic development - can facilitate smallholder access to input and product markets that could enhance their development. This paper initially discusses the principles of cooperation, and briefly describes the history and development of agricultural cooperatives in developed and less-developed countries, with an emphasis on the United States and South Africa. A new Cooperatives Act, based on international principles of cooperation, was promulgated in South Africa in August 2005. The theory of cooperatives, and new institutional economics theory (NIE) (including transaction cost economics, agency theory, and property rights theory) and its applicability to the cooperative organizational form, are also presented, as are the inherent problems of traditional cooperatives, namely free-rider, horizon, portfolio, control, and influence cost problems caused by vaguely defined property rights. An analysis of the future of cooperatives in general, based on a NIE approach, suggests a life cycle for cooperatives (formation, growth, reorganization or exit) as they adapt to a changing economic environment characterized by technological change, industrialization of agriculture, and growing individualism.

Several large-scale cooperatives in South Africa have converted to investor-oriented firms (IOFs) in recent years, and there is a considerable debate in the country on whether (commercial)

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farmers' interests are better served by cooperatives or by IOFs. Proponents of IOFs argue that these organizations have easier access to various sources of capital, are better able to attract top-quality management, shareholders' interests are aligned with those of customers, and they have an entrepreneurial flair that is often missing in cooperatives. Cooperative members are also reluctant to fully capitalize their cooperative (due to poor returns on their capital invested), so that the cooperative cannot provide a top-quality service and match the competition from IOFs. Cooperative supporters argue that cooperatives exist to service their members, who retain influence over cooperative functions and activities; they can reduce costs, enhance incomes, and improve the viability of business activities, and thus have significant potential to contribute towards reducing poverty, enhancing empowerment, and creating jobs.

To analyze the question whether a cooperative is the appropriate organizational form for smallholders in South Africa to use to facilitate access to input and product markets, it is important to understand the characteristics of smallholders in less-developed areas of South Africa. These are illustrated with a case study of farmers in two communal areas of the KwaZulu-Natal province, namely Impendle and Swayimana. These smallholders (with average allocated cropland areas of 1.1 and 1.8 hectares, respectively) face high transaction costs as reflected primarily in their low levels of education and literacy, lack of market information, insecure property rights, poor road and communication infrastructure, and long distances to main roads. The appropriateness of cooperatives for these farmers is investigated by first considering the reasons why cooperatives were originally established in various parts of the world and to what extent these conditions also apply to the case study farmers. The analysis suggests that most of the reasons (such as poverty, market failure, drive for self-help, desire to improve income, enhancing bargaining strength, and reducing transaction costs with traders) also apply to the study farmers. Further analysis suggests that the seven international principles of cooperation (i.e., voluntary and open membership; member economic participation; autonomy and independence; provision of education, training and information; cooperation among cooperatives; and concern for community) would also apply to, and likely be accepted by, the smallholders.

The extent to which the inherent weaknesses of traditional cooperatives would constrain the establishment and development of cooperatives in the rural communities is also analyzed. The analysis suggests that a cooperative established on traditional principles in the study area would be faced with free-rider, horizon, and portfolio problems. These potential constraints may initially, as the cooperative is established and members of similar wealth try to make it work, not cause insurmountable problems. But they could constrain investments in, and growth of, the cooperative in the future. Control and influence cost problems could also emerge as the cooperative grows and expands its membership and activities. Proponents and potential leaders of cooperatives in less-developed areas should also keep an open mind about the growth cycle of cooperatives, and that there may be pressure later by members on managers and directors to convert their cooperative into another ownership form, such as a new generation cooperative or an IOF.

Understanding the causes of cooperative failures in the former homelands of South Africa is important in order to avoid similar occurrences in the future. Poor management, lack of training, conflict among members, and lack of funds appear to be important contributory factors. Members of failed or poor-performing cooperatives appear to have failed to clearly understand the purpose of a cooperative, how it functions, and what members' rights are. This could stem from their lack of education, training, and information, which also apply to the case study farmers. Strategies that could help prevent cooperative failures in the study areas and improve the likelihood of establishing and operating successful cooperatives include both external and internal factors. External factors include government playing a proactive role in creating a legal, economic, administrative, and institutional environment that will promote private initiatives, such as the formation of marketing associations or cooperatives. In particular, government should provide physical and legal infrastructure to reduce transaction costs, including risk, so that markets for products and resources (such as land) work more efficiently. Improvements in physical infrastructure, such as roads and telecommunication facilities, would help to reduce transport and communication costs for farmers and traders, and ease access to input and product markets. Group action could further enhance access to these markets by reducing transaction costs for individual members and traders.

Legal infrastructure includes independent courts that enforce private property rights, uphold contracts, and minimize uncertainty in land rental and other business transactions. As part of its land reform program, government should consult widely with traditional leaders to promote land rental markets in communal areas so that households who want to farm can rent land from those that do not wish to farm. The former households would then be able to expand their farm businesses and take advantage of economies of size. These households may also be proactive members of a cooperative, which they could help to establish to reduce their transaction and input costs, and enhance their farming incomes. Appropriately educated and motivated extension agents could provide a valuable service with regard to the promotion of land rental markets and the formation of associations such as cooperatives. Non-governmental organizations (NGOs) could also play a vital role in these initiatives as they often have knowledgeable and motivated staff.

There are also internal strategies that are crucial for cooperatives to succeed in less-developed areas. These include: strong and enthusiastic leadership in the community for group action; competent managers and directors promoting members' interests and identity with their cooperative; participation of members in formulating cooperative policy; keeping adequate stocks of farming requisites; maintaining competitive prices for inputs and products; providing transport for members' purchased inputs and products for sale; educating members; facilitating members' access to credit; and ensuring the quality and safety of products. The effectiveness of these internal requirements largely depends on educating and training cooperative members, managers and directors. This function could be performed by the Department of Trade and Industry (which is responsible for the administration of cooperatives in South Africa), an appropriately educated extension service, successful cooperatives, NGOs, and possibly advisors employed by marketers (e.g., supermarkets) and processors of agricultural products.

In the case study areas, both Impendle and Swayimana have the potential to grow high-value crops such as vegetables, fruit, and cut flowers. In the (vegetable) supply chain from production to market, the optimum boundary for each organization involved in the chain (e.g., cooperative, IOF) depends on the minimum operational and transaction costs for each business. For example, the optimal arrangement for a cooperative in a rural area may encompass the production and

assembly (including washing, sorting, and packaging) of vegetables. The efficient boundary of an IOF operating from a central market (urban or township) may include transporting the value-added products from the cooperative to township consumers. Such an optimal "hybrid" arrangement across the vegetable supply chain could benefit both cooperative members (smallholders) and IOFs.

Further research in this field could include a detailed (case study) analysis of operational and transaction costs for organizations in a particular vegetable supply chain and determining the efficient boundaries for each business. Should cooperatives feature in such a supply chain, other research could ascertain the degree of knowledge among government departments (e.g., extension service, DTI), smallholders, NGOs and other development advisors, of cooperative principles, benefits and problems, and potential support from government for smallholders who wish to cooperate. Outcomes may point to the likely education and training needs of various role players interested in forming cooperatives. Policymakers may also then wish to reconsider their strategies regarding support for cooperatives serving small-scale farmers.

1. Introduction

South African (SA) agriculture is of a dual nature, with a well-developed commercial sector comprising about 46,000 commercial farmers occupying 86% of agricultural land, while small-scale communal farmers occupy the remaining 14% of farmland (Directorate: Agricultural Statistics, 2005). Since the early 20th century agricultural cooperatives have played an important role in the development of the commercial agricultural sector in South Africa. With government's support for commercial farmers (e.g., through subsidized interest rates, tax concessions, and price supports), cooperatives have served commercial agriculture as suppliers of inputs to farmers (e.g., seed, fertilizer, chemicals, fuel, and credit), marketers of their commodities as agents for various marketing (control) boards, and by providing services (e.g., grain storage and transport). Small-scale farmers in South Africa did not have access to the services of these cooperatives under the previous (apartheid) government's policies, which restricted black farmers' activities to the former homelands.

Since the election of a democratic government in 1994, and the subsequent elimination of government support for commercial farmers and their cooperatives, several of these cooperatives have converted to investor-oriented firms (IOFs). These cooperatives had lost considerable business because they could no longer serve as agents (regional monopolists) for government marketing boards, which were abolished in the 1990s (Piesse *et al*., 2003). Increasing pressure on cooperatives to become more efficient and the problems inherent in traditional cooperatives (such as free-rider, horizontal, and portfolio problems (Cook, 1995)) may have also played a role in the decision to convert to IOFs. Despite the conversion, the present government is promoting the use of cooperatives as organizations that could help enhance the development of small-scale farmers and other communities in South Africa. In August 2005 a new Cooperatives Act (No.14 of 2005), based on international cooperative principles, was signed into law by the South African (SA) government. This Act sees a major role for cooperatives in promoting the economic and social development of the country "in particular by creating employment, generating income, facilitating broad-based black economic empowerment and eradicating poverty" (RSA, 2005b: 2). The government has committed itself to providing a supportive legal environment for cooperatives.

The objective of this paper is to research the question whether traditional cooperatives, or other cooperative organizational forms, are the appropriate vehicle to reduce transaction costs and facilitate access of small-scale farmers in South Africa to input and product markets that could promote their development. Small-scale farmers in South Africa, and in other developing countries, have limited access to factors of production, credit and information, and markets are often constrained by inadequate property rights and high transaction costs (Lyne, 1996; Matungul *et al*., 2001). High transaction costs, including the costs of information and the costs associated with the search for trade partners, the distance to formal markets and contract enforcement, are detrimental to the efficient operation of markets for inputs and products (Williamson, 1985). Institutional arrangements, such as vertical cooperation (e.g., through contract farming) and horizontal cooperation (through producer groups such as cooperatives), may help to reduce the relatively high transaction costs smallholders face and may help them to overcome access barriers to production resources, information, services and markets for high-value products (Delgado, 1999; Holloway *et al*., 2000). Relatively little research has been done

on agricultural cooperatives in South Africa during the last decade; for example, since 2000 only three articles that refer directly to cooperatives have been published in *Agrekon*, the official journal of the Agricultural Economics Association of South Africa (AEASA). This research also aims to inform policy-makers and advisors on the role, if any, that cooperatives could play in agricultural and community development in South Africa.

The next section defines cooperatives and deals with the principles, history and development of cooperatives in developed and less-developed countries, with particular reference to their role in the United States (US), as a major global producer and exporter of agricultural commodities, and in South Africa, where this study is focused. In section 3 the theory of cooperatives, with particular reference to the neo-classical and new institutional economics (NIE) approaches, will be presented. This will inform the developments that have occurred in cooperative organizational form and conversion of some traditional cooperatives to investor-oriented firms and the rise of new generation cooperatives. Section 4 emphasizes the problems inherent in traditional cooperatives, which is followed with an analysis of the future of agricultural cooperatives. Section 6 presents a case study of small-scale farmers in two communal areas of South Africa and what role, if any, cooperatives could play to facilitate their development. The paper ends with some conclusions and recommendations.

2. Definition, principles, and history of cooperatives

This section deals with the definition and unique principles of cooperatives, relative to other (investor-oriented) firms, and also briefly covers the history and development of agricultural cooperatives globally, in the US, and in South Africa.

2.1 Definition and principles of cooperatives

The International Cooperative Alliance (ICA, 2005) defines a cooperative as "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise". The seven internationally recognized cooperative principles are: voluntary and open membership;

democratic member control; member economic participation; autonomy and independence; provision of education, training and information; cooperation among cooperatives; and concern for the community (see Appendix 1 for more details on each principle). In 1987 the United States Department of Agriculture (USDA) adopted just the three principles of user ownership, user control and user benefit (roughly the first three ICA principles) following arguments that cooperatives operating in global markets, particularly agricultural marketing and supply cooperatives, cannot afford to internalize the ICA values and principles but have to focus on fewer, more self-centered principles just to survive (Birchall, 2005). The other principles, it could be argued, are also held by other organizations.

Essentially, then, a cooperative is a user-owned and user-controlled business that distributes benefits equitably on the basis of use or patronage (Barton, 1989). Thus, a farmer member who accounts for 5% of the volume of corn delivered to the cooperative would receive 5% of the net earnings derived from the handling, processing and marketing of that corn or related products. "Such patronage dividends help boost the income of farmers directly or by reducing the effective cost of the goods and services provided" (National Council of Farmer Cooperatives (NCFC, 2005). This principle is often referred to as "business-at-cost" (Barton, 1989). The US National Cooperative Business Association (NCBA, 2005) also emphasizes the unique characteristics of cooperatives relative to other (investor-oriented) businesses:

- Cooperatives are owned and democratically controlled by their members (i.e., those that use the cooperative's services or buy its goods) and not by outside investors. Members elect their board of directors from their ranks. Major policy decisions are based on the one-member, one-vote principle, regardless of each member's investment in the cooperative.
- Cooperatives return surplus income (revenue over expenses and investment) to members in proportion to their use or patronage of the cooperative, and not proportionate to their investment or ownership share.
- Cooperatives are motivated not by profit, but by providing a service to satisfy members' requirements for affordable and quality goods or services.
- Cooperatives exist solely to serve their members.

- Cooperatives pay taxes on income retained for investment and reserves. Surplus revenues are returned, according to patronage, to individual members who pay taxes on that income.

Barton (1989: 8) generally agrees with these views and describes the basic characteristics of cooperatives as follows: Their primary purpose is to provide economic benefits for members; members are usually patrons; members own and control the cooperative; qualifying patrons receive distribution of benefits according to patronage; cooperatives are private organizations; and public policy establishes the institutional framework. Barton (2000b) presents in some detail five sets of cooperative principles that have evolved over time, namely the Rochdale, traditional, proportional, contemporary, and ICA principles, with current practice in agriculture being most closely aligned with the traditional and contemporary (USDA) principles. He also provides a useful comparison of five legal forms of doing business, namely proprietorships, partnerships, corporations, cooperatives, and limited liability companies.

Why are cooperatives being established? The NCBA (2005) argues that cooperatives "are formed by their members when the marketplace fails to provide needed goods and services at affordable prices and acceptable quality. Cooperatives empower people to improve their quality of life and enhance their economic opportunities through self-help". The NCFC (2005) echoes these sentiments by providing the following reasons why cooperatives were, or are being, formed: to strengthen bargaining power; maintain access to competitive markets; capitalize on new market opportunities; obtain needed products and services on a competitive basis; improve income opportunities; reduce costs; and manage risk. Essentially, then, farmers form(ed) cooperatives with the objective to generate greater profits, (1) by obtaining inputs and services at lower costs than they could obtain elsewhere or that were not available, and (2) by marketing their products at better prices or in markets that were previously not accessible (Barton, 2000a).

Many types of cooperatives have been established worldwide to serve the interests of members, including consumer, producer, worker, and service cooperatives. According to the NCBA (2005), there are 48,000 cooperatives serving 120 million people in the US, whereas globally some 750,000 cooperatives serve 730 million members. The various cooperative types provide

members with diverse products and services, including financial services, equipment and farm supplies, marketing of agricultural products, consumer goods, utilities (e.g., electricity, telephone), housing, and other services (e.g., insurance, legal). Barton (2000a) points out that, although cooperatives are common in many parts of the world, their most extensive and successful use during the last century has been in North America and Europe.

