



Best Institutional Arrangements for Farmworker Equity-Share Schemes in South Africa

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BEST INSTITUTIONAL ARRANGEMENTS FOR FARMWORKER EQUITY-SHARE SCHEMES IN SOUTH AFRICA

Sharon Knight, Mike Lyne and Michael Roth

Farmworker equity-share schemes were initiated in the Western Cape region of South Africa in the early 1990's as a method of redistributing farm assets to land reform beneficiaries while maintaining the viability of commercial farming operations. This study set out to identify the institutional characteristics of successful farmworker equity-share schemes in South Africa and to discern a set of best institutional practices that will likely promote the success of future equity-share schemes. A detailed study of nine land reform projects intended to empower previously disadvantaged farmworkers was undertaken in the Western Cape during November 2001 to explore relationships between their institutional arrangements, worker empowerment, management quality and performance. Cluster analysis of variables measuring these four constructs revealed positive relationships between sound institutional arrangements, competent management, effective worker empowerment and good performance. Best institutional practices identified by the analysis suggest that farmworker equity-share schemes should be operated as (or like) a company with voting and benefit rights proportional to individual shareholdings, but with restrictions on certain share transactions to prevent free-riding by non-workers and the loss of creditworthiness through sudden outflows of equity and managerial expertise. However, this positive relationship between best institutional practices and enterprise performance is dependent on effective worker empowerment (e.g. skills transfer and gender representation), good governance (e.g. external auditing) and competent management (e.g. schemes to reward worker performance and to resolve disputes).

1. INTRODUCTION

Farmworker equity-sharing schemes (FWES) were initiated by the private sector in South Africa during the early 1990's. FWES are privately owned farming operations that are generally restructured as companies. The original owner of the farm and the farmworkers become shareholders in the enterprise, sometimes with a third-party investor. In most cases, management exercises exclusive use rights to the farmland with farmworkers obtaining tradable voting and benefit (dividends and capital gains) rights in proportion to their financial investment. These institutional arrangements help to alleviate the free- and forced-rider problems that undermine cooperative forms of business organization (Cook and Iliopoulos, 2000: 337) and therefore encourage investment of money and effort by shareholders. In addition, company law entrenches transparent electoral and reporting processes, making directors accountable for their policy choices.

Equity-sharing arrangements were thought to be suited to farming enterprises where it would be better to change the ownership structure of the enterprise rather than dividing the land into

smaller units; for example, where the enterprise is indivisible due to technical, managerial or natural resource constraints (McKenzie, 1993: 51). Mather and Adelzadeh (1997:11) describe equity-share schemes as “*a method of redistributing land without affecting the (operation) of individual farms or overall production levels; indeed, with better job satisfaction and greater participation, productivity should increase on farms where workers are also owners*”. In 1998 it was estimated that about 50 farmworker equity-share schemes had been initiated in South Africa, mostly in the Western Cape (Lyne *et al.*, 1998:2) and it is clear that this number has increased in recent years. For example, in December 2001 the Land Reform Credit Facility (LCRF) had approved loans for a further 11 FWES (LCRF, 2001: 3). Farmworker equity-share schemes are now spread across all nine of South Africa’s provinces and involve wine, fruit, vegetables, olives, poultry, cut flowers, dairy and eco-tourism enterprises.

The aims of this study are two-fold; (a) to identify the institutional characteristics of successful farmworker equity-share schemes using relevant principles from the theory of New Institutional Economics (NIE) and data gathered from case studies of existing schemes, and (b) to propose a set of “best institutional practices” that is likely to promote the success of these and futures projects, and so enhance their contribution to land reform in South Africa. Data relating to institutional arrangements and management quality, worker empowerment and financial performance were collected from case studies of nine schemes in the Western Cape and were analysed using cluster analysis. This technique was performed on variables to test for positive relationships hypothesized between indicators of project performance and sound institutional arrangements. For example, it is hypothesized that a scheme’s creditworthiness is positively related to a shareholder agreement that protects against a sudden loss of managerial expertise.

Section 2 of this paper motivates the importance of the study and section 3 considers the features of a successful equity-share scheme and of the institutions expected to foster its success. Section 4 describes the selection of case studies, information gathered, and the empirical technique used to analyse this data. Results of the empirical analysis are presented in section 5, and section 6 concludes the paper with a summary of best institutional practices.