This study will focus on agricultural cooperatives that serve farmer members. In general, agricultural cooperatives can be classified into three broad categories according to their main activity, namely marketing cooperatives (which may bargain for better prices, handle, process or manufacture, and sell farm products), farm supply cooperatives (which may purchase in volume, manufacture, process or formulate, and distribute farm supplies and inputs such as seed, fertilizer, feed, chemicals, petroleum products, farm equipment, hardware, and building supplies), and service cooperatives (which provide services such as trucking, storage, ginning, grinding, drying, artificial insemination, irrigation, credit, utilities, and insurance) (Cropp and Ingalsbe, 1989; USDA, 2004). These cooperatives usually vary greatly with regard to functions performed, and can also vary greatly in size. Most of the agricultural cooperatives are relatively small businesses. In 1999, for example, 50% of cooperatives in the US had less than $5 million in gross business volume and accounted for about 3% of total agricultural cooperative business, whereas 0.5% of cooperatives had a gross business volume of $1 billion or more and accounted for 43% of total business volume (Cropp, 2002a). Table 1 summarizes for each main cooperative category the estimated number of cooperatives, membership and business volume in the US in 2002.

Although marketing cooperatives accounted for half of the total number of farmer cooperatives in the US in 2002, they had fewer members than farm supply cooperatives but accounted for over two-thirds of cooperative business volume in dollar terms. Dairy products accounted for 34% of the gross business of marketing cooperatives, grain and oilseeds 26%, livestock and livestock products 13%, and fruits and vegetables 11%. These four commodities thus accounted for 84% of the gross business of marketing cooperatives in 2002. Petroleum (36%), feed (21%), and fertilizer (16%) are the largest business volume items for supply cooperatives (USDA,

2004). Related service cooperatives made up 12% of farmer cooperatives and accounted for a relatively low membership and business turnover.

Table 1: Estimated number, membership, and business volume of marketing, supply and related service cooperatives in the US, 2002

Item	Marketing Cooperatives	Farm Supply Cooperatives	Related Service Cooperatives*	Total
Number	1,559 (50%)	1,201 (38%)	380 (12%)	3,140 (100%)
Membership ('000)	1,049 (37%)	1,637 (59%)	107 (4%)	2,793 (100%)
Gross Business (million $)	76,618 (69%)	31,519 (28%)	3,416 (3%)	111,553 (100%)

* Includes cooperatives whose major activity is providing services related to marketing and supply activities (such as trucking, storage, grinding, etc.)

Source: USDA (2004: X-15)

It is significant that the number of farmer cooperatives has been declining since 1930 (when there were about 12,000), due mainly to consolidations, changing industry structure, and decreasing farm numbers (Cropp and Ingalsbe, 1989). In the period 1993 to 2002, for example, the total number of farmer cooperatives decreased from 4,244 to 3,140, membership declined from 4 to 2.8 million, but gross business turnover, although fluctuating, increased to $111.6 billion from $97.7 billion in nominal terms (USDA, 2004). More recently, the NCFC (2005) estimated the number of farmer cooperatives in the US as 2,950, of which 263 (9%) are in Minnesota, 230 (8%) in Texas, 229 (8%) in North Dakota, and 170 (6%) in Illinois. In 1999, these cooperatives supplied farmers with 27% of their inputs and marketed 27% of their products (Cropp, 2002a). US cooperatives also have several support organizations, headquartered in Washington, DC, that represent their interests. Cropp (1989) describes their functions and activities.

The history and development of agricultural cooperatives in industrialized and less-developed countries is discussed in the next section.

2.2 History of agricultural cooperatives

The modern cooperative originated in Europe, and during the late 19th century spread to other industrializing countries as a self-help method to counter extreme conditions of poverty (Hoyt, 1989). This section briefly describes the history of cooperatives, first in developed countries, with an emphasis on the US, and then in developing countries, with a focus on cooperative development in South Africa.

2.2.1 In developed countries

Several authors have described the history and development of cooperatives in developed countries (e.g., van Niekerk, 1988; Ingalsbe and Groves, 1989; Egerstrom, 1994; Thompson, 1994; Cropp, 2002b; DTI, 2003). Ingalsbe and Groves (1989) and Cropp (2002b), for example, provide a useful overview of the earliest known origins of cooperative principles and their application to economic endeavors. Table 2 summarizes the earliest recorded cooperatives in selected countries.

There appears to have been a flurry of cooperatives established in various European countries during the mid-1800s, particularly consumer cooperatives. However, one development that probably had the greatest singular impact on determining agricultural cooperatives' unique operating principles was the formation in 1844 of the Rochdale Society of Equitable Pioneers, Ltd. This was a consumer cooperative established in Rochdale, England, by a group of workers representing various trades who formulated a set of basic operating rules based on a two-year study of cooperatives, including some that were not successful. The cooperative's objectives were to address members' needs for better housing, employment, food, education and other social requirements. Another important development regarding cooperatives serving as credit or banking institutions was the establishment of the first savings and credit cooperative in 1864 by Friedrich Wilhelm Raiffeisen in Germany. The objective of the Raiffeisen Bank was to provide

savings and credit services in urban and rural areas based on the idea of "self-help". Raiffeisen is generally given credit for developing the rules that govern present-day credit unions (Ingalsbe and Groves, 1989).

Table 2: Earliest recorded cooperatives in selected countries

Year	Country	Cooperative Type
1696	Great Britain	Fire Insurance
1752	United States	Fire Insurance
1816	Poland	Agriculture
1842	Spain	Consumer
1848	Belgium	Bakery
1849	Germany	Credit
1850	Sweden	Consumer
1851	Norway	Consumer
1853	Italy	Cattle insurance
1863	Bulgaria	Credit
1866	Denmark	Consumer
1876	Netherlands	Consumer

Source: Ingalsbe and Groves (1989)

The development of cooperatives over time has been due to many factors and influences. Ingalsbe and Groves (1989) group these into three main types (all interrelated): (1) economic conditions (caused by war, depression, technology, government economic policy, etc.); (2) farmer organizations (including quality of their leadership, their motivation and enthusiasm to promote cooperatives, power to influence public policy, etc.); and (3) public policy (as determined by government interest, legislative initiative, and judicial interpretation). In the US the Capper-Volstead Act of 1922, in particular, promoted cooperative growth by clarifying antitrust law treatment of agricultural cooperatives and by allowing farmers to "act together in associations" to process and market their products collectively (Ingalsbe and Groves, 1989). During the 1920s and 1930s, an era of cooperative growth, two major schools of thought on the

organizational approach and role of cooperatives had developed in the US, namely the Sapiro monopoly approach and the Nourse yardstick approach. Aaron Sapiro, a California attorney who worked with cooperatives, "emphasized a legalistic approach to cooperative businesses, advocating the formation of legal monopolies by agricultural producers on a commodity basis". Edwin G. Nourse, an Iowa Sate University agricultural economics professor, felt that "cooperatives should operate in the capitalistic system as a competitive yardstick, that is, as efficient businesses that would keep other businesses in line and make the whole economic system operate more efficiently" (Ingalsbe and Groves, 1989: 116-117). Many cooperatives were established on the basis of the ideas propagated by Sapiro and Nourse. Details on these two schools of thought have been presented by various authors (e.g., Ingalsbe and Groves, 1989; Royer, 1999; Cropp, 2002b).

Cropp (2002b) provides a detailed overview of cooperative development in the US over various time periods and how they have adapted, and are adapting, to changes in the economic and policy environment. Since about 1988 two phenomena have been occurring in the organization of agricultural cooperatives in the US, namely, (1) traditional cooperatives have been adjusting by restructuring and consolidation, and (2) the development of new generation cooperatives (NGCs) (Cook, 1995). NGCs retain many of the characteristics of traditional cooperatives, but they focus on value-added activities. Member capital contributions are linked to product delivery (marketing) rights which attain value and can be transferred, and membership is closed or restricted (NGCs will be discussed in more detail in section 5). These developments suggest that cooperative strategies are becoming more offensive in nature. Cropp (2002b) contends that cooperatives in the US have matured to become a significant force in agriculture, and play an increasing role in influencing national agricultural policies.

2.2.2 In developing countries

Agricultural cooperatives in many developing countries tend to focus more on food marketing than on production. Attempts to organize farmers into cooperatives have often failed, although cooperatives have the potential to supply farm inputs and market farm products that are both important for agricultural development (Hoyt, 1989). The DTI (2003) provides a brief overview

of cooperative development in African countries. Akwabi-Ameyaw (1997) suggests that in Africa farmer cooperatives have often failed because of problems in holding management accountable to the members (i.e., moral hazard), leading to inappropriate political activities or financial irregularities in management. Van Niekerk (1988) reports that cooperative failures in the former (less-developed) homelands of South Africa were due mainly to lack of management experience and knowledge, lack of capital resources, and disloyalty of members due to ignorance. Some successes include food-processing cooperatives in Argentina and Brazil, and cooperatives processing and marketing milk, sugar, and oil seeds in India (Hoyt, 1989). ACDI/VOCA (2005) lists a number of successful cooperative ventures that they helped to establish in developing countries. Government policies regarding cooperatives are critical because they can constrain or enhance independent cooperative development (Hoyt, 1989).

The history of cooperative development in South Africa has been documented by several authors (e.g., van Niekerk, 1988; DTI, 2003; Piesse *et al*., 2003; RSA, 2005a). The first cooperative in South Africa was a consumers' cooperative that was established in 1892 under the Companies Act, as no cooperatives act existed at the time (van Niekerk, 1988: 19). Several more cooperatives, particularly agricultural cooperatives, were registered under the Companies Act until 1908 when the first Cooperative Act was passed. This was followed by the Cooperative Societies Act of 1922 (Act No. 28 of 1922), which focused mainly on agricultural activities. Following recommendations by the Commission of Inquiry into Cooperatives and Agricultural Credit of 1934, the Cooperative Societies Act of 1939 (Act No. 29 of 1939), which still focused on agricultural activities, was passed by the SA Parliament. This Act, in turn, was repealed by the Cooperatives Act, 1981 (Act No. 91 of 1981), which also made provision for trading cooperatives. The 1981 Act was amended on at least eight occasions (RSA, 2005a).

The present government did not consider the 1981 Act as a suitable vehicle for the development of cooperatives in the present era for various reasons (e.g., inadequate definition of a cooperative – registered cooperatives are not explicitly required to conform with cooperative principles; presumption that the state play a highly interventionist or paternalistic role in relation to cooperatives; focus primarily on agricultural cooperatives; provisions protecting members' interests, particularly in regard to the board of directors, are poorly articulated; and onerous

requirements to register a cooperative) (RSA, 2005a). It thus initiated the process of developing a new Act based on international (ICA) principles. This process commenced with the publication of a draft Bill in 2000 and a further revised draft in 2003 for comment. Comments were received from a wide range of organizations, interest groups and individuals. The revised Bill culminated in the Cooperatives Act, 2005 (No.14 of 2005), which was published in the *Government Gazette* on August 18, 2005 (RSA, 2005b). A wide variety of primary cooperatives can register in terms of this Act (including agricultural, consumer, housing, worker, financial services, burial society, and service cooperatives), as well as secondary cooperatives (formed by two or more primary cooperatives to provide sectoral services to its members) and tertiary cooperatives (whose members are secondary cooperatives, and whose objective is to advocate and engage state institutions and the private sector on behalf of its members).

The development of the Cooperative Acts and agricultural cooperatives in general should also be seen in the context of other laws and regulations that were implemented by the SA government in support of (white) commercial farmers. The Land Acts of 1913 and 1936, aimed at removing blacks from designated white areas and consolidating the black homelands, were supplemented by other measures to support commercial farmers, including the establishment of the Land and Agricultural Bank (Land Bank) in 1912 (to provide subsidized loans to commercial farmers), the Cooperatives Societies Acts of 1922 and 1939 (to secure input supply and output marketing services), and the Marketing Act of 1937 (to control the marketing of agricultural products). In this environment the agricultural cooperatives emerged and thrived. Traditionally, many cooperatives were involved in three main areas of business: (1) the purchase and sale of agricultural inputs and equipment; (2) the purchase, storage and subsequent sale of agricultural commodities; and (3) transport services (Piesse *et al*., 2003). However, the Land Bank also used cooperatives as its agents to provide short- and medium-term credit to commercial farmers at subsidized interest rates, while the government used cooperatives to channel disaster assistance to farmers, usually in the form of debt consolidation. The agricultural cooperatives thus became financial intermediaries. The Marketing Act of 1937 (later updated as Act 59 of 1968) enabled use of various policy instruments (such as single-channel schemes, pool schemes, and export monopolies) to manage the marketing of agricultural commodities through 23 marketing (control) boards, which were established under the Act. Cooperatives were usually appointed as

agents to the respective marketing boards, giving them effective regional monopoly power (Piesse *et al*., 2003).

However, the substantial costs of supporting commercial farmers - in terms of subsidies, price support, tax concessions and the misallocation of resources caused by distorted prices - were not sustainable. With political change also happening, a series of reforms commenced in the 1980s, including removal of subsidies and tax concessions, and deregulation of agricultural financing and marketing, which reduced the role of agricultural cooperatives and made them less dependent on government support. The 1993 recommendations of the Committee of Enquiry into the Marketing Act on deregulation of agricultural marketing and repeal of the Marketing Act of 1968 led to the Marketing of Agricultural Products Act, No. 47, of 1996, which ended state control of agricultural commodities and resulted in the demise of the marketing boards. With reforms of the financial sector happening concurrently, subsidies were abolished in the 1990s. These major policy reforms had a material effect on the role of cooperatives in South Africa. Cooperatives no longer have the privilege of being appointed as agents of various marketing boards, thus losing their regional monopoly powers, and are no longer involved in distributing government subsidies. While they still provide short- and medium-term credit to farmers, they have to perform this function on a commercial basis as the Land Bank now also has to compete with commercial banks for this business. Several cooperatives have converted to investor-oriented firms and some are listed on the Johannesburg Securities Exchange (Piesse *et al*., 2003).

In view of the history and development of cooperatives in South Africa, and the political changes that have occurred, the Cooperatives Act of 2005 recognizes:

- "the co-operative values of self-help, self-reliance, self-responsibility, democracy, equality and social responsibility;
- that a viable, autonomous, self-reliant and self-sustaining co-operative movement can play a major role in the economic and social development of the Republic of South Africa, in particular by creating employment, generating income, facilitating broad-based black economic empowerment and eradicating poverty;
- that the South African economy will benefit from increasing the number and variety of viable and sustainable economic enterprises;

- that government is committed to providing a supportive legal environment to enable co-operatives to develop and flourish".

The Act also aims to:

- "ensure that international co-operative principles are recognised and implemented in the Republic of South Africa;
- enable co-operatives to register and acquire a legal status separate from their members; and
- facilitate the provision of targeted support for emerging co-operatives, particularly those owned by women and black people" (RSA, 2005b: 2).

The Department of Trade and Industry (DTI), to which the administration of cooperatives was transferred from the National Department of Agriculture, has formulated a cooperative development policy after a participatory process (DTI, 2004). This policy recognizes cooperatives established under, and supported by, the previous (apartheid) government, but focuses on emerging cooperatives. The Cooperatives Bill (now Act) was drafted in line with this policy. A Cooperatives Development Unit has also been established within the DTI to enhance the development of cooperatives (e.g., by reviewing policies and strategies, coordinating government institutions and donor activities, and promoting the cooperative concept). The main role of the Registrar of Cooperatives is the registration and deregistration of cooperatives, and the legal supervision of the compliance of laws and regulations by cooperatives, while the Cooperatives Advisory Board, which represents the interests of cooperatives, is a statutory agency that advises the Minister of Trade and Industry on cooperative related issues (RSA, 2005b). Clearly, the SA government is committed to support the development of cooperatives, particularly amongst previously disadvantaged communities. However, it has stressed that before it will target cooperatives for support measures, it will require assurance that the organizations concerned are genuine cooperatives and subscribe to cooperative (ICA) principles (RSA, 2005a).

As far as agricultural cooperatives are concerned, Doyer (2005) feels that the agricultural sector has lost considerable intellectual and administrative capacity since the Registrar of Cooperatives moved to the DTI, which has adopted a centralization approach with only one department

dealing with all cooperatives. However, he believes that the new Act makes it easier than before to establish and operate a cooperative.

Several large cooperatives in South Africa have converted to IOFs in recent years and there is still considerable controversy in the agricultural community over the merits of cooperatives versus IOFs (AgriTV, 2003). Essentially, the controversy revolves around the question whether farmers' interests are better served by remaining members of a cooperative owned by them, or by an IOF that is managed and owned by shareholders. The arguments in favor of IOFs include their ability to easier access various sources of capital; their ability to attract top-quality management; the alignment of shareholders' interests with those of customers; and an entrepreneurial flair often missing in cooperatives. Also, as cooperative members are often reluctant to fully capitalize their cooperative (because they do not receive a competitive return on their capital), it cannot provide top-quality service and match the competition from IOFs. Thus, cooperative members face the member/shareholder conflict – they may receive a good service from their cooperative, but the return on their capital invested is poor compared to what shareholders in an IOF may receive on their investment in terms of dividends and the potential for capital growth. Proponents of cooperatives argue that a cooperative exists to service its members who are able to retain influence over its functions and activities (AgriTV, 2003). Philip (2003) supports the establishment of user cooperatives in South Africa and argues that they can reduce costs, enhance incomes, and improve the viability of business activities; they thus have significant potential to contribute towards reducing poverty, enhancing empowerment, and creating jobs.

At the end of 2004 there were 459 registered agricultural cooperatives in South Africa, while non-agricultural cooperatives numbered 3,751 (Registrar of Cooperatives, as cited by van der Walt, 2005). Although there have been relatively large numbers of new cooperative registrations over the last few years, van der Walt (2005) maintains that it is difficult to ascertain how many of these are actually active and thriving. In a recent study of a sample of 54 registered cooperatives in Limpopo province (one of the economically poorer provinces in South Africa), van der Walt (2005) found that 65% of these were not operational. Reasons provided include (in order of importance): poor management, lack of training, conflict among members, lack of funds, and operations never started after registration. Nearly 50% of respondents admitted that

the service provided to clients was inadequate, which could have caused conflict among members and failure. Overall, poor management was indicated as the most important reason for cooperative failure. These issues are clearly important for government officials who are promoting cooperatives and for the communities who wish to establish cooperatives. Education and training of managers and members, and mentoring of managers (at least over the short- to medium-term) appear to be critical, but not sufficient, requirements for the establishment and operation of successful cooperatives. Both external and internal factors, which will be discussed in section 6.4, determine the success of a cooperative.

In view of the history, development, problems experienced, and the fact that several cooperatives in South Africa (and globally) have converted to IOFs, the question remains whether a cooperative is the appropriate organizational form for emerging farmers in South Africa to use to help them gain access to input and product markets? Before an attempt is made to answer this question, the theory of cooperatives and the new institutional economics approach to cooperative organization will be presented in order to gain a deeper insight into the role of institutions in organizational design.

3. Theory of cooperatives and new institutional economics

3.1 Theory of cooperatives

Helmberger and Hoos (1962) can be regarded as having developed the first complete mathematical model of behavior of an agricultural cooperative. Sexton (1995: 92), who provides a brief overview of developments in the economic theory of cooperatives in the USA prior to Helmberger and Hoos' paper (see also LeVay, 1983; Sexton, 1984), considers their paper as "a landmark in the economic theory of cooperatives." Helmberger and Hoos use the neo-classical theory of the firm to develop short-run and long-run models of a cooperative (including behavioral relations and positions of equilibrium for a cooperative and its members under different sets of assumptions) using traditional marginal analysis. In their model, the cooperative's optimization objective is to maximize benefits to members by maximizing "the per unit value or average price by distributing all earnings back to members in proportion to their

patronage volume or use" (Torgerson *et al*., 1998: 5). Sexton (1995) regards this "landmark" paper so highly because (1) the (correct) analysis of cooperative and member behavior is based on a clear set of assumptions; (2) the model clearly distinguishes between short- and long-run behavior in a coop; and (3) based on these characteristics, the model set the stage for further advances in cooperative theory in the 1970s and 1980s. Torgerson *et al*. (1998) contend that Emelianoff (1942) made a major contribution to understanding the internal economics of cooperatives with his conception of the cooperative as a form of vertical integration, and his focus on the structural and functional relationships of members (the principals) to their cooperative marketing organization (the agent). His model was later refined by Robotka (1947), Phillips (1953) and Aresvik (1955).

There have been various debates on whether a cooperative enterprise should be treated as a firm (a decision-making entity), as Helmberger and Hoos (1962) did, or as an organization (aggregation) of economic units (members), as treated by Emelianoff (1942), Robotka (1947), and Phillips (1953), for example. Rhodes (1995) presents an overview of the debate on the Helmberger-Hoos and Phillips models, with the former initially having the greatest support among economists, although their contribution has also been criticized (e.g., LeVay, 1983; Lopez and Spreen, 1985; Sexton, 1986). Sexton (1995: 94) views this debate as "primarily one of semantics," and considers the issue not important to understanding cooperatives. He sees the development of alternative models as application of advances in economic theory of cooperatives reflecting "the richness of the environments in which cooperatives operate and the need to have alternative models that apply in different settings" (p. 97). Staatz (1994), Royer (1994) and Torgerson *et al*. (1998) also contribute to this debate.

Over the past few decades, the rapidly changing economic environment, reflected in increasing globalization and agricultural industrialization, has led many agricultural cooperatives to undertake substantial structural changes in order to adapt to the new situation. Royer (1999), for example, mentions that in addition to mergers, consolidations and acquisitions (horizontal and vertical restructuring), cooperatives have become increasingly involved in fundamental institutional changes (e.g., conversion to IOFs, and joint ventures with corporations). These developments raise the question whether there are "fundamental features intrinsic to the

cooperative organizational form that restrict cooperatives from being able to compete effectively in an increasingly complex economy and that ultimately threaten their long-term survival" (Royer, 1999: 44). In line with the rapid developments taking place, economists have developed three distinct but related methods to analyze organizational forms and their relationships within the market system, namely transaction cost economics (TCE), agency theory, and property rights analysis. Royer (1999: 44-45) suggests that these collectively can be referred to as new institutional economics (NIE), "because they focus on institutions and institutional constraints rather than the profit-maximizing behavior of abstract firms in the neoclassical economic paradigm." However, Sykuta and Chaddad (1999) consider the three components (methods) as merely comprising a subset of a much larger (evolving) literature, although they do contribute to a more complete understanding of integration, contracting, and organization.[3] Nevertheless, this paper will focus on the three mentioned components of NIE. Before these are discussed, criticisms of the neoclassical theory of the firm will be presented.

According to the neoclassical theory of the firm, each firm maximizes its profits subject to its cost structure and product demand constraints. Transaction costs (i.e., costs of obtaining information about alternatives and costs of negotiating, monitoring, and enforcing contracts) are assumed to be zero, as are adjustment costs, and resources are privately held and fully allocated among alternative uses purely in response to financial incentives. How a firm would behave under different circumstances can be hypothesized by analyzing how changes in the firm's constraints affect its profits. Criticism of the neoclassical model of the firm was based on the assumption of profit maximization but, more fundamentally, that the model does not explain why these firms exist in the first place, and how the resources within these organizations are employed, allocated, and motivated to achieve maximum profits (Royer, 1999; Sykuta and Chaddad, 1999). Sykuta and Chaddad (1999: 69) contend that criticism of neoclassical economics also extends to the study of markets because it is "ill suited to answering questions about when, why, and how markets evolve; about the institutional infrastructure required to

[3] Although some economists use the terms neo- and new institutional economics interchangeably, Sykuta and Chaddad (1999: 70) consider neo-institutional economics as a subset of the new institutional theory. They consider agency and property rights theory to fall primarily under the neo-institutional framework, while TCE falls under the new institutional theory.

support market activity; and about the structures of the organizations involved in market activity."

The criticisms of the neoclassical paradigm led to the development of alternative models of the firm based on other assumptions (e.g., maximizing rate of growth, sales, and firm size subject to a profit constraint), focusing on the process of decision-making within the firm (i.e., rejecting maximizing behavior), and eliminating some of the unrealistic conditions of the model (e.g., by considering utility maximization, positive transaction and information costs, and alternative property rights structures) (Royer (1999). The role of positive transaction costs and variable property rights has given economists new insights into the existence of firms, the evolution of alternative forms of business organization, and the choice of organizational form (aimed at minimizing both production and exchange costs). The next section, which draws heavily on Royer (1999), Sykuta and Chaddad (1999), and Iliopoulos and Cook (1999), provides a summary of the main components of the new institutional economics, namely, transaction cost economics, agency theory, and property rights theory.

3.2 New institutional economics (NIE)

3.2.1 Transaction cost economics (TCE)

Coase (1937) first described the concept of transaction costs in his seminal paper on the nature of the firm. Transaction costs - the costs of organizing and transacting exchanges - include search and information costs, bargaining and decision costs, and policing and enforcement costs (Williamson, 1985: 18-22). As Sykuta and Chaddad (1999) point out, every exchange involves each of these costs to a greater or lesser extent, with each transaction cost item being influenced by social institutions (norms of behavior), legal institutions (definition and enforcement of property rights), political institutions (mechanisms by which property rights are allocated), and economic institutions (availability and efficiency of markets). Major contributions in examining the role of transaction costs in explaining the existence and boundaries of firms have been made by Cheung (1969, 1983), Alchian and Demsetz (1972), Williamson (1981, 1985) and Klein *et al*.

(1978). Williamson was the first to introduce the term "transaction cost economics" and it has since been associated with the new institutional economics (Sykuta and Chaddad, 1999).

According to Coase (1937), the reason why so much economic activity occurs in formal organizations (firms) and not on spot markets, is due to the inefficiencies of transacting in a world of imperfect information. Thus, it may be less costly to coordinate production within a firm instead of a market when the transactions costs of market exchange are high (Royer, 1999). Due to the possibility of opportunistic behavior by one or more parties in a transaction (i.e., to seek private gain at the expense of the group), contracts play a crucial role because they enable the parties to fulfill their obligations by protecting them from opportunistic behavior, thus decreasing the costs of transacting. However, as Royer (1999: 46) points out, not all contracts are equally effective, and the "ability of a contract to facilitate exchange depends on the 'completeness' of the contract and the relevant body of contract law." Incomplete contracts, caused mainly by bounded rationality (i.e., limits on the capacity of individuals to process information, deal with complex issues and consider all possible contingencies), difficulties in specifying or measuring performance, and asymmetric information (i.e., when the parties do not have equal access to all information relevant to the contract), "will inevitably result in opportunism and transaction costs" (Royer, 1999: 47). Sykuta and Chaddad (1999: 73) contend that in the TCE framework "the incompleteness of contracts is a result (to one degree or another) of both transaction costs and bounded rationality." Transaction costs may make it too expensive to write a more complete contract that will better specify the foreseeable contingencies and resultant obligations of each party involved. The optimal completeness of a contract depends on the trade-off between marginal benefits and costs. (For a more detailed clarification of incomplete contracts see, for example, Williamson, 1981, 1985; Hart, 1995.)

Opportunism and the related transaction costs can also be associated with asset specificity, i.e., assets that are acquired to support specific transactions (Klein *et al*., 1978; Williamson, 1981; Royer, 1999). Owners of such relationship-specific assets cannot use these assets in other transactions without some loss in productivity or incurring costs in adapting them to other uses. Hence, once investments in relationship-specific assets have been made the trading parties involved may have few or no alternative trading parties, which eliminates competitive trading

(i.e., the asset's opportunity cost will fall). This creates quasi-rents (i.e., a specific asset's earnings in excess of the minimum required to keep the owner from exiting the relationship), which can lead to opportunistic behavior. Sykuta and Chaddad (1999: 73) contend that an asset's specificity is determined more by its value outside the specific relationship than by the motivation for its purchase. "An asset is said to be relationship-specific if its value in any other use is significantly lower." This decrease in value creates the quasi-rents that attract opportunistic behavior.

Royer (1999) mentions four different forms of asset specificity, namely: (1) site specificity (where assets are located nearby to reduce transport or inventory costs); (2) physical asset specificity (assets with physical properties specifically tailored to a particular transaction; e.g., a cheese factory or ethanol plant); (3) dedicated assets (investments based on a promise of a particular customer's business which would make it profitable); and (4) human asset specificity (acquired skills and knowledge of certain workers which are more valuable within a particular relationship than outside it). Sykuta and Chaddad (1999) add another form of specificity of importance to agricultural transactions, namely temporal specificity. This is due to the time-sensitive value of agricultural products and production processes which creates another margin which may entice opportunistic behavior by trading parties. Thus, a *holdup problem* arises "when one party in a contractual relationship seeks to exploit the other party's vulnerability due to relationship-specific assets" (Royer, 1999: 49).

In general, TCE can help to identify the important dimensions of a transaction and thus assist with the design of the most efficient institutional arrangement for conducting the transaction. "Essentially, a firm should select the institutional arrangement that minimizes the sum of its production and transaction costs" (Royer, 1999: 49). According to Williamson (1985), frequency, uncertainty, and asset specificity are three characteristics of a transaction that are critical in designing the optimal institutional arrangement.

3.2.2 Agency theory

This deals with problems of agency relationships, which exist whenever an individual or organization (the agent) acts of behalf of another (the principal). Principal-agent problems arise because the objectives of the agent are usually not the same as those of the principal, and thus the agent may not always best represent the interests of the principal (Alchian and Demsetz, 1972; Royer, 1999; Sykuta and Chaddad, 1999). The terms of an agency relationship are typically defined in a contract between the agent and the principal (which could bind the agent to act in the principal's interests, for example). Because contracts are generally incomplete, "there are opportunities for shirking due to moral hazard and imperfect observability" (Royer, 1999: 50). Hence, the main focus of agency theory is on incentive and measurement problems, but the risk-sharing implications of incentive contracts are also crucial. As Sykuta and Chaddad (1999: 72) point out, "most applications of agency theory focus on the incentive vs. risk-sharing trade-off of contracts aimed at aligning the interests of the agent with those of the principal." Agency theory is thus very relevant to the institutional structure of cooperatives because employed agents (managers) may not act in the best interests of cooperative owner-members (principal). The challenge, therefore, is which ownership and capital structures can be developed to lower agency costs (see Fama, 1980; and Fama and Jensen, 1983, for a more detailed exposition).