2. RATIONALE FOR THE STUDY

Equity-sharing schemes offer an institutional environment that creates an incentive to invest in enterprises where resources such as land are co-owned. Co-ownership will continue to pose a challenge in the transition of South Africa’s inequitable farming sector for three main reasons:

First, many of the group settlement schemes that were created under the government’s settlement/land acquisition grant (SLAG) programme have succumbed to weak institutions. The Department of Land Affairs (DLA) was not always able to ensure that diverse groups of beneficiaries would devise and enforce rules to manage their communal resources. In the virtual absence of rules governing use or benefit rights, some of this land has become an open access resource with individuals unable or unwilling to finance improvements and inputs (Pitout *et al.*, 1998: 47). The beneficiaries remain poor as their current returns to land are low and they cannot realise the capital value of their land as it is no longer marketable. This situation is unlikely to improve unless the institutional foundations of these projects are redesigned. Similar conditions prevail in many of South Africa’s former homelands where high quality natural resources are poorly utilized because the communities who share these resources face institutional and

financial problems such as insecure land tenure (Lyne and Nieuwoudt, 1990) and lack of access to affordable credit (Kirsten *et al.*, 1996, Fenwick and Lyne, 1999).

Second, most land currently farmed by the state and its agents is contested by neighbouring communities. The notion that this land should be subdivided and privatised to individuals who benefit from Land Redistribution of Agricultural Development (LRAD) grants has been strongly rejected by these communities who perceive that all of their members should benefit from the land (Greene and Lyne, 2001).

Third, large commercial farms are expected to remain a predominant feature in South Africa (owing largely to the reality of lumpy resources and fixed transaction and sub-division costs) and it is therefore crucial that new ways are found to improve rural livelihoods and access to land on commercial farms through new ownership structures. Changing the ownership structure of commercial farms can redistribute wealth without adversely affecting agricultural productivity, farmworker employment or sacrificing economies of farm size (Eckert *et al.*, 1996).

Land redistribution has been slow in South Africa. In the province of KwaZulu-Natal where farmland transactions have been monitored since 1997, less than 0.5% of the commercial farmland owned by whites has transferred to historically disadvantaged owners each year (Lyne and Darroch, 2001). This slow progress has been attributed to two fundamental obstacles. First, it is not economically feasible to partition large commercial farms into much smaller, affordable units in situations where many resources are indivisible (e.g. packsheds, irrigation equipment and machinery) and the costs of surveying, transferring and registering sub-divisions are high (Graham, 2000: 19; Simms, 1997). Second, prospective farmers lack capital and are unable to finance land with mortgage loans from commercial banks due to cash flow problems caused by relatively high inflation rates and low cash returns to land (Nieuwoudt and Vink, 1995).

Faced with these problems, most of the disadvantaged people who have managed to acquire farmland have had to pool their meagre resources and purchase farms collectively. During 1997-2000, disadvantaged owners acquired 94,160 hectares of the commercial farmland in KwaZulu-Natal. Of this amount, 12.9% was acquired through private non-market transfers (mainly donations and bequests), 35.3% was redistributed through government-assisted (SLAG) purchases, and 51.8% was redistributed through private land market transactions (cash and mortgage loans). Without exception, government-assisted transactions (33,263 ha) involved the establishment of a common property association (CPA) or community land trust to represent the interests of multiple owners. Corporate entities also accounted for 35% (17,181ha) of the farmland purchased privately by previously disadvantaged people. In short, more than half the farmland redistributed in KwaZulu-Natal is co-owned (Lyne and Darroch, 2001).

In all of these circumstances, equity-sharing may offer a useful way of dealing with free-rider problems that tend to undermine the performance of cooperative and collective enterprises built on shared resources. The following section considers the institutional arrangements that a successful farmworker equity-share scheme should apply to avoid these problems.

3. A CONCEPTUAL MODEL OF INSTITUTIONAL ARRANGEMENTS FOR A SUCCESSFUL EQUITY-SHARE SCHEME

Knight and Lyne (2002) postulated that a successful FWES should achieve a number of goals. These include the redistribution of wealth and future benefit streams (LCRF, 2001:8; Eckert *et al.*, 1996; Kirsten *et al.*, 1996); empowerment of farmworkers through skills transfer and their formal inclusion in policy making (Eckert *et al.*, 1996; McKenzie, 1993: 52; DLA, undated: 20); retaining or attracting quality management (McKenzie, 1993: 52; Lyne *et al.*, 1998: 6); sourcing capital from the private sector to finance new investment i.e. preserving or enhancing creditworthiness (Lyne *et al.*, 1998: 8; Kirsten *et al.*, 1996; Pitout *et al.*, 1998: 66); the improvement of worker productivity and labour relations (Lyne *et al.*, 1998: 8; Van Rooyen and Ngqangweni, 1996: 4; Eckert *et al.*, 1996); and provision for the transfer of both ownership and control of commercial farms to previously disadvantaged workers in the long-term (McKenzie, 1993: 52).

Achieving these goals requires a mix of institutional arrangements that make for good corporate governance. To begin with, joint farming ventures require decisive and accountable management for financial performance (Nieuwoudt, 1990). Accountability requires incentives for complying with rules, and penalties for breaking rules (LCRF, 2001: 8). For decision-makers (directors, trustees and managers), accountability is facilitated by transparency (e.g. in reporting audited financial statements) but is ultimately ensured by the mobility of capital and a sound electoral process. When combined with performance-based remuneration packages, the threat of disinvestment (exit) and sanction (voice) by members encourages managers to maximize their benefits.