Principal-agent problems in a cooperative are likely to give rise to member dissatisfaction. Richards *et al*. (1998: 32) point to various studies which argue that cooperatives experience greater principal-agent problems than proprietary firms due to "the lack of capital market discipline, a clear profit motive, and the transitive nature of ownership." Because cooperatives have no market for their equity (as opposed to IOFs), there is less incentive for members to monitor the actions of their managers. Cooperatives may also have greater difficulty of designing incentive schemes for managers that will align their personal objectives with those of the cooperative. Using data from a survey of cooperative members in Alberta, Canada, Richards *et al*. (1998) compared members' objectives (expectations) with those they perceived were held by their managers. Younger farmers and large producers, for example, felt that managers focused too much on the social role of cooperatives and not enough on profit issues such as higher prices, return on equity and quality of service. These two groups seemed to be least satisfied with their cooperatives' (managers') performance.

3.2.3 Property rights theory

Demsetz (1967) defines property rights as the capacity to use or to control the use of an asset or resource. He maintains that for any form of human cooperation to be workable, especially those involving agreement, requires clearly defined and enforced property rights. The neoclassical model specifies that property is privately held and property rights are exclusive and transferable on a voluntary basis. Since transaction costs are assumed to be zero, these property rights can be fully defined, allocated, and enforced, and will be allocated to those uses where they yield the highest return (Royer, 1999).

Property rights theory, also referred to as the incomplete contracting theory of the firm, was developed by Grossman and Hart (1986), Hart and Moore (1990) and Hart (1995). It is based on the assumption that contracts are necessarily incomplete (e.g., due to asymmetric information between trading parties and bounded rationality), and thus do not "fully specify the division of value in an exchange relationship for every contingency" (Sykuta and Chaddad, 1999: 72). Hence, ownership (the right of residual control) of the assets involved in a transaction becomes critical in deciding how value is divided when a (non-covered) contingency arises. Since transaction costs are positive, "the allocation (and possible non-transferability) of property rights may have significant consequences for economic organization, behavior, and performance" (Sykuta and Chaddad, 1999: 73). Iliopoulos and Cook (1999) also refer to the distinction between the "traditional" property rights approach, in which ownership is synonymous with the possession of residual claims, and the property rights - incomplete contracts theory discussed above. Cook (1995) contends that property rights are vital for cooperatives to be sustainable, producer-controlled organizations. Before a cooperative can achieve improved market performance ("correcting market failures"), internal stability in a cooperative needs to be achieved with clearly defined property rights.

3.2.4. Applications of NIE to the cooperative organizational form

Under which conditions would farmers benefit from collective action and establishing a cooperative? The literature on the applications of NIE to cooperatives reflects the difficulty of

clearly linking economic theory and cooperative practice. Staatz (1987), as cited by Royer (1999), observed that many of the benefits farmers receive from establishing cooperatives originate from the holdup problem and the opportunistic behavior associated with asset fixity. Royer (1999) uses the "standard" example of the holdup problem in agriculture involving farmers of a perishable commodity and a processor who has no competition in the region. At harvest, the processor can refuse to accept delivery from farmers in an attempt to force them to accept a lower price or risk spoilage of their product. On the other hand, the processor who has invested in specific (idiosyncratic) plant and equipment is also prone to the threat of holdup by the farmers (if there are no other suppliers). A strategy for producers to eliminate or minimize the holdup problem is for them to purchase the processing plant (i.e., to vertically integrate their operations). This could provide them with the necessary market power and guarantee market access. Staatz also argues that cooperatives may provide producers with some advantages in dealing with risk since "the potential for opportunistic appropriation of quasi-rents from farmers is exacerbated by the risk inherent in agriculture" (Royer, 1999: 54).

Iliopoulos and Cook (1999) refer to other studies linking economic theory to practice. For example, Bonus (1986, as cited by Iliopoulos and Cook, 1999) studied the characteristics of transactions between farmers and their cooperatives and concluded that the cooperative "represents a hybrid organizational mode blending market forces with elements of internal organization designed to minimize transaction costs" (Iliopoulos and Cook (1999: 78). He also considered avoidance of the holdup problem, by internalizing crucial transactions, as a main benefit of a cooperative structure. Hansmann (1988, as cited by Iliopoulos and Cook, 1999) studied alternative organizational arrangements and governance structures, including agricultural cooperatives, using a transaction cost theory of ownership as his framework, and argued that alternative institutional arrangements have developed in order to minimize the transaction costs of ownership and contractual arrangements. Iliopoulos and Cook (1999: 79) also refer to the "growing theoretical and empirical literature on new generation cooperatives" (this new form of collective action will be discussed in greater detail in section 5). Although cooperatives have served, and are serving, an important function for many farmers, problems inherent in traditional cooperatives have given rise to doubts about the sustainability of these cooperatives and

sometimes to the establishment of other forms of business organization. These problems or weaknesses are discussed in the next section.

4. Problems inherent in traditional cooperatives

Much research has focused on the problems inherent in the traditional cooperative organizational form that create disadvantages for cooperative members (e.g., Vitaliano, 1983; Porter and Scully, 1986; Cook, 1995; Royer, 1999). Cook (1995) presents five core problems, also discussed by Royer (1999), namely the free rider, horizon, portfolio, control, and influence cost problems.

4.1 Free-rider problem

The free-rider problem emerges when property rights are untradable, insecure, or unassigned (Cook, 1995). Royer (1999: 56) referred to it as "a type of common property problem that emerges when property rights are not tradeable or are not sufficiently well defined and enforced to ensure that individuals bear the full cost of their actions or receive the full benefits they create." Both internal and external free-rider problems are often associated with traditional cooperatives. With regard to the internal free-rider problem (the common property problem), since the rights to residual claims in a traditional cooperative are linked to patronage instead of investment, new members receive the same patronage and residual rights as existing members although they are not required to make up-front investments proportionate to their use. The general tendency of the free-rider problem then is to encourage decisions that increase cash flows per member. This, however, creates a disincentive for existing members to invest in their cooperative because of the dilution of their returns (Vitaliano, 1983; Cook, 1995; Royer, 1999).

An external free-rider problem "is created whenever a cooperative provides its members with collective goods characterized by *de facto* unfeasibility of exclusion … The result is usually no or suboptimal provision of these goods" (Iliopoulos and Cook, 1999: 80). Examples include where a non-member producer benefits from the terms of trade negotiated by a cooperative, or where the value of a cooperative processing facility is capitalized into the value of a nearby non-member's farm (Cook, 1995; Royer, 1999).

4.2 Horizon problem

This problem arises "when a member's residual claim on the net income generated by an asset is shorter than the productive life of that asset" (Cook, 1995: 1156). The member is, therefore, likely to under-invest in the asset because the return he receives is less than the return generated by the asset. Traditional cooperatives suffer from the horizon problem due to the structure of the rights to residual claims, which are distributed to members as current payments. The benefits a member receives from an investment are, therefore, limited to the time period (horizon) over which the member expects to patronize the cooperative (Vitaliano, 1983; Royer, 1999). A consequence of this is that cooperatives will tend to under-invest in assets with long-term payoffs (e.g., research and development, and marketing). Boards of directors and managers are, therefore, under pressure to increase current payments to members instead of investing in additional assets, and to accelerate equity redemptions at the expense of retained earnings (Cook, 1995; Royer, 1999).

4.3 Portfolio problem

Cook (1995: 1157) refers to this as "another equity acquisition problem" from the cooperative's perspective. This problem occurs in traditional cooperatives because members "invest in the cooperative in proportion to their use and because equity shares in the cooperative generally cannot be freely purchased or sold. Therefore, members are unable to diversify their individual investment portfolios according to their personal wealth and preferences for risk taking" (Royer, 1999: 55). This leads to suboptimal investment portfolios, and cooperative members who have to accept more risk than they prefer will pressure the board of directors and managers to reorganize the coop's investment portfolios to reduce risk, even if this means lower expected returns (Cook, 1995). Royer (1995, 1999) contends that cooperative members have to carry these risks alone because potential outside investors, who could diversify the risks, are generally excluded from investing in a cooperative. This problem is exacerbated if a member's investment in the cooperative represents a high proportion of his off-farm investment and to the extent that his farming risks are positively correlated with the risks associated with the cooperative.

4.4 Control problem

Any organization in which ownership and control are separate will, to some extent, experience principal-agent problems due to divergence of interests between the principal (e.g., cooperative members and their representative board of directors) and the agent (management) (Cook, 1995). Preventing this divergence of interests may be more of a problem in traditional cooperatives "because of the absence of a market for exchanging equity shares and the lack of equity-based management incentive mechanisms available to other firms" (Royer, 1999: 55). The absence of an equity market for cooperative shares means that members are not able to monitor their cooperative's value or evaluate managers' performance. The lack of equity incentive schemes for managers may be a disadvantage for cooperatives to attract and retain good managers, and may provide managers with an incentive to convert their cooperatives into investor-oriented firms (IOFs). Royer (1999) also points out that restricted cooperative membership to producers can contribute to the control problem in that production-oriented boards of directors are increasingly limited in monitoring the performance of managers as the cooperative expands and becomes more consumer-oriented. Specialists serving on the board or as managers may need to be employed to better manage the changing circumstances and for the cooperatives to better compete with other business organizations. However, restrictions on membership may prevent this. Nevertheless, Iliopoulos and Cook (1999: 80) refer to studies which "argue that in cooperatives of relatively small size, characterized by singleness of purpose and homogeneous membership (in terms of individual members' interests), the control problem may be less serious than in IOFs of similar size". They cite Hansmann (1987), who maintained that cooperative board members have the opportunity and vital interest to closely monitor management because the cooperative accounts for most of their income.

4.5 Influence cost problem

"Influence costs are those costs associated with activities in which members or groups within an organization engage in an attempt to influence the decisions that affect the distribution of wealth or other benefits within an organization" (Royer, 1999: 56). Cook (1995) argues that in a

cooperative involved in a wide range of activities, diverse objectives among its members can result in costly influence activities. These costs can include both the direct costs of influence activities and the costs of poor decisions in terms of misallocation of resources. The size of influence costs depends on the existence of a central authority (who have the ability to influence the distribution of costs and benefits to members), the procedures that dictate decision making, and the degree of homogeneity or conflict among members (Cook, 1995; Royer, 1999; citing Milgrom and Roberts, 1990). Cooperatives may experience greater influence costs than other forms of organization because "the interests of cooperative members, which are linked to individual farm production activities, are more diverse than the interests of corporate stockholders, who share a common objective of maximizing wealth" (Royer, 1999: 56).

5. Future of cooperatives?

The five problems inherent in a traditional cooperative raise the question whether cooperatives can survive in, or adapt to, a rapidly changing economic and political environment. Even though cooperatives may have initially served a useful purpose, some authors hypothesize that, due to their inherent weaknesses (attributable to their property rights constraints), traditional cooperatives will have to exit or reorganize as the market evolves (Royer, 1999). Cook (1995) postulated a five-stage cooperative life cycle that seeks to explain the formation, growth, and eventual decline of a cooperative (see Appendix 2). As the cooperative matures and the members become increasingly aware of the inherent problems (discussed in section 4), as well as the cooperating benefits that may be lost if operations ceased, members and their leadership will have to consider their long-term strategic options (tradeoffs between the benefits and costs) and decide whether to exit, continue, or convert into another business form. Cook (1995) suggests that under the exit option, a cooperative has two alternatives available, namely to liquidate the business, or to restructure as an investor-oriented firm (IOF). Schrader (1989a) contends that poor-performing cooperatives opt to liquidate or merge with other cooperatives, while high-performing cooperatives restructure as IOFs. Jacobson (1992) points out that the reason leaders of milk cooperatives in Ireland gave for converting to IOFs was that additional capital was required and members were unwilling to invest that additional capital. Although Schrader (1989a) felt that cooperative principles and practices placed capital constraints on growth,

Jacobsen (1992) argued that the failure to effectively implement these principles and practices was the reason.

According to Cook (1995), a cooperative that opts to continue operating tends to be undercapitalized due to its property rights structure. It generally has two alternatives to raise capital, namely: (1) to seek external equity capital without restructuring as an investor-oriented firm (through strategic alliances by, for example, establishing joint ventures with other cooperatives or with IOFs), and (2) to generate additional equity capital internally by following a proportionality strategy (i.e., restructuring the cooperative so that governance and funding responsibility are in proportion to patronage) (see also Royer, 1999). Fulton *et al*. (1996) argue that joint ventures and strategic alliances represent opportunities for cooperatives to profit from size economies while maintaining their separate business identities. However, for such business arrangements to be effective requires trust, commitment, and open communication between the parties involved, in addition to the attention on financial and operational issues.

In the third (transition) option, Cook (1995) suggests formation of a new generation cooperative (NGC). Essentially, a NGC focuses on value-added processing activities and links producer capital contributions to product delivery rights (see also Harris *et al*., 1999; Royer, 1999). Equity shares and the associated delivery rights are tradable (subject to approval of the board of directors), and share prices can appreciate, reflecting members expected returns over time. Thus, NGCs attempt to correct the property rights problems associated with traditional cooperatives (by linking tradable delivery rights to members' equity contributions) while preserving the cooperative character (e.g., the principle of one-member, one-vote on important policy issues, regardless of the number of shares purchased by a member; and cooperative earnings belong to the members and are distributed according to patronage). An attractive feature of NGCs is that they are financed in proportion to use. However, NGCs have their own set of problems, such as limiting entry of new members and maintaining an effective governance structure (e.g., undue pressure exerted by members on management to link voting rights to delivery rights due to their high financial stake in the business) (Harris *et al*., 1996; Royer, 1999). Nevertheless, NGCs have been established in the US by producers involved in emerging niche markets, such as bison processing, tilapia production, organic milling, and specialty cheese processing, as well as in

other, more traditional value-adding activities such as corn sweetener production, sugar beet processing, and pasta production (Harris *et al*., 1996).

Harte (1997), as cited by Royer (1999), also suggested a life cycle model in which cooperatives are initially useful organizations for correcting or mitigating market failure. However, he argues, as market performance improves the need for cooperatives decreases. As transaction cost theory indicates, inefficient governance structures in competitive markets will over time be replaced by efficient structures. "Thus, to the extent that cooperatives are less efficient than corporations, we can expect a transition from the cooperative organizational form to the corporate form" (Royer, 1999: 58-59). Harte, who used his life cycle model to explain the conversion of several Irish dairy cooperatives to public liability companies (IOFs), argues that cooperatives would continue indefinitely only in the case of chronic market failure, and that for the Irish dairy industry future competition would best be assured through IOFs. Royer (1999) argues that to confirm the life cycle hypotheses, two types of empirical analyses are relevant, namely, statistical analyses of the comparative efficiency of cooperatives, and *ex post* studies of cooperative conversions. He lists several studies of the comparative efficiency of cooperatives in various agricultural industries, and highlights the study by Porter and Scully (1987) because of its influence on subsequent analyses and its reliance on neo-institutional economic concepts. Porter and Scully (1987) also conclude that cooperatives were less efficient than IOFs and that their relative inefficiency was due to the inherent weakness in their property rights structure. They further argue that cooperatives survive, despite their relative inefficiency, because of free services provided by the USDA, favorable tax treatment, and favorable credit terms. However, after reviewing several comparative efficiency studies, Sexton and Iskow (1993) conclude that there is little credible evidence that cooperatives are less efficient than investor-owned businesses.

Cook (1995) argues that two phenomena were occurring in agricultural cooperatives in the US, namely, (1) traditional cooperatives were adjusting to their property rights constraints by exiting, restructuring, and shifting to other organizational forms (these changes appeared to have helped to increase cooperatives' market share growth since 1988); and (2) a dramatic growth in NGCs. Cooperative strategies thus appeared to becoming more offensive in nature. Cook (1995: 1159) feels that "producers who organize new cooperatives that avoid the constraints of vaguely

defined property rights have bright futures" if government policy does not change. King (1995) emphasizes the important role of incentives for hired managers in a cooperative, since managers have a vital impact on the success or otherwise of cooperatives. The property rights structure of cooperatives, unlike IOFs, prevents equity forming an important component of a manager's compensation package. Some cooperatives link managers' bonuses to business size (sales, assets), but this is not practiced widely due probably to the difficulty for cooperative boards to design effective bonus systems (Trechter and King, 1995). In a follow-up study on managerial compensation in Midwestern cooperatives, King *et al*. (1998) found that cooperative managers' total compensation levels, bonuses, and changes in compensation were positively and significantly related to cooperative profits and not to sales and sales growth. Bonuses linked to profits may encourage managers to better serve the interests of cooperative members.

King (1995: 1161) also mentions another area of concern for the future of cooperatives, namely, the "difficulties they have in providing internal incentives for product and process innovation." A cooperative member, who has developed a new technology and holds the property rights to it, will most likely have it developed and marketed by an IOF because the returns to him will be greater. In a cooperative the economic rents generated by the new innovation will be distributed among the cooperative patrons (users) rather than among its owners. Nonetheless, King (1995) believes that a major strength of cooperatives has been in providing the infrastructure and service support systems required to deliver and implement new technologies (e.g., in animal nutrition and soil fertility management, and in manufacturing and marketing feed and fertilizer). Although cooperatives have not played a large role in developing new innovations, King (1995) maintains that cooperatives can develop in-house R&D programs by entering into joint ventures with IOFs that develop new technologies.

A critical question is whether cooperatives can adapt to a rapidly changing environment characterized by technological change, industrialization of agriculture, and growing individualism (Fulton, 1995). Lang (1995: 1164) believes that cooperatives can and must adjust to the changing structure of production agriculture driven by technological change. He argues that cooperative institutions are designed to do different tasks because they are "user-owned, user-controlled, user-benefit businesses. Ownership, control, and benefits are distributed in many

different ways to meet varying economic needs." King (1995) feels that the greatest strength of cooperatives is their ability to generate institutional innovations that allow them to respond to changing conditions and needs. He continues that much can be learned by simply observing and describing the formation, evolution, and operation of successful cooperatives.

The widespread debates on the future of cooperatives raise the question of whether cooperatives are the appropriate organizational form that small-scale farmers in South Africa can use to facilitate access to input and product markets. Furthermore, several large cooperatives in South Africa have converted to IOFs due to the loss of government support and to avoid the problems inherent in traditional cooperatives. One possible approach to seeking solutions to the "appropriateness" question for SA small-scale farmers is to take a particular supply (value) chain (e.g., vegetables) and consider which organizational form would be the most appropriate for this chain. The characteristics of small-scale farmers in South Africa will be discussed next to set the background for the evaluation of the "organizational form" issue.

6. Cooperatives for small-scale farmers in South Africa?

To investigate the important question as to the most appropriate organizational form for smallholders in South Africa to use to facilitate access to input and product markets, it is initially important to understand the characteristics of smallholders in the less-developed areas of the country. These will be illustrated with a case study of farmers in two communal areas of the KwaZulu-Natal province.

6.1 Characteristics of small-scale farmers

Small-scale farmers in communal areas of South Africa have limited access to factors of production, credit and information, and markets are often constrained by inadequate property rights and high transaction costs (Lyne, 1996). Despite these problems, some small-scale farmers have managed to produce food for own consumption and for the market. For example, in two communal areas of the province of KwaZulu-Natal (Impendle and Swayimana) farmers normally sell their produce through informal channels such as neighbors, local shops and monthly pension

markets (Matungul *et al*., 2001). The study by Matungul *et al*. (2001) is used here as an example to demonstrate typical smallholder household characteristics in two rural areas of the KwaZulu-Natal midlands. The authors attempted to identify market constraints faced by a random sample of 120 farmers (households) in each of two communal areas. Impendle lies southwest and Swayimana northeast of Pietermaritzburg, the capital city of KwaZulu-Natal. Swayimana, where rainfall exceeds 1000mm per year, is the more fertile area of the two regions. In Impendle, where annual rainfall varies between 800 and 1500mm, soil is of a lower quality and land is used primarily for livestock husbandry, with arable areas used mainly for potato and maize (corn) production. Residents in the two regions share the same institutions (formal and informal), which implies that households in each area would show similar marketing behavior with relatively small variability in food crops produced and constraints faced. Each region represented a stratum in the sampling design because they differ with respect to agronomic conditions. Table 3 highlights important demographic characteristics of the respondents (household heads) and variables that affect the level of transaction costs faced by them. High transaction costs prevent markets (e.g., for inputs, products, and credit) from operating efficiently.

Agriculture in the two regions is mostly rain-fed with some gravitational irrigation systems supporting vegetable production. The average size of sample households over both study areas is 6.7 members. Allocated plots of arable land are quite small in both regions (1.1 hectares in Impendle and 1.8 hectares in Swayimana). Land tenure in both regions is an adaptation of the customary system of land allocation whereby no household can claim formal ownership of the allocated piece of land. Land allocation and responsibility over it lie with the tribal authority, the Inkosi (chief) and his Indunas (foremen). There is thus no market for arable land under the existing land tenure system, which implies that there is no real incentive to improve land and that a small farmer will not qualify for farm credit using land as collateral. The majority of household heads in both areas are male. However, marketing of agricultural products and other related activities was undertaken mainly by female members of the households. Men are more involved in non-agricultural activities (e.g. brick making, car repairs, etc.). Education levels of household heads in both study areas are generally low (mean of 5.2 years), and only 36% of all respondents could speak English (32.5% could speak and write English).

Table 3: Sample household characteristics in two communal areas of KwaZulu-Natal, 1999

Particulars	**Impendle (n=120)**	**Swayimana (n=120)**	**Average (n=240)**
Mean household size (people)	6.2	7.1	6.7
Mean age of household head (years)	57.9	59.0	58.5
Years of formal education	4.8	5.6	5.2
Mean distance to district road (km)	7.0	5.7	6.3
Mean distance to public phone (km)	2.8	4.6	3.7
Years of residence in the district	25.4	37.5	31.3
Mean land size (hectare)	1.1	1.8	1.5
Visits by extension officers /year	1.2	1.0	1.1
Dependents per worker	2.3	2.0	2.2
Household with own transport (%)	27.5	37.5	32.5
Household with TV/radio (%)	55.8	55.0	55.4
Household headed by a female (%)	32.5	39.1	35.5
Household head speaks English (%)	32.5	40.0	36.2
Mean crop sales (Rand)*	1,183	1,416	1,299
Distance to Pietermaritzburg** (Km)	85	65	75

* 1 US$ = ± R6.00 in 1999; ** Capital city of KwaZulu-Natal

Source: Matungul *et al*. (2001: 350)

This implies that respondents in both areas would face high transaction costs (in terms of costly arrangements) in marketing their products outside of their own areas. Households usually have two or more extended family residents and some adult members away on wage employment in nearby towns. Household income is derived mainly from off-farm sources (i.e., welfare payments, wage remittances, and from such activities as brick-making, car repairs and beer sales), and sales of livestock and traditional staple food crops (i.e., maize, amadhumbe (a traditional vegetable tuber), potatoes, beans and various green vegetables). Household crop income for the study year averaged R1,183 in Impendle and R1,416 in Swayimana. Food crop production is the dominant feature of agriculture in both areas, with maize being the staple diet of most residents.

Although markets for the food crops exist within each region, most respondents expressed the need for additional marketing outlets for their produce. However, physical infrastructure (roads, telecommunications, transport) in both regions is poorly developed (e.g., most roads are of poor quality and in need of repair and upgrading), while the institutional environment (communication skills, contract enforcement) in the two regions is also weak. Small-scale farmers generally lack market information and may not know what commodities to produce, the relative quantities to produce, and the most economical way to produce them with the resources available. Although public transport is available throughout the two regions, it is not always adequate for transporting crops to markets or inputs back to the household. Homesteads are also geographically dispersed and some residents have to walk long distances to the nearest road served by public transport vehicles.

Relative to the size of both study areas, the number of market centers is low or nonexistent. No formal marketing contracts were signed in either study area; however, some informal arrangements, mainly between friends, were mentioned under which exchanges or sales of crops occurred. The volume of crop sales is often low (which may discourage private sector service provision), and with no legal right to ownership of land, there is neither the ability nor the incentive to rent unused arable land and invest in improvements so as to increase the volume of business. Clearly, high transaction costs in the production and marketing of otherwise profitable commodities often exclude small-scale farmers from participating in growth opportunities. The

empirical study by Matungul *et al*. (2001) supports the hypothesis that transaction costs are a primary determinant of household crop income; i.e., households facing lower transaction costs generate higher levels of crop income. The area of cultivated arable land and off-farm income (which provides the liquidity necessary for purchasing inputs and contractor services) also had a positive impact on households' level of crop income.

Therefore, in addition to public investments in improved physical infrastructure (roads, telecommunications), institutional infrastructure (e.g., land rental markets, marketing associations, contract enforcement) is critical to lower transaction costs for sample households, which could stimulate their production and marketing activities. Matungul *et al*. (2001) contend that the government has an essential role to play in establishing an institutional framework (rules and constraints) for creating sustainable marketing systems, and that it could bear some of the costs of coordinating collective action. Group action by smallholders could strengthen their bargaining power, facilitate finding institutional solutions to problems of coordination and public service provision, compensate for missing markets and reduce transaction costs.

As far as access to input and product markets is concerned, three broad approaches may be appropriate for smallholders to help reduce the substantial transaction costs they face, namely vertical cooperation with processors and marketers (e.g., through contract farming), horizontal cooperation among smallholders themselves (e.g., through formation of cooperatives), or a combination of vertical and horizontal cooperation. The next section briefly describes the advantages and disadvantages of contract farming for smallholders.

6.2 Contract farming

Delgado (1999) argues that for small-scale farmers to participate and compete in growing markets for high-value products (such as fruit, vegetables and cut flowers) they need to cooperate vertically with processing and marketing firms. Contract farming may help to reduce transaction costs, particularly for high value-added tradable products. However, Kirsten and Sartorius (2002), who provide a detailed analysis of the role of contract farming in developing countries, highlight problems usually associated with contract farming, including difficulties in

enforcing contracts; high transaction costs in dealing with many small-scale farmers; difficulties in meeting strict quality and food safety standards; high rate of product rejection by agribusiness firms; and the weak bargaining position of farmers. Contract farming may thus favor large-scale farmers. However, some potential advantages for smallholders include reduction in income risk and promoting farm productivity through improving quality of managerial inputs, enhancing the flow of technical information to growers (thereby reducing the problem of asymmetrical information), and better access to credit, thus promoting adoption of more efficient technologies. Contractors also gain through their access to farmer resources, their ability to exploit economies of size, and gaining black economic empowerment accreditation. They may, therefore, be willing to bear the higher transaction costs of contracting with small-scale farmers. In South Africa, small-scale sugarcane farmers have contractual agreements with sugar millers, who absorb or subsidize the transaction costs involved in dealing with many small-scale growers. Similar contractual arrangements by SA forestry companies have established thousands of small-scale timber growers in the province of KwaZulu-Natal (Ortmann, 2005). These contracts have promoted household incomes and economic growth in rural areas.

In a recent study, Louw *et al*. (2005) reported on a successful (mutually-beneficial) business venture between a supermarket in Thohoyandou (a town in Limpopo Province, South Africa) and small-scale vegetable producers in the surrounding area. These producers currently supply about 30% of the supermarket's fresh produce requirements, with commercial (large-scale) farmers supplying 70%. The interviewed smallholders reported that they acquire production inputs (except seedlings) from a local cooperative and hire production equipment (e.g., tractors) from local contractors. Their value-adding activities include sorting, washing, and bundling of vegetables. In addition to providing a market for the farmers' fresh produce, the supermarket also provides various support services, such as provision of interest-free loans of R2,500 per farmer supplying vegetables (on condition of presentation and approval of a business plan); frequent farm visits by supermarket personnel; provision of management support based on progress reports from the farmers; provision of training and assistance with regard to product quality standards; and providing "a virtually unlimited and stable market for the farmers' fresh produce based on a verbal contract and involving a very strong trust component" (Louw *et al*., 2005: 9).

Although the disadvantages of the arrangement for the supermarket include increased transaction costs (more administration), lack of continuity in supply, and incidences of poor produce quality, supermarket management saw the advantages as including the assurance of produce freshness through the delivery of smaller quantities more often, investing in the community and building a positive relationship with it, and farmers supplying produce spending part of their earnings in the supermarket. (Note: This supermarket increased its retail market share in the town from 0% in June 2002 to 66% in June 2004). Some of the strengths of the relationship with the supermarket were considered by smallholder respondents as including a well-established relationship based on trust and transparency; provision of production and marketing advice; and financing of their operations through "soft" loans. Weaknesses included lack of technical farming skills; poor communication and uncoordinated produce delivery among farmers; product quality problems; availability and high cost of transport; and poor on-farm infrastructure constraining production. The respondents saw their future opportunities as diversifying their product offerings; more targeted marketing; tapping other markets; increased product prices through better delivery coordination among farmers; and improving production quantity, quality, and sales through better technical and business skills acquired after receiving training (Louw *et al*., 2005).

In the KwaZulu-Natal case study areas (Impendle and Swayimana) not many outside traders were noticed during the survey (Matungul *et al*., 2001). Clearly, there seem to be no large buyers (e.g., market agents, supermarkets, or processors) wanting to deal with hundreds of smallholders who are geographically dispersed and produce relatively small quantities of product (vegetables) of unknown quality. This would most likely be due to the high transaction costs involved in dealing with many relatively illiterate farmers and the poor road and communication infrastructure that prevent buyers from easily accessing and contacting growers. A possible way for smallholders to reduce transaction costs for buyers and themselves is to operate as a group or association that would assemble members' products, add value (e.g., washing, grading, and packaging), and promote their bargaining power with buyers and input suppliers (e.g., farmers in the Louw *et al*. (2005) study saw poor communication and uncoordinated produce delivery among themselves as a weakness in marketing their produce). Such a group could also negotiate contracts with buying agents, supermarkets or processors to supply them with products of a certain quantity and quality at specific times, and receive training, technical and managerial

advice, and access to inputs and credit. The group could also negotiate relatively favorable terms with suppliers of seed, fertilizer, chemicals, and other farm inputs, and lobby government to improve the road and communication infrastructure in their region(s), which would reduce transport and communication costs for farmers and buyers. The next section analyzes cooperation among small-scale producers in greater detail.