In addition, these institutions should eliminate or reduce the potential for free-riding to encourage co-owners to finance improvements and to use their shared resources in a sustainable manner. Recent NIE literature analysing the demise of traditional cooperatives in favour of “new generation” cooperatives (Cook and Iliopoulos, 1999 and 2000; Porter and Scully, 1987) and investor-owned firms (Hendrikse and Veerman, 2001) explains the relative inefficiency of traditional cooperatives in terms of inadequate property rights that result in free-rider, horizon, portfolio, control and influence problems. To solve the internal free-rider problem, property rights (i.e. benefit and voting rights) assigned to members, should be well defined and proportional to their individual capital contribution. The free-rider problem discourages member investment because some of the gains from the cooperative accrue to individuals that did not fully invest in developing the gains. These free riders could be non-members who patronize an open cooperative, or new(er) members who acquire the same rights as initial investors without paying the appreciated (i.e. market) price for their shares.

It is thus important that workers’ interests in an equity-share scheme are not diluted by a transfer of shares to non-workers as a result of bequests or sales to outsiders. This would weaken worker incentives to increase their work effort (i.e. the employment contract would be less incentive compatible) and helps to explain why the workers participating in a FWES usually insist that only employees may be shareholders.

Egalitarian voting and benefits rights result in each member of the organization receiving similar voting and benefit rights regardless of individual investment or contribution. A member who

invests more capital in the organisation does not receive proportionally more in terms of his or her rights. Investor owned firms (IOFs) like private or public companies, however, operate on a system of “fair” benefit and voting rights whereby shareholders receive proportionally more rights as their level of investment in the company increases.

The horizon problem results from residual claims that do not extend as far as the economic life of the underlying asset (Porter and Scully, 1987). Under these conditions, cooperative members tend to under-invest in long-term and intangible assets (such as vineyards, orchards, product promotion and brand loyalty) because they are prevented from realizing capital gains by retiring shares at their market value. Again, new members become free riders as they benefit from past investments without paying fully for them in the form of higher share prices.

The portfolio problem (Jensen and Meckling, 1976) discourages members of a cooperative from investing as much as they would do as shareholders in an IOF. This problem arises because the cooperative’s investment portfolio may not reflect the interests or risk attitudes of any given member. Members cannot trade shares at market prices and are therefore unable to diversify or concentrate their own asset portfolios to fully reflect personal risk preferences. This forced-rider problem is compounded by the cooperative principle of equal voting power as the portfolio preferred by those members who are willing to risk larger investments in the cooperative is likely to differ from that preferred by a risk-averse majority.

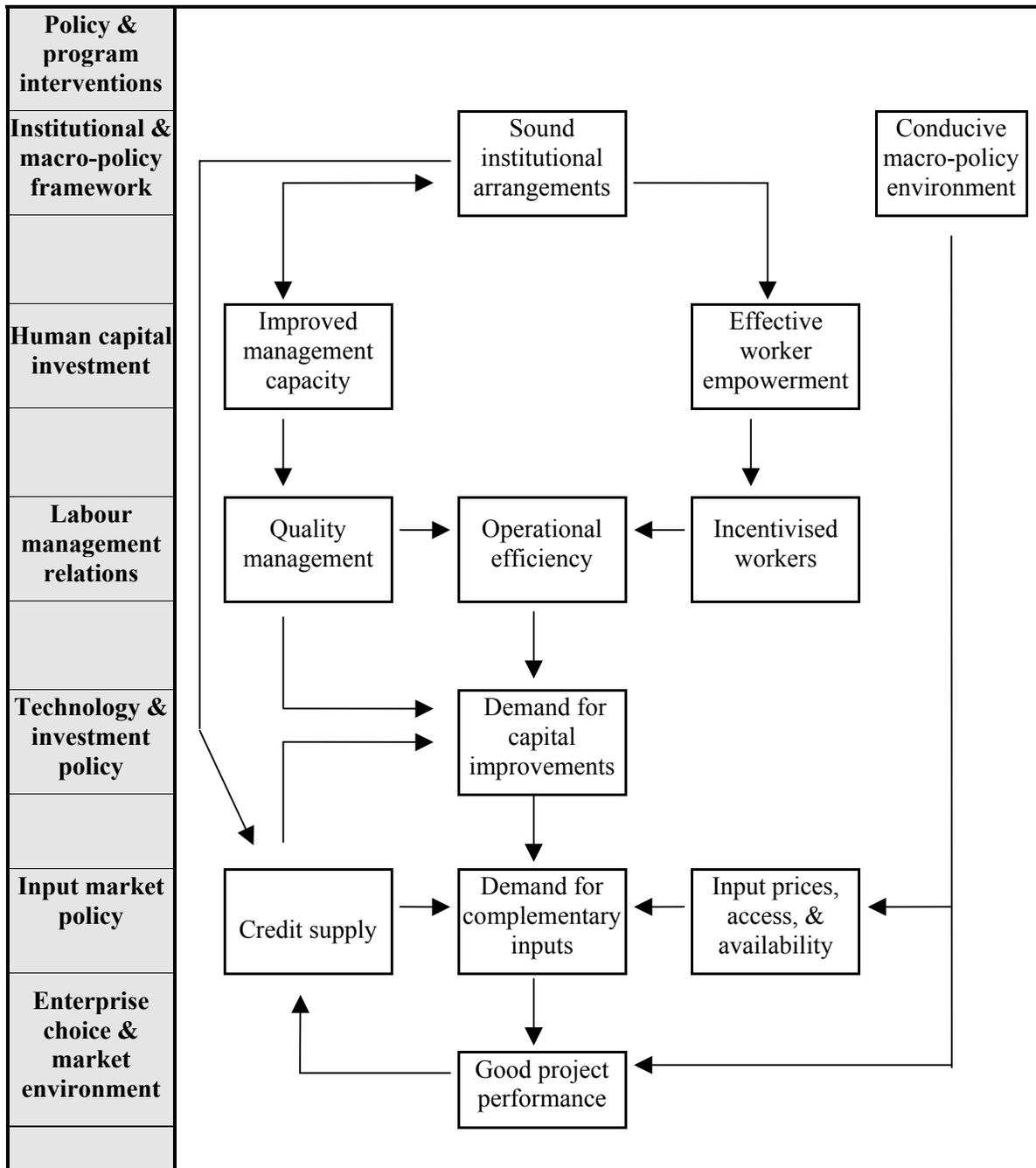
The control problem (Sykuta and Cook, 2001) refers to the cost that members face in monitoring managers to ensure that they make prudent investment decisions and do not shirk or cheat. Although this principal-agent problem is not unique to egalitarian institutions like traditional cooperatives, it is less severe in IOFs where (a) larger investors are able to internalise the dividends of their policing effort (because dividends are proportional to investment), (b) agent performance is clearly signalled by the market/audited value of members’ equity shares, and (c) the agents are shareholders themselves and therefore have incentive-compliant employment contracts (Porter and Scully, 1987).