6.3 Cooperation among producers

Holloway *et al*. (2000) suggest that producer cooperatives are useful in overcoming access barriers to assets, information, services, and markets for high-value products. They studied milk marketing of small-scale farmers in the east-African highlands and concluded that cooperative selling institutions are potential catalysts for reducing transaction costs, stimulating entry into the market, and promoting growth in rural communities. Reardon and Barrett (2000) argue that the increasing importance and changing nature of food grades and standards is a reason for the rise of cooperatives and contract farming in developing countries, particularly for perishables such as horticultural, meat, dairy and fish products. Applying grades and standards requires investments in training, equipment, infrastructure and monitoring systems, which may only be afforded by larger organizations. However, traditional cooperatives often do not invest in long-term assets (improvements) or in intangible assets (such as training and research) due to the "horizon" problem. Forming new generation cooperatives may solve this problem if delivery rights and obligations of members can be enforced. Other problems inherent in traditional cooperatives (including free-rider, portfolio, control, and influence cost problems), which were discussed in section 4, may also create disadvantages for members of these cooperatives. However, despite these potential problems, Roets (2004) recommends the use of cooperatives to facilitate the marketing of goats by small-scale (communal) farmers in South Africa. Most of these farmers have small goat herds (10 – 20 animals), which increase the transaction costs for individual farmers when trying to sell their animals (e.g., selling one animal often involves the same effort as selling 10 or more). Also, specialized (expensive) inputs may be required to better manage and sell animals (e.g., medicines, ear tags, tools, animal brand registration, transport facilities, and holding pens); collective action of goat farmer cooperatives can provide these services and inputs cheaper than farmers can acquire them individually. Roets (2004: 214) also contends that

cooperatives are a culturally acceptable business form to small-scale farmers because they work on similar principles as "stokvels" and burial societies with which these farmers are already familiar.

In view of the advantages and disadvantages of contract farming and cooperatives, the reasons why buyer agents, supermarkets or processors may consider it too expensive to deal with many smallholders (see sections 6.1 and 6.2), and the fact that the SA government is promoting the establishment of cooperatives among rural communities, the appropriateness of cooperatives for the case study farmers in KwaZulu-Natal will be further analyzed.

6.4 Appropriateness of cooperatives for smallholders in KwaZulu-Natal

To investigate the appropriateness of the cooperative organizational form for small-scale farmers in the two communal areas of KwaZulu-Natal, it is helpful to again consider the reasons why cooperatives were originally established and to what extent these conditions also apply to the KwaZulu-Natal farmers. The 28 Rochdale pioneers initially formed the Rochdale Society in 1844 because of extreme poverty in their community at the time and dissatisfaction with retail shopkeepers in their area (Barton, 1989). Strength of leadership, motivation and enthusiasm played a major role in establishing this form of organization. Other reasons for the formation of farming cooperatives include market failure (due to costly information and transaction costs), promotion of self-help, enhance bargaining strength with input suppliers and buyers of farm products, to operate at cost (including normal return for capital invested), enhance income, reduce transaction costs with trading partners, provide missing services (e.g., input and/or product marketing), assure input supplies and/or product markets (particularly for perishable crops like vegetables and fruit), coordinate flow of input supplies and farm products to markets, reduce opportunistic behavior by potential competitors, gain economies of size advantages (e.g., in providing inputs and/or marketing services to members, or with a plant), public policy (e.g, support of government), and promoting community development in general (see Schrader, 1989b; Barton 2000a; Fulton and Ketilson, 2002; NCBA, 2005; NCFC, 2005). Table 4 summarizes the main reasons for the initial formation of farmer cooperatives and to what extent these also apply to the case study farmers in KwaZulu-Natal.

Table 4: Main reasons for the initial formation of agricultural cooperatives and their applicability to smallholders in two communal areas of KwaZulu-Natal, South Africa

Reasons for initial formation of agricultural cooperatives	Applicable to KwaZulu-Natal case study farmers? (Yes / No / Uncertain)
Poverty	Yes
Market failure (costly information, transaction costs)	Yes
Provide missing services (input and/or marketing)	Yes
Drive for self-help	Yes
Operate at cost	Yes
Improve farmers' (members') income	Yes
Enhance bargaining strength	Yes
Reduce transaction costs with traders	Yes
Assure input supplies and/or product markets	Yes
Coordinate flow of input supplies and farm products	Yes
Community development	Yes
Support of government	Yes
Strength of community leadership, motivation	Uncertain
Benefit from economies of size (in providing inputs / marketing services)	Uncertain
Reduce opportunistic behavior	No (not at this stage)

Table 4 suggests that most of the reasons why cooperatives formed in the first place also apply to the small-scale farmers in the study area. They are faced with considerable poverty challenges and high transaction costs (leading to market failure). Benefits could flow through improved incomes to members if a cooperative organization is well managed and supported so as to achieve some of the outcomes listed in Table 4. There is uncertainty at present about the strength of leadership, motivation and enthusiasm for cooperatives in the communities, but this will only be determined once community leaders are informed about the benefits and costs of forming a cooperative. Desire to improve the quality and safety of products and government's promotion of cooperatives may also be catalysts for the formation of cooperatives.

To further answer the "appropriateness" question, it is also important to consider whether the seven international (ICA) principles of cooperation would apply to, and likely be accepted by, smallholders in the study areas. Table 5 summarizes these principles, their likely applicability and acceptability, and some corresponding comments.

Table 5: International (ICA) cooperative principles and their likely applicability to, and acceptability by, smallholders in the KwaZulu-Natal study areas

International Cooperative Principles*	Applicability and likely Acceptability	Comments
Voluntary and open membership	Yes	Community structures would most likely support this principle. However, members must also accept the responsibilities of membership.
Democratic member control	Yes	However, principal-agent problems may arise if the manager or directors do not consult with and inform members on a regular basis. This may be a particular problem if traditional leaders, with their authority, take over the leadership of the cooperative. Members should actively participate in setting policies, making decisions, and electing their representatives. They have equal voting rights in traditional (primary) cooperatives (one member, one vote).
Member economic participation	Yes	Members contribute equitably to, and democratically control, the capital of their cooperative. This will most likely be acceptable for members of an emerging cooperative in a less-developed area where the wealth differences between members is relatively small (as in the case study example). However, as the cooperative develops and members' wealth differences grow (assuming better access to land, operating inputs and markets), there may be more pressure on the cooperative to convert to a new generation cooperative or an IOF where benefits are proportional to the investment in the organization.
Autonomy and independence	Yes	This is a critical issue. Cooperatives must not become government agencies as happened in several developing countries in the past. The SA government, although supportive of cooperatives, has stressed that they should remain autonomous and independent (RSA, 2005b).
Provision of education, training and information	Yes	However, new and small (emerging) cooperatives will most likely not be able to appoint staff to provide this service, but they could invite extension agents, NGOs, or DTI personnel on a regular basis and coordinate education and training sessions for members, managers, directors, and employees. The SA Primary Agriculture Education and Training Authority (PAETA) could provide funding for some education and training sessions (Roets, 2004).
Cooperation among cooperatives	Yes	This would be an opportunity for emerging cooperatives to tap the expertise and experiences of established, successful cooperatives. The latter could serve as mentors until the new cooperative is fully established. Once established, emerging cooperatives could continue their association with successful cooperatives in terms of training, input buying and product marketing opportunities. Nilsson (as cited by van Dijk and Werts, 1996) contends that cooperatives, like other businesses, should collaborate with the best partners, not necessarily with other cooperatives.
Concern for the community	Yes	Smallholders in less-developed areas operate in an institutional environment that is community-oriented. Cooperatives could reinforce this environment and work towards the sustainable development of their communities (e.g., see Fulton and Ketilson, 1992).

* Source: ICA (2005)

Proponents and potential leaders of cooperatives should also be aware of the weaknesses inherent in traditional cooperatives (these were discussed in some detail in section 4). The question is to what extent these weaknesses would constrain the establishment and development of cooperatives in the less-developed areas of South Africa, and particularly in the case study areas. Table 6 summarizes these inherent weaknesses and to what extent they would apply to emerging cooperatives in the study areas.

The information in Table 6 suggests that a cooperative established on traditional principles in the study area would be faced with free-rider, horizon, and portfolio problems. These potential constraints may initially, as the cooperative is established and members of similar wealth try to make it work, not cause insurmountable problems. But they could constrain investments in, and growth of, the cooperative in the future as members' businesses grow, and wealth and patronage levels among members change. Control and influence cost problems could also emerge as the cooperative grows and expands its membership and activities. Proponents and potential leaders of cooperatives in less-developed areas should be aware of these problems and their likely impacts on cooperative growth before they motivate for the establishment of such an organization. They should also keep an open mind about the growth cycle of cooperatives, and that they may be pressure later by members on managers and directors to convert their cooperative into another ownership form, such as a new generation cooperative or an IOF (if delivery obligations could be enforced).

In addition to the real and potential problems inherent in traditional cooperatives, causes of cooperative failures in less-developed areas of South Africa also need to be closely studied in order to avoid similar pitfalls in future.

6.4.1 Causes of cooperative failures in less-developed areas of South Africa

Agricultural cooperatives serving commercial farmers in South Africa have generally been successful in achieving the objective of improving the economic welfare of members. In contrast, cooperatives serving smallholders have generally not been successful in promoting agricultural development and members' welfare in the less-developed rural areas of South

Table 6: Inherent weaknesses of traditional cooperatives and their likely applicability to emerging cooperatives in KwaZulu-Natal.

Inherent Weakness	Applicability	Comments*
Free-rider (common property) problem	Not initially, but later	Traditional cooperatives usually have a large amount of collective capital (common property) derived mainly from retained earnings accumulated over time. Initial membership fees (equity shares) at the establishment of a cooperative will likely be the same for all members, and these equity shares (property rights) are usually not tradable. However, since rights to residual claims (net profit) are linked to patronage instead of investment, new members joining later receive the same benefits as existing members although they are not required to make initial investments proportionate to their use of the cooperative; i.e., new members get immediate access to all the assets of the cooperative.
Horizon problem	Yes	The benefits members receive from their investments in the cooperative are limited to the time period over which they expect to patronize the cooperative. As young and older members have different planning horizons, the cooperative will not make the best investments; e.g., it will tend to under-invest in assets with long-term payoffs, and managers and directors will be under pressure to increase equity redemptions at the expense of retained earnings (which could have been used to invest in additional assets).
Portfolio problem	Yes	Equity shares in a traditional cooperative cannot generally be freely traded so that members are unable to diversify their individual investment portfolios according to their personal wealth and risk preferences. It is, therefore, impossible for cooperative managers and directors to make investments in the interests of all members.
Control problem	Uncertain	A divergence of interests between cooperative members (principals) and managers (agents) gives rise to control problems. The challenge is to establish incentive mechanisms for managers that will align their interests with those of the members. This may not be a major problem in small cooperatives with a relatively homogeneous membership (in terms of members' interests) and focused (specialized) activities (e.g., sale of vegetables), which may apply to the case study example.
Influence cost problem	Not initially, but possibly later	This problem can arise in a cooperative with a wide range of activities and thus diverse objectives of its members. Members may try to influence managers' decisions, which could result in costly misallocations of resources. This problem may not apply to the case study farmers whose objectives and interests may not be very diverse, at least initially.

* Based on Cook (1995), Nilsson (as cited by van Dijk and Werts, 1996), Iliopoulos and Cook (1999), and Royer (1999)

Africa. 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. Machethe (1990) interviewed members of six agricultural cooperatives in a former homeland of South Africa to determine the causes of the poor performance or failures of these cooperatives. He summarized the major causes as follows:

- Members' lack of identity with their cooperatives
- Members' lack of understanding of their cooperatives' role
- Failure of cooperatives to involve members in policy decision-making
- Failure of cooperatives to compete with other businesses
- Inability of members to dismiss inefficient management
- Failure of cooperatives to provide transport for delivery of members' purchases
- Inability of cooperatives to keep adequate stocks of farming inputs
- Inability of cooperatives to provide sufficient credit
- Subsistence nature of agriculture

Of the respondents, nearly 60% indicated that they had joined a cooperative so that they could purchase goods on credit (24%), to sell produce through the cooperative (22.5%), and on advice of the local agricultural extension officer (12.5%). Only 41% understood cooperatives to be owned by members, 22.5% indicated that they did not know who the owner was, while 19% thought the cooperative belonged to the chief. About 26% of respondents indicated there was no difference between a cooperative and another business undertaking, 19% did not know of a difference, while only 11% indicated that the main difference is due to the cooperative being owned by its members. These responses clearly show that many members do not understand what a cooperative is and what its objectives are. Also, about 48% of members were buying goods from local shops, which undermined the cooperatives' income. Main reasons given were that the cooperatives did not carry all items (23%) and that local shops' prices were lower (16%). Thus, it appears that the sample of cooperatives did not compete effectively with local shops which weakened their financial position. Also, 61% of respondents felt that they had little or no influence on the policies of their cooperatives. This may indicate an authoritative style of management where decisions are often taken without member participation or consultation (a

principal-agent problem). Members also felt powerless to change management or were unaware that they had the power to do so (Machethe, 1990).

The study responses suggest that cooperative members did not clearly understand the purpose of a cooperative, how it functions, and what members' rights are. This could stem from their relative lack of education and training or from ignorance (due to inadequate extension advice and information). This situation may also apply to the case study farmers (described in section 6.1) who are constrained by relatively poor education, lack of access to information, and infrequent contacts with their local extension officers (who also may not understand the cooperative concept because of limited exposure to it). It should also be recognized that external factors, such as uncertain property rights (e.g., to land, and uncertainty whether land rental contracts will be upheld in traditional courts), poor road and communication infrastructure, and poor access to input (e.g., credit, hybrid seed, fertilizer) and product markets, also play a crucial role in the poor performance of cooperatives in the less-developed areas of South Africa. These constraints need to be addressed as well if cooperatives are to play a promotional role in rural development.

6.4.2 Conditions for successful cooperation in less-developed areas of South Africa

Strategies that will help to overcome the causes of cooperative failures in the developing areas of South Africa and improve the likelihood of establishing and operating successful cooperatives, with particular reference to the case study farmers, are presented in this section. Both external and internal factors will be considered.

6.4.2.1 External factors

According to the DTI (2003), poverty among rural people is caused by inadequate access to resources (such as land, capital, and infrastructure) and the poor availability of social services (e.g., education, health, and housing). A necessary, but not sufficient, condition for the development of rural areas is for the government to play a proactive role in creating a legal, economic, administrative and institutional environment that will help promote private initiatives, such as the formation of credit unions (i.e., savings and credit cooperatives, which could

mobilize capital) and agricultural cooperatives (which could be successful in areas where smallholders produce surplus crops or livestock for sale and require modern agricultural inputs). The government has committed itself to creating a favorable environment for cooperative development (DTI, 2004:12). In particular, government should focus its relatively scarce resources to provide physical and legal infrastructure to reduce transaction costs, including risk, so that markets for products and resources (such as land) work more efficiently. Improvements in physical infrastructure, such as roads and telecommunication facilities, would help to reduce transport and communication costs for farmers and traders, and ease access to inputs such as hybrid seed, fertilizer and chemicals, while access to product markets may also be enhanced. Assuming that the targeted rural areas have a great potential for producing high-value agricultural crops, access to input and product markets may be further enhanced through group action (cooperation) that could help to reduce transaction costs for individual smallholders (Holloway *et al.*, 2000).

Legal infrastructure includes independent and respected courts that enforce private property rights, uphold contracts and minimize uncertainty in land rental and other business transactions. As part of its land reform program, government - through its national and provincial departments of agriculture - should consult widely with traditional leaders to promote land rental markets in communal areas so that households who want to farm can rent land from those that do not wish to farm (but would not like to lose "their" land). Private initiatives aimed at establishing land rental markets (e.g., Thomson, 1996) should also be supported and encouraged. Promoting land rental markets in communal areas could thus help to improve efficiency of land use (land would transfer to those households best able to use it, i.e., those that have greater skills, capital or family labor) and equity (assuming transactions are voluntary, households dependent on agriculture but short of land are able to expand their farming activities while landholders who are unwilling or unable to use all their land can gain additional income by renting out their unused land) (Lyne *et al.,* 1996). Improving land tenure security would also help to promote access to credit and strengthen incentives to improve land and to adopt new technologies. It would allow households to alter the scale of farming and take advantage of new technology by spreading fixed costs, including lumpy management, transaction and information costs, over more output. Households able to expand their farming operations would probably also be proactive members

of a cooperative which they could help to establish to reduce their transaction and input costs, and enhance their farming incomes. An appropriately educated and motivated extension service would be a critical link between government departments and smallholders, particularly with regard to the promotion of land rental markets, and an important element in the formation of associations such as cooperatives, the principles of which they need to fully understand and be able to explain to smallholders who are relatively poorly educated. However, non-governmental organizations (NGOs) could also play a vital role in these initiatives as they may have more knowledgeable and motivated staff.

Another strategy that could be considered is to engage processors and marketers (buying agents) involved in supply chains of high-value products (e.g., vegetables, fruit, cut flowers) in establishing organizations such as cooperatives, which could help them to reduce their transactions costs when dealing with many smallholders. This would involve training of smallholders, perhaps with the assistance of well-trained provincial extension officers, DTI staff, or NGOs, and advice on how to establish and manage an association such as a cooperative (for example, in the SA sugar industry, extension officers of the provincial department of agriculture and those employed by sugar mills are collaborating to advise small-scale sugarcane growers). Ongoing mentoring of cooperative managers, directors and members, and advice on cooperative operating principles would most likely be crucial, at least until the cooperative can operate independently. This service could possibly, or ideally, be provided by established, successful cooperatives.[4] Cooperative members and managers should also benefit from improved information flows, technical advice on applying new technology, and guidance on improving the quality and safety of products. Clearly, processors and marketers would only engage in such activities if they perceive longer-term net benefits from such an association through an improved supply of quality products, BEE (black economic empowerment) accreditation, and greater economic and social stability and growth in rural areas.

The external factors, which determine the operating environment for smallholders and organizations, are a vital aspect in the formation of group action (cooperatives) aimed at

[4] In November 2005 there were about 57 farmer cooperatives in KwaZulu-Natal (Mthembu, 2005), but no vegetable cooperatives in the study areas.

promoting rural development in the less-developed areas of South Africa. Establishing land rental markets to improve resource allocative efficiency and the size of farming operations will take time, as will the upgrading of extension officers who are capable of educating and advising smallholders on land rental markets, operating larger farming operations, and the requirements for cooperation. A well-considered strategy with regard to engaging traditional leaders, establishing land rental markets, an intensive re-training program for extension officers, and involving organizations in supply chains of high-value products, needs to be established as a matter of priority.

6.4.2.2 Internal factors

Given the external factors influencing the success or otherwise of cooperatives, several of the internal factors discussed here to improve the performance of cooperatives in developing regions depend on educating and training potential cooperative members, and enhancing their knowledge of cooperative principles and members' rights. The education function and responsibility will most likely fall on a well-educated and knowledgeable extension service (if available), NGOs, and/or on the continuing advice of other players in the supply chain (e.g., processors, marketers). The following internal requirements may be crucial to improve the performance and sustainability of agricultural cooperatives in developing areas (see also Machethe, 1990):

- Strong and enthusiastic leadership in the community for group action (cooperation). A catalyst (such as government (DTI) information programs in rural areas) may, however, be needed to generate enthusiasm among communities for cooperation. Clearly, community members must be convinced that cooperation will provide benefits in the future. Importantly, community leaders must fully understand the cooperative principles and respect the views of potential members, who would have the power to make or influence decisions in a cooperative.
- Managers and boards of directors must promote members' interests. Members should understand that the day-to-day management of their cooperative is done on their behalf and that they have the right to dismiss inefficient managers and vote out directors that do not enhance their interests. General meetings should be held regularly to promote communication and enable members to voice their opinions and vote on important issues.

Trechter *et al*. (2002) report that cooperative communication strategies influence member commitment.

- Promoting identity with a cooperative. The success of a cooperative depends on the support of its members (Fulton and Adamowicz, 1993; Nilsson, as cited by van Dijk and Werts, 1996). The cooperative leadership should, therefore, strive to make members identify with *their* cooperative. This would reduce the outflow of business to other organizations and improve the cooperative's financial performance and, therefore, members' benefits (share of net income according to patronage).
- Participation of members in formulating policy. The democratic (one man, one vote) principle in a cooperative is aimed at giving members an equal say in deciding on important matters and formulating policy. This freedom to participate will help them to identify with their cooperative. Excessive powers of cooperative managers often develop on the ignorance of members (principal-agent problem). Members must understand the constitution of their cooperative and be aware of their rights.
- Keep adequate stocks of farming inputs. A reason why members of (failed) cooperatives have patronized other businesses is that insufficient stocks of farming requisites (such as fertilizers, seeds or chemicals) have been kept by their cooperative. Cooperatives may need access to loans to initially finance stocks of farming requisites. Arrangements with the Land Bank for such loans may be feasible. Clearly, strict financial control of stocks and the cooperative in general is a prerequisite for successful cooperation.
- Maintain competitive prices for inputs and products. This is important to assure member commitment and to promote members' financial success. Members will not patronize their cooperative if they can obtain better deals elsewhere. Cooperatives may improve their bargaining power in the market by working together with other cooperatives or firms in purchasing farming inputs in bulk (e.g., see Fulton *et al*., 1996). Contracts with input suppliers and product buyers may also help to improve relative prices and reduce price risk.
- Provide transport for purchased inputs and products for sale. Smallholders usually do not possess vehicles to transport purchased inputs back to their farm or to get their saleable products to the cooperative for further marketing. In less-developed rural areas cooperatives may have to invest in a vehicle(s), or rent vehicles, to provide this service to

members. Loans from the Land Bank may be obtainable to acquire the services of appropriate vehicles. These loans could be serviced with the retained earnings of the cooperative.

- Educating members. Regular information and education sessions could be arranged by cooperatives by inviting experts (e.g., from the private sector or from government) to address members, directors and managers on various issues, such as cooperative principles, members' rights, benefits they may derive from group action, how to manage their operations more efficiently, legal responsibilities of board members, constraints on board member actions, relationship of board members in dealing with members and management, and market trends.
- Facilitating access to credit. Cooperatives in South Africa have played an important role as suppliers of credit to commercial farmers by serving as agents of the Land Bank. Smallholders usually have difficulty in obtaining credit from financial institutions because of the lack of collateral (no land market) and poor repayment capacity. Credit may be available from local traders in less-developed areas at relatively high interest rates – often at over 100% per year (Kuhn, 2003). Cooperatives serving smallholder members could also serve as agents of the Land Bank (which, as a government parastatal with a development agenda, could offer credit at much lower interest rates) and/or micro-lenders, and manage members' repayment of loans based on product sales (repayment capacity). Strict financial management of these loans would be a requirement to minimize loan defaults. Cooperatives could also promote members' savings or work in conjunction with *stokvels* (savings institutions of many poor communities in South Africa), which could serve as sources of credit for members.
- Ensure quality and safety of products for sale. For smallholders to access markets for high-value products they need to supply products that are safe and of consistent quality. Smallholders usually have difficulties in meeting strict quality and food safety standards compared to large-scale farmers (Reardon and Barrett, 2000). Cooperatives, together with processors and marketers they contract to, could play a vital role in advising members of food quality and safety requirements and ensuring that members supply the product demanded by the market.

6.4.3 Should cooperatives be established in the study areas?

Based on the analyses in the previous sections, it seems reasonable to assume that cooperatives could be established in the two study areas of the KwaZulu-Natal midlands (Impendle and Swayimana), albeit with considerable challenges. The main constraints include low levels of education and literacy of smallholders, poor road and telecommunication infrastructure, and insecure property rights. Alternatively, IOFs may provide a better service to small-scale farmers in terms of marketing their products and providing inputs, credit, and information on input use and markets. However, a critical question relates to the efficient (optimum) boundaries of the cooperative in relation to those of the IOF. Which activities in the vegetable supply chain should be performed by the cooperative and which activities by an IOF, if any? What economic factors define these boundaries? Before these are considered, the characteristics of each study region in terms of their effects on transaction costs will be briefly summarized.

Although annual rainfall is similar in the two regions, Swayimana has better soils, a longer growing season and no frost. Vegetables grow well in both regions but the proportion of land that is arable is smaller in the Impendle area. Deciduous fruit are suitable for Impendle while subtropical fruits grow well at Swayimana (Lyne, 2005). From a transport perspective, Swayimana producers have an advantage in that they are closer to the larger markets of Pietermaritzburg (about 65km, compared to 85 km for Impendle producers) and Durban (about 80km, compared to 160 km). The nearest larger town for Impendle producers is Howick (50km), and for Swayimana producers it is Wartburg (25km). Clearly, Swayimana producers have a transport advantage in terms of reaching markets for high-value products. This also applies to the production and sale of cut flowers for larger urban and export markets. A major trade port (Dube Tradeport) and international airport will be constructed north of Durban which Swayimana producers could utilize to export their value-added products. Furthermore, Swayimana has households with larger allocations of cropland (1.8 hectares average compared to 1.1 hectares), a larger proportion of households with own transport (37.5% vs. 27.5%), household heads have slightly better education levels (5.6 years vs. 4.8), and a greater proportion of them speak English (40% vs. 32.5%) (see Table 3).

In the two regions the vegetable supply chain from production to market could involve the following basic stages: Production → Assembly → Transport → Wholesale/Retail Sales. Assuming a cooperative is considered, where would its most efficient boundary be? Should it encompass all four main activities? If not, then how many? Alternatively, where would the most efficient boundary of an IOF be? The answer depends on the operational (production) and transaction costs involved for each type of organization in the supply chain (Williamson, 1981). The efficient boundary for each organization would depend on minimizing the sum of operational and transaction costs. For example, assuming a cooperative at a central location is involved in the assembly, sorting, and packaging of vegetables for members, then it could reduce these (fixed) costs per unit by expanding its operation (e.g., members supplying more vegetables). Fixed costs may include the rent of a building, employee costs, and communicating (transacting) with members who produce vegetables. If the cooperative considered transporting the value-added product to market as well, using a hired vehicle, then transport costs per unit of vegetables would increase with distance, albeit not linearly. Finding markets and negotiating with potential buyers could also involve considerable transaction costs. With decreasing assembly, sorting, and packaging costs per unit and increasing transport cost per unit, an optimum size of operation would be determined where the sum of the two costs is minimized. However, the transport and marketing (transaction) costs could be so prohibitive for the cooperative that its boundary may only encompass the production and assembly/sorting/packaging activities (i.e., the first two stages) in the vegetable supply chain.

From an IOF's perspective, where would its most efficient boundary be? As an example, an entrepreneur in a Pietermaritzburg or Durban township considers starting a vegetable marketing business, which could provide a much-needed service for township residents who are unable to easily access other vegetable markets (e.g., municipal markets in the major cities). He owns a truck, which he could use to collect vegetables from both small-scale and commercial farmers in the region, and considers renting a building where he could assemble, wash and package the vegetables. He considers selling the value-added vegetables to township residents every Tuesday and Saturday. His operational costs include the rent of the building, costs of employees that help wash and package the vegetables, and transport cost in collecting vegetables from farmers. Transaction costs in dealing with farmers could be substantial; e.g., negotiating with many

smallholders is time consuming and collecting their product is usually difficult and costly because of poor road and communication infrastructure in rural areas. Trading with only a few large commercial farmers is more economical due to much lower transaction costs. However, he sees an opportunity to market the product of smallholders under a different label, which may appeal to some township residents. The efficient boundary of the IOF would again depend on minimizing the sum of operational and transaction costs. The entrepreneur may find that the transaction costs in dealing with many farmers, and the costs of collecting (transporting) vegetables from these farmers, may be prohibitive. Also, the washing, sorting, and packaging activities require larger premises and more employees (and with it principal-agent problems), which involve higher costs. However, if he could purchase fresh, graded, and packaged vegetables from a central location then his transaction and transport costs would be considerably reduced, and he could also rent smaller premises for storage and employ fewer workers. His operational and transaction costs may thus be considerably reduced. So the boundary of his firm may only involve a transport operation and storage/sales of vegetables in the township (i.e., the last two stages of the supply chain).

Considering the whole vegetable supply chain in the study areas and the "boundary" analysis for the cooperative and IOF, then the optimum arrangement for the supply chain (i.e., one that minimizes the sum of operational and transaction costs across the whole supply chain) may comprise a "hybrid" model; i.e., one in which a cooperative and an IOF play a role. For example, a cooperative's optimum boundary may encompass production, assembly, sorting, grading and packaging of vegetables, while the IOF's optimum arrangement may involve transporting the value-added products from a central (cooperative) location and selling these products in township markets. Because of a more efficient operation, the IOF entrepreneur may also be willing to advise smallholders on collective action and provide useful information, such as the correct use of inputs, and the type of vegetables and product quality that the market demands. Cooperative members could benefit from this information and reduced transaction costs in dealing with a dependable agent, and by having a ready market for their products.

Smallholders who consider collective action in an attempt to gain better access to input and product markets, and to reduce transaction costs for individual producers, would face the initial

challenge on how to establish a cooperative, given the constraints they face. Since the government supports the formation of cooperatives, the smallholders could approach the extension service of the provincial department of agriculture (who may also want to involve the Department of Trade and Industry (DTI)) for information and guidance on the formation of a cooperative and on the likely benefits and costs of collective action. Strong leadership and enthusiasm for collective action would also help to promote the formation of a cooperative. It may be advisable for a small group of enthusiastic vegetable growers to initially start such a venture to ensure a reasonable chance of success. Initially, members of the group may share the responsibility for managing the collective business, but if it has grown sufficiently they may consider hiring someone (perhaps on a part-time basis) to keep records (e.g., of the type and quality of vegetables supplied by each member, prices obtained, and costs incurred) and to manage the daily affairs of the business. However, agency problems may arise when the objectives of the manager/secretary do not coincide with those of the members. Finding the right incentives to align the objectives may be difficult (e.g., paying a managers' bonus based on business volume may reduce agency problems). Any profits generated by the collective business could be distributed among members according to patronage. However, trust among members would be a vital element in the success of such a group.