Hendrikse and Veerman (1999) cite cases of leading marketing cooperatives in Ireland and The Netherlands changing their governance structure in the direction of IOFs by issuing some form of equity with proportional benefit and voting rights, or by outright conversion to company status. Likewise, Cook and Iliopoulos (1999) describe the gradual decline of traditional marketing cooperatives in the USA, and the recent birth and proliferation of new generation cooperatives in response to inherent flaws in the structure of property rights within traditional cooperatives. Hendrikse and Veerman (2001) further contend that traditional cooperatives are at a disadvantage relative to IOFs when seeking capital from external sources to finance assets that have specific uses. Specific assets increase the financier’s exposure to risk, and external financiers can do little to reduce this exposure when transacting with traditional cooperatives because managerial decisions can be influenced by numerous small investors who have equal or near equal voting rights. This “influence problem” tends to raise the cost of external equity and debt capital to finance assets that have specific uses. For this reason, a switch from cooperative to IOF status is predictable when product markets become more differentiated.

These institutional arrangements exist if the FWES is organized as an investor owned firm such as a company, or a trust or partnership that adopts and implements a company-like constitution. Figure 1 presents a conceptual model linking the institutional arrangements of a farmworker equity-share scheme to its performance. The left-hand side of the figure identifies strategic points

of policy and program interventions that impinge directly or indirectly on the enterprise. The macroeconomic environment, influenced by domestic policy and global trade, will have an important bearing on the profitability of the enterprise regardless of its institutional and organizational features. A conducive macro-policy environment will aid the performance of even a badly designed enterprise, while a poor environment (currently the deciduous fruit sector for example) will constrain the performance of a well-designed project.

Figure 1: Conceptual model of factors contributing to the performance of a farmworker equity-share scheme



Even the best institutional arrangements risk falling short of implementation without investment in human capital that enables management and workers to take advantage of their new rights and asset ownership. This is particularly so in situations where land reform beneficiaries are operating with new legal structures, or as new entrants to commercial operations, and require new skills to administer their institutions, develop business plans, interpret financial statements, participate in management decisions, and to access input, product and financial markets. A favourable institutional environment combined with an enabled management and workforce, *ceteris paribus*, should improve the operating efficiency of the enterprise, thereby increasing demand for, and the profitability of, fixed improvements and complementary inputs. In most commercial farming situations, performance also depends on access to loan finance from banks that evaluate applicants according to their institutional features, quality of management, net worth and debt-servicing capacity. The next section describes the selection of case studies, information gathered, and the empirical technique used to analyse this data.

4. EMPIRICAL ANALYSIS

4.1 Data collection

In November 2001 a detailed study of nine land reform projects intended to empower previously disadvantaged farmworkers was conducted to explore relationships between their institutional arrangements, financial performance, management and worker empowerment through skills training, gender sensitivity and participation in decision-making. Established projects producing deciduous fruit, wine, citrus and vegetables were selected as case studies in the Lutzville, Elgin, Piketberg, Stellenbosch and Paarl regions of the Western Cape. The enterprises were chosen to ensure variation across a number of known indicators including; use of external finance, size and gender composition of the beneficiary group, proportion of equity owned by farmworkers, and certain institutional arrangements such as the choice of legal entities and business organisation. The sample was designed to control, where possible, for non-institutional determinants of financial performance such as enterprise type and geographic region. Actual financial performance was not known *a priori*, but based on anecdotal evidence, efforts were made to select enterprises ranging from poorly performing to the more successful. The final choice of projects was constrained mainly by the fact that few of the 21 FWES identified in the Western Cape had been operating for more than one year with their current set of institutional arrangements. In addition, some managers were not available at the time of the study and, in two cases, the managers refused to participate.

In-depth interviews were conducted with the manager (frequently, the previous farm owner), worker-trustees, external financiers, local officials from the Department of Land Affairs (DLA), and representatives of the firms contracted to help with project planning, training and facilitation. Interviews with the manager and worker-trustees were conducted using a structured, open-ended questionnaire to identify institutional arrangements and their impact on internal rules, practices, management, compliance, incentives, and access to finance. Interviews with external financiers, local officials from the DLA and the firms contracted to help with project planning, training and facilitation were less structured and explored project-specific problems. The questionnaires sometimes required respondents to rate their perception of a particular issue (e.g. management

quality) using a Likert-type scale with scores ranging from one to five (1=excellent; 2=good; 3=average, with room for improvement; 4=poor; 5=extremely poor). Trustees were requested to respond as representatives of the worker-shareholder group rather than providing their personal views. Only one consensus answer was recorded regardless of the number of Trustees interviewed (up to four) at each project.

4.2 Variables recorded in the case studies

Table 1 defines the set of observable variables chosen to represent the project-level constructs presented in Figure 1. Some of the variables were continuous but most were binary, scoring one or zero to indicate the presence or absence of an attribute. To accommodate the cluster analysis presented in Section 5, all of the variables were standardized as dummies scoring one for the presence (absence) of a desirable (undesirable) attribute, and zero otherwise so that the expected relationships between institutional arrangements and performance indicators are positive. Decisions regarding the desirability of these attributes were informed by the NIE literature, specifically that relating to the emergence of new generation cooperatives.

Table 1: Indicator variables observed in the case studies

Variable *	Definition of variables	Empirical construct
dividend	Has the project been in a position to declare dividends?	Performance indicators
capgains	Have there been any realised or unrealised capital gains in the value of shares or assets since the project was initiated?	
wages	Is the lowest wage earned by a skilled worker-shareholder above the average for the case studies?	
pvtfin	Has a private sector lender or investor provided finance for the project?	
collateral	Has a commercial bank accepted the project's assets as collateral for a term loan?	
profits	Have worker-shareholders received dividend income or realised capital gains in share or asset values?	
conditions	Have worker-shareholders gained the benefits of being able to influence wages or working conditions and/or do they feel that their tenure or employment security has increased?	
housing	Have worker-shareholders benefited by receiving improved housing or more secure residential rights?	
enterprise	Have the worker-shareholders established their own business enterprise/s on the farm?	
empower	Do the worker-shareholders feel that the project has empowered them? Were they positive about the project and its impact on their lives?	
grpsize	Is the size of the worker-shareholder group below the median across the projects?	Institutional arrangements
company	Is the enterprise operated as a company?	
decpower	Do worker-shareholders feel that the power they exercise in policy decisions is at least equal to their share of equity in the business?	
noheirs	Shares cannot be bequeathed to multiple heirs.	
noout	Shares cannot be bequeathed to outsiders.	
exit	Shareholders must sell their shares if they exit the project.	
propvote	Do shareholders receive proportionally more votes as their shareholding increases?	
propprofit	Do shareholders receive proportionally more profit as their shareholding increases?	

Variable *	Definition of variables	Empirical construct
nolimit	There is no limit on the number of shares held by a worker-shareholder.	
moratorium	Shareholders cannot sell any shares, even on exiting project, until the temporary moratorium on sales expires.	
equity	Is the worker-shareholders' equity share above the average for all case studies?	Worker empowerment
skillsl	Have the worker-shareholders received training in basic life skills such as family planning, budgeting, dealing with alcoholism and domestic violence?	
skillsg	Has a general transfer of technical skills taken place and was this training perceived to be at least adequate?	
skillsf	Have worker-shareholders, or at least their trustees, received training enabling them to read and interpret financial statements relating to the project?	
skillsm	Have worker-shareholders, or at least their trustees, received training enabling them to serve as office bearers in their trust and the operating company?	
partest	Did worker-shareholders participate in the establishment of the project through attending workshops, discussion groups, visiting existing FWES etc?	
partdm	Do worker-shareholders participate in decisions relating to the project's operation (e.g. decisions regarding the expansion or diversification of the enterprise)?	
femtrust	Were special provisions made to ensure that at least 50% of the worker trustees are female?	
mgtqual	Was the quality of management rated as good or excellent by worker-shareholders in terms of its technical ability to make wise investment decisions?	
labrel	Do workers rate management and labour relations as good or excellent?	
busplan	Does the project have a long-term business plan that management is implementing?	
resolve	Are formal dispute resolution procedures in place?	
extaudit	Are financial statements subject to annual external auditing?	
future	Are there provisions to extend the percentage of shares owned by worker-shareholders in a predictable way to make them larger owners in the future?	
incentives	Is there a salary incentive scheme of worker-shareholders?	

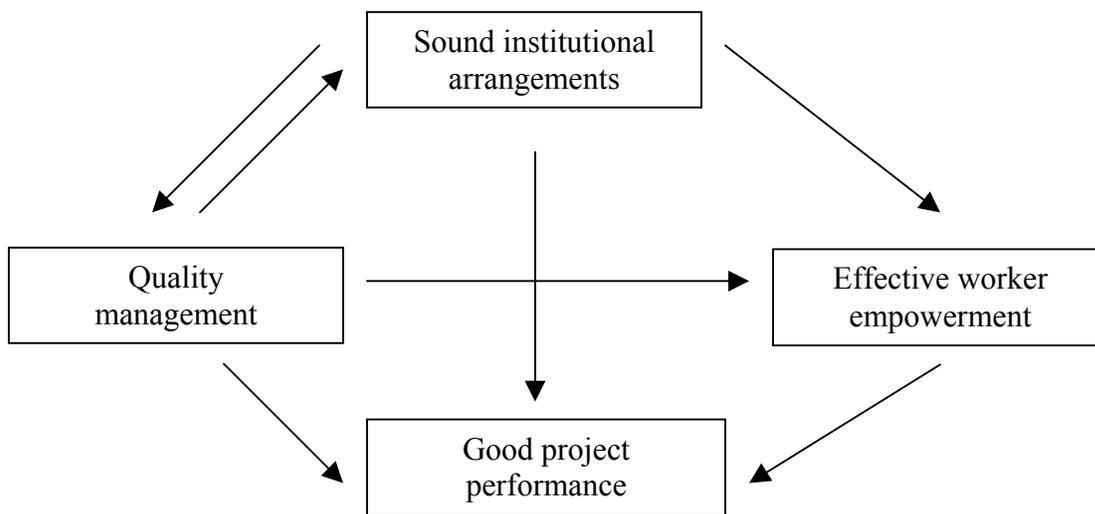
Notes: * For all variables, Yes = 1, No = 0. Missing values are coded as -1.
Some variables could belong to more than one group. For example, a formal procedure to resolve disputes could be considered an institutional arrangement as well as an indicator of management quality.

4.3 Empirical model

The theoretical model postulated in Figure 1 was collapsed into a more tractable empirical model (Figure 2) because its constructs were not all uniquely observable. The empirical model in Figure 2 argues that the institutional arrangements within a FWES have both a direct and an indirect effect on project performance through worker empowerment and retention of competent management. In turn, the institutional arrangements are influenced by the quality of management. For example, in the first case study (project 1) the operating entity is registered as a trust and is therefore not obliged to make provision for an annual external audit of the enterprise. Nevertheless, management opted for external audits thereby revealing its willingness to promote good corporate governance.

Good managers are also expected to be more proactive in transferring skills to empower worker-shareholders. For example, the manager of project 7 encouraged two semi-skilled employees to purchase tractors with loans secured by the operating company. These worker-shareholders now manage their own businesses, hiring out tractor services to the FWES and to other clients. At projects 3 and 4, management had introduced training courses in general life skills such as family planning, budgeting, dealing with alcoholism and overcoming domestic violence. This training, which goes beyond the usual offerings in technical, financial and leadership subjects associated with good governance, was given much of the credit for an unusually strong work ethic amongst worker-shareholders at these two projects.

Figure 2: Empirical constructs of a farmworker equity-share scheme



Ten of the variables presented in Table 1 were selected as indicators of project performance measured in terms of both the financial health of the enterprise and the benefits passed onto its workers. These variables are *dividend*, *capgains*, *wages*, *pvtfin*, *collateral*, *enterprise*, *profits*, *conditions*, *housing* and *empower*. Unfortunately, almost all of the projects studied were either too new to have reported a full set of financial records or their managers were unwilling to disclose this information. For this reason, the measurement of enterprise financial health was limited to the variables *dividend*, *capgains*, *wages*, *pvtfin* and *collateral* and had to exclude other conventional measurements of earnings or financial health – e.g. net profits or rate of return on equity or assets. The variables *pvtfin* and *collateral* reflect the creditworthiness of the enterprise in the eyes of private sector lenders and investors, while *wages* indicates its liquidity status, i.e. its ability to pay wages higher than the average paid to skilled workers across all nine case studies. Likewise, the variables *dividend* and *capgains* reveal the ability of the business to reward shareholders. From the workers’ perspective, performance is measured by the remaining five variables; the three variables *profits*, *conditions* and *housing* measure three different types of benefits that the enterprise has provided to worker-shareholders, while *empower* and *enterprise*

represent benefits in terms of their perceived ability to improve quality of life and actual attempts to do so by initiating their own enterprises on the farm.

4.4 Cluster analysis of variables

In this study, hypothesized relationships between the observable variables are analysed using hierarchical cluster analysis, primarily because the sample size is small. The basic aim of cluster analysis is to find the “natural groupings”, if any, of a set of individuals (cases or variables). In short, it aims “*to allocate a set of individuals to a set of mutually exclusive, exhaustive, groups such that the individuals within a group are similar to one another while individuals in a different group are dissimilar*” (Chatfield and Collins, 1980: 212). Cluster analysis measures the similarity (or dissimilarity) of every pair of individuals. The basic data for cluster analysis describe a set of N individuals on which p measurements (variables or cases) have been recorded. The initial choice of a particular set of measurements used to describe each individual constitutes a frame of reference within which to establish the clusters, and the choice reflects the investigators’ judgment of their relevance for the purpose of classification (Everitt, 1980). In this study a set of $N = 35$ variables (Table 1) was selected for analysis across $p = 9$ (relevant) case studies. The specific aim of the analysis was to test for positive relationships between variables representing the four empirical constructs by observing their natural groupings estimated by minimizing the squared Euclidian distance within groups (clusters).

The conceptual model in Figure 1 and empirical model in Figure 2 imply that the natural groupings should contain a healthy mix of variables drawn from each of the four empirical constructs because positive relationships are expected between sound institutional arrangements, competent management, effective worker empowerment and good enterprise performance. In other words, **the natural groupings should not coincide with the empirical constructs, as this would indicate the absence of strong positive relationships between the empirical constructs.**

5. RESULTS

Cluster analysis revealed four distinct natural groupings or clusters. The mean Euclidean distance within clusters increases markedly from 1.0 to 1.3 when the number of clusters diminishes from four to three, indicating a sudden loss of homogeneity within the groups of variables when fewer than four clusters are retained. Table 2 shows the variables contained within each of the four clusters and specifically the inter-relationship between the empowerment, management and institutional variables on the one hand and the performance indicators on the other. Importantly, the institutional variables appear in every cluster reflecting the central role that good governance plays in promoting the performance of a farmworker equity-share scheme. Positive correlations are strong for variables within the same cluster and weaker for variables from different clusters.

Projects were then ranked (see Table 3) according to eight indicators of project performance in Table 1 plus three additional indicators of social and human capital development (*skillsg*, *skillsl* and *skillsf* in clusters 1, 2 and 3 respectively) that were considered important by worker-shareholders interviewed during the case studies. Some of the projects did not report information for the performance indicators *capgains* and *wages*. These two variables were therefore excluded from the ranking process to ensure that projects were ranked only on (equally-weighted)

indicators containing no missing values. This ranking process clearly distinguishes project 1 as the best performer and project 9 as the worst performer.

The cluster analysis shows that variables measuring the four empirical constructs (performance, empowerment, management and institutional arrangements) of a FWES are not independent of one another and combine readily with other indicators in each of the four natural groupings. Since variables within each of these natural groupings are positively correlated, key institutional variables can be selected from within each of these clusters and related to specific elements of the four constructs in a bid to identify a set of “best institutional practices”. Key variables were taken as those important in economic theory and free of missing values. The following discussion also uses anecdotal evidence and comparisons between projects (especially the extreme projects in Table 3) to highlight best practices.

Table 2: Inter-relationships between empowerment, management, institutional and performance indicators

Performance indicators	skillsg	skillism	equity	femtrust	company	depower	mgtqual	skillisi	partdm	skillif	partest	labrel	extaudit	busplan	resolve	incentives	propvote	propprof	nolimit	noheirs	moratorium	noout	exit	grpsize	future	
Cluster	1					2					3										4					
dividend																										
enterprise																										
empower																										
profits																										
housing																										
capgains																										
conditions																										
wages																										
collateral																										
pvtfin																										

Key

Variables measuring worker empowerment	
Variables measuring institutional arrangements	
Variables measuring management quality	

Table 3: Ranking of case studies according to performance and empowerment indicators

Indicators	Enterprise Performance								Social Objectives			Attributes present	Ranking
	dividend	enterprise	empower	profits	housing	conditions	collateral	pvtfin	skillsg	skillsl	skillsf		
Project 1	1	1	1	1	1	1	1	1	0	1	1	10	1
Project 2	0	0	1	0	1	1	0	1	1	1	1	7	2
Project 3	0	0	1	1	1	1	0	0	0	1	1	6	3
Project 4	0	0	1	0	1	1	0	1	1	1	0	6	3
Project 5	0	0	1	1	1	1	0	0	0	0	1	5	5
Project 6	0	0	0	0	1	1	1	1	0	0	1	5	5
Project 7	0	0	0	1	1	0	1	1	0	1	0	5	5
Project 8	0	0	1	0	1	1	0	0	1	0	1	5	5
Project 9	0	0	0	0	1	0	0	0	0	0	0	1	9

Note A complete database is presented in Annex 1.

5.1 Cluster 1

This small cluster indicates positive relationships between the institutional variable *company* and four empowerment variables: *skillsg*, *skillsm*, *equity* and *femtrust*. No performance indicators or management variables appear in this cluster – possibly because the case studies were still too new for their training to have had an effect on performance. Project 2, for example, was registered only 18 months before the case study was conducted.

Cluster 1 suggests that projects operated as companies invest more in skills training and are more gender sensitive than those operated as a partnership, trust or CPA. Projects that invest less in skills training tend to be those where workers own a relatively small share of the equity (e.g. projects 5 and 6). Despite these differences, virtually all of the project managers emphasised the importance of skills training, and expressed a need for this training to be continuous and preceded by basic literacy training. Projects 1 and 8 both reported illiteracy rates in excess of 40% amongst workers before they became shareholders, but project 1 was the only case study that provided basic literacy training.

The advantage of operating a FWES as a company is that the *Companies Act*, 61 of 1973, provides the legal framework for transparency, accountability and well-defined, proportional and tradable property rights. These same institutional characteristics could also be written into the constitutions of other legal entities chosen to formalize the business. Projects 6 and 9 are

registered as a trust and a CPA respectively but neither embraces the property rights or governance attributes of a company, or the skills transfers and proactive gender relations found in cluster 1.

5.2 Cluster 2

Cluster 2 identifies positive relationships between the four performance indicators *dividend*, *enterprise*, *empower* and *profits*; one institutional variable *decpower*; one management variable *mgqual*; and two empowerment variables *skillsl* and *partdm*. The latter variable highlights the importance of sharing control, and not just ownership, of the enterprise with workers. Project 1, the top ranked performer, recorded positive scores on all of the variables contained in cluster 2. The manager of this project had taken proactive steps to help worker-shareholders exercise their decision-making rights, so strengthening their incentive compatible employment contracts. These steps included training in life skills (*skillsl*), encouraging worker representatives to participate in business decisions (*partdm*) and promoting workers' efforts to establish enterprises of their own (*enterprise*). In addition, the manager decided that a different worker-shareholder should supervise the farm for one day each week in order to improve their awareness and knowledge of business activities. The sense of empowerment (*empower*) expressed by workers at project 1, and the substance that this empowerment lends to worker incentives, could well explain its positive showing on the performance indicators *dividends* and *profits*. Project 6 did not score positively on either of the empowerment variables. Worker-shareholders received little training at this project and their representatives complained that they were unable to participate fully in board meetings or raise matters of concern to workers because management did not give them sufficient time to consider and extend the agenda. Not surprisingly, the workers did not rate management as having outstanding ability, nor did they feel empowered. Project 6 recorded no benefits in terms of dividends or capital gains.

5.3 Cluster 3

This cluster shows that there is positive correlation between the performance indicators *housing*, *capgains* and *conditions*; empowerment variables *skillsf* and *partest*; management variables *labrel*, *extaudit*, *busplan*, *resolve*, and *incentives*; and the institutional variables *propvote*, *propprof*, *nolimit* and *noheirs*. The institutional variables all indicate a focus on maintaining incentives for worker-shareholders to invest more effort and money into the project. *Propvote*, *propprof* are attributes typical of most investor owned firms where voting and benefit rights are proportional to the equity invested by individual members. As explained in section 3, these property rights help to address the free-rider, horizon, portfolio and control problems that tend to undermine cooperative ventures. Ideally there should be no restrictions on the quantity of equity shares voluntarily purchased by investors. Ostensibly this condition (*nolimit*) was satisfied in all of the case studies except project 9, but in reality it applied only to worker-shareholders owing to strong expectations (sometimes formalised in business plans) that previous owners would ultimately sell shares to workers rather than buy them out. In addition, most of the projects imposed restrictions on the bequest of shares to multiple heirs (*noheirs*) in order to reduce the threat of free-riding by non-employees.

Cluster 3 highlights positive association between good institutions and management indicators such as forward planning (*busplan*), concern for worker-shareholder interests (*labrel*, *resolve*, and *incentives*) and financial transparency (*extaudit*). Good management may also explain the

presence of empowerment variables within this cluster. *Partest* suggests that workers understand their rights and obligations as they participated in the establishment of the project, while *skillsf* shows