Assuming the group establishes itself, membership grows with additional smallholders, knowledge of markets expands, and the benefits of cooperation are realized, the group may decide, at some stage, to officially apply for the registration of an agricultural cooperative with the DTI. With official approval of the DTI, and assistance from extension officers, NGOs, IOFs, and established, successful cooperatives the formal establishment of a cooperative may proceed. Roets (2004: 215) also provides useful guidelines for the formation of cooperatives. The constitution of the cooperative, membership fees, members' rights and responsibilities, election of a board of directors, and appointment of a manager/secretary would be important elements in the formation of the organization, as would awareness among members, directors and manager(s) of the conditions for successful cooperation that were discussed in the previous section. The government also needs to allocate its limited resources on creating the right economic and legal environment so that cooperatives and other business entities can thrive; i.e., physical infrastructure (roads, telecommunications) and legal infrastructure (courts that uphold contracts

and private property rights) need to be improved, while land rental markets in communal areas need to be promoted as well. A new cooperative could lobby the government to incur the necessary improvements in the area.

7. Conclusions and recommendations

Agricultural cooperatives have played an important role in the development of the commercial agricultural sector in South Africa as suppliers of farming requisites, marketers of agricultural commodities, and providing services such as gain storage and transport. The success of these cooperatives in the past was promoted because they served as agents of marketing boards (for various agricultural commodities) and the Land Bank, which provided subsidized loans to commercial farmers. Small-scale farmers in the former (less-developed) homelands did not have access to these cooperatives and their services for political reasons. Although cooperatives were established in the former homelands, many did not survive due to various reasons, including poor management, lack of training, conflict among members, and lack of funds. The high costs of supporting commercial farmers were also not sustainable and a series of economic reforms commenced in the 1980s, including removal of subsidies and tax concessions to commercial farmers, and deregulation of agricultural financing and marketing. These policy reforms reduced the role and viability of agricultural cooperatives, and several have converted to investor-oriented firms (IOFs).

The new democratic government in South Africa, which came into power in 1994, 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 recognizes 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. The government is committed to providing a supportive legal environment for cooperatives. However, it is vital that cooperatives do not become a tool of

government that can dictate to them. Cooperatives should remain autonomous, self-reliant, and self-sustaining so that members benefit in the short- and long-term. Under these circumstances cooperatives could facilitate economic growth and development in less-developed areas.

Nevertheless, there is considerable debate in South Africa on whether (commercial) farmers' interests are better served by cooperatives or by IOFs. Proponents of the latter argue that IOFs have easier access to various sources of capital, are better able to attract top-quality management, shareholders' interests are aligned with those of customers, and they have an entrepreneurial flair that is often missing in cooperatives. Cooperative members are also often reluctant to fully capitalize their cooperative (because they do not receive a competitive return on their capital) so that the cooperative cannot provide a top-quality service and match the competition from IOFs. Supporters of cooperatives argue that they exist to service their members, who retain influence over cooperative functions and activities; they can reduce costs, enhance incomes, and improve the viability of business activities, and thus have significant potential to contribute towards reducing poverty, enhancing empowerment, and creating jobs.

It is in this context that this research focuses on whether the traditional cooperative is the appropriate organizational form for small-scale (communal) farmers in South Africa to use to facilitate access to input and product markets. These farmers have limited access to farming inputs, credit and information, and markets are often constrained by inadequate property rights and high transaction costs. Furthermore, household heads are often poorly educated, have no own transport, are geographically dispersed, and are faced with poor road and communication infrastructure. But traditional cooperatives also have inherent weaknesses, such as free-rider, horizon, portfolio, control, and influence cost problems, which are attributable to their property rights constraints. Are cooperatives thus the right organizational form for these farmers? If so, then what activities would determine the optimum (efficient) boundary of the cooperative in a (vegetable) supply chain?

In a case study of smallholders in two communal areas of KwaZulu-Natal (Impendle and Swayimana), most of the reasons for establishing cooperatives in various parts of the world are also appropriate to these farmers (i.e., reasons such as poverty; market failure; drive for self-

help; providing missing services; operating at cost; improving members' incomes; enhancing bargaining power; coordinating flow of inputs and products; and community development). The seven international principles of cooperation (democratic member control; member economic participation; autonomy and independence; provision of education, training, and information; cooperation among cooperatives; and concern for the community) are also considered to be applicable to, and would likely be accepted by, the two communities. However, an analysis of the inherent weaknesses of traditional cooperatives and their applicability to the case study farmers suggests that the free-rider, horizon, and portfolio problems would also be applicable to smallholder members in an emerging cooperative. These potential constraints may initially (i.e., when the cooperative is established and members of similar wealth try to make it work) not cause insurmountable problems, but they could constrain investments in, and growth of, the cooperative in the future as members' businesses grow, and wealth and patronage levels among members change. Control (principal-agent) and influence cost problems could also emerge as the cooperative develops and expands its membership and activities. Proponents of cooperatives and potential cooperative leaders in less-developed areas should be aware of these likely problems facing cooperatives before they are established. Furthermore, appointed managers and elected directors should keep an open mind about the growth cycle of cooperatives; i.e., as the cooperative matures members may find it appropriate to covert their cooperative into another (perhaps more efficient) ownership structure, such as a new generation cooperative or an IOF.

Studies of poor-performing and failed cooperatives in the former homelands of South Africa suggest that members did not clearly understand the purpose of a cooperative, how it functions, and what members' rights are. This may have stemmed from members' ignorance, a lack of education and training, and/or poor extension advice. Weak and authoritative management also have played a major role in cooperative failures. However, external factors, such as uncertain property rights, inadequate road and communication infrastructure, and poor access to input and product markets (due to costly information and high transaction costs), have also contributed to cooperative failures and need to be addressed by policy makers so as to improve the likelihood of cooperatives succeeding in less-developed areas.

As far as external factors are concerned, government needs to play a proactive role in creating a legal, economic, administrative, and institutional environment that will promote private initiatives aimed at, for instance, establishing land rental markets, marketing associations or cooperatives, and IOFs in regions that have a good potential for producing and selling high-value crops. In particular, government should provide physical and legal infrastructure to reduce transaction costs, including risk, so that markets for products and resources (such as land) work more efficiently. Improvements in physical infrastructure, like roads and telecommunication facilities, would help to reduce transport and communication costs for farmers and traders, while legal infrastructure (e.g., independent courts) should enforce private property rights, uphold contracts, and minimize uncertainty in land rental and other business transactions. Promoting land rental markets in communal areas may help to promote the efficient use of agricultural resources and enable households that want to farm to increase their size of business and benefit from economies of size advantages. Improving land tenure security would also help to promote access to credit and strengthen incentives to improve land and to adopt new technologies. Households that are able to grow their businesses may also be proactive in forming organizations (such as cooperatives or IOFs) and develop institutions aimed at reducing transaction costs and facilitating their access to input and product markets. Government, through the national and provincial departments of agriculture, should also consider developing simple, standard record-keeping and other decision-support systems for cooperatives and their members that would facilitate proper bookkeeping and improved decisions by managers. These systems may also promote use of study groups among cooperatives and members for comparative analyses. The government may also consider implementing simple grading systems that could be included in easily-understood cooperative contracts with producer members and wholesalers (traders). These institutional innovations may greatly facilitate participation by smallholders in collective action (cooperatives) and enhance their potential success.

A critical, but not sufficient, requirement in rural development is the education and training of rural communities, and an appropriately educated and motivated extension service could play an important role in this regard. Anecdotal evidence suggests that the present provincial (government) extension service is not well motivated and lacks resources to provide an effective extension service to smallholders. They may also be unable to advise smallholders on the

benefits and costs of establishing organizations such as cooperatives, or how to bring about institutional change that would promote land rental markets and reduce transaction costs. Re-training of extension agents – which will take time - may be an important requirement for a more effective extension service. Non-governmental organizations (NGOs), advisors employed by successful cooperatives, and IOFs (such as marketing agents, supermarkets, and processors of agricultural commodities) could also complement the efforts of extension agents on advising smallholders on group action (cooperation) and land reform issues. If cooperatives are formed, ongoing mentoring and training of cooperative managers, directors, and members - by the Department of Trade and Industry (DTI), extension agents, successful cooperatives, NGOs, and other advisors - would most likely be crucial, at least until the cooperatives can operate independently. Cooperative members and managers should benefit from advice and training through improved information flows, technical advice on applying new technology, and how to improve the quality and safety of products.

There are also internal factors that are crucial for cooperatives to succeed in less-developed areas. These include: Strong and enthusiastic leadership in the community for group action; competent managers and directors promoting members' interests and identity with their cooperative; participation of members in formulating cooperative policy; keeping adequate stocks of farming requisites; maintaining competitive prices for inputs and products; providing transport for members' purchased inputs and products for sale; educating members; facilitating members' access to credit; and ensuring the quality and safety of products. The effectiveness of these factors depends largely on educating and training cooperative members, managers and directors. As indicated earlier, this function could be performed by the DTI, an appropriately educated extension service, successful cooperatives, NGOs, and advisors employed by IOFs. The SA Primary Agriculture Education and Training Authority (PAETA) could provide funding for some education and training sessions delivered by NGOs and IOFs (Roets, 2004).

In the case study areas, both Impendle and Swayimana have the potential to grow high-value crops such as vegetables, fruit, and cut flowers. Swayimana farmers have a transport advantage by being closer to larger urban markets and to the proposed development of a trade port and international airport north of Durban. The optimum boundary for each organization involved in

the (vegetable) supply chain from production to market depends on the minimum total operational and transaction costs for each business. For example, the optimal arrangement for a cooperative in a rural area may encompass the production and assembly (including washing, sorting, and packaging) of vegetables. The efficient boundary of an IOF operating from a central market (urban or township) may include transporting the value-added products from the cooperative to township consumers. Such an optimal "hybrid" arrangement across the vegetable supply chain could benefit both cooperative members (smallholders) and IOFs.

Further research on the appropriate organizations that could help promote access of smallholders to input and product markets in the two study areas - and in South Africa in general - could include a detailed (case study) analysis of operational and transaction costs for various role players in a particular vegetable supply chain and determining the efficient boundaries for each organization. The outcomes could provide useful guidelines for smallholders (who are eager to gain access to markets), IOFs (who may see profit opportunities in participating in the supply chain), and advisers (e.g., extension agents, NGOs, and other development consultants) who could assist in developing an efficient vegetable supply chain. Should cooperatives feature in such a supply chain, other research could ascertain the degree of knowledge among government departments (e.g., extension service, DTI), smallholders, NGOs and other advisors on agricultural development, of cooperative principles, potential benefits and inherent problems of cooperatives, and potential support from government for smallholders who wish to cooperate. The outcome of this survey may point to the likely education and training needs among various parties interested in forming cooperatives. Policymakers may also then wish to reconsider their strategies regarding support for cooperatives serving small-scale farmers.

Acknowledgements

The senior author gratefully acknowledges funding from the National Research Foundation (NRF) in South Africa and the Center for International Food and Agricultural Policy (CIFAP) in the Department of Applied Economics at the University of Minnesota. Opinions expressed and conclusions arrived at in this document are those of the authors and do not necessarily reflect those of the NRF or CIFAP. Valuable comments on a previous draft by Professor Vernon Eidman of the Department of Applied Economics at the University of Minnesota are also gratefully acknowledged. This research was conducted when the senior author was on sabbatical leave in the Department of Applied Economics at the University of Minnesota in 2005.

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Appendix 1

International Cooperative Alliance: Definition and Principles of a Cooperative

Definition
A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise.

Principles

1st Principle: Voluntary and Open Membership
Co-operatives are voluntary organisations, open to all persons able to use their services and willing to accept the responsibilities of membership, without gender, social, racial, political, or religious discrimination.

2nd Principle: Democratic Member Control
Co-operatives are democratic organisations controlled by their members, who actively participate in setting their policies and making decisions. Men and women serving as elected representatives are accountable to the membership. In primary co-operatives members have equal voting rights (one member, one vote), and co-operatives at other levels are also organised in a democratic manner.

3rd Principle: Member Economic Participation
Members contribute equitably to, and democratically control, the capital of their co-operative. At least part of that capital is usually the common property of the co-operative. Members usually receive limited compensation, if any, on capital subscribed as a condition of membership. Members allocate surpluses for any or all of the following purposes: developing their co-operative, possibly by setting up reserves, part of which at least would be indivisible; benefiting members in proportion to their transactions with the co-operative; and supporting other activities approved by the membership.

4th Principle: Autonomy and Independence
Co-operatives are autonomous, self-help organisations controlled by their members. If they enter into agreements with other organisations, including governments, or raise capital from external sources, they do so on terms that ensure democratic control by their members and maintain their co-operative autonomy.

5th Principle: Education, Training and Information
Co-operatives provide education and training for their members, elected representatives, managers, and employees so they can contribute effectively to the development of their co-operatives. They inform the general public – particularly young people and opinion leaders - about the nature and benefits of co-operation.

6th Principle: Co-operation among Co-operatives
Co-operatives serve their members most effectively and strengthen the co-operative movement by working together through local, national, regional, and international structures.

7th Principle: Concern for Community
Co-operatives work for the sustainable development of their communities through policies approved by their members.

Source: ICA (2005)

Appendix 2

Five-Stage Life Cycle of a Cooperative (Cook, 1995: 1155-1158)

Stage 1:
Depressed prices (usually due to excess supply) or market failures (causing opportunism and holdup situations by monopolists/monopsonists or oligopolists/oligopsonists) create incentives for producers to react collectively. "Generally, the first stage in the formation of a cooperative is viewed as defensive in nature" (p. 1155). For example, rural electric (1936) and telephone (1949) cooperatives were initially established in the US to provide a missing service due to high unit costs of serving a low-density customer base.

Stage 2:
Cooperatives formed to counteract depressed prices "are usually short-lived and have little economic impact on their members' livelihoods. … On the other hand, cooperatives formed to confront market failures usually could market or deliver inputs at more favorable prices than I.O.F. oligopolists/oligopsonists. Therefore, since benefit usually outweighs cost, they survive past the infant stage." (p. 1156).

Stage 3:
"Cooperatives surviving stage two become successful in correcting, or at least ameliorating, the negative impacts of market failures. Consequently, the strategic behaviors of competitors begin to modify. At this stage, prices now differ little among I.O.F. competitors and the cooperative. Progressively, the short-run costs of transacting with a cooperative become more scrutinized by members. These transaction costs … now become important. These costs are generated by a vaguely defined "user versus investor" set of property rights. These vaguely defined property rights lead to conflicts over residual claims and decision control – especially as cooperatives become increasingly complex in their organizational structure. … conflicts over residual claims and decision control caused by the unique user-driven characteristics of cooperatives are categorized into five problem sets" (p.1156), including the free rider problem, horizon problem, portfolio problem, control problem, and influence costs problem (see section 4 of this document).

Stage 4:
"As cooperative decision makers become aware of these unique property rights issues, there is a growing awareness of the positive quasi-rents that might be forfeited if the cooperative were to decide to exit. Sunk costs, competitive yardstick arguments, pacemaker reasons – all become major components of strategic decision making during this period. Managing cooperatives during this stage is exceedingly challenging. … But near the end of this period of increasingly complex analysis of tradeoffs between vaguely defined property rights hurdles and unique opportunities, cooperatives conclude that their options are narrowed to three: (1) exit, (2) continue, or (3) transition." (p. 1157 - 1158).

Stage 5:
In this stage the cooperative leadership chooses between the three strategic options of exit, continue, or transition (see section 5 of this document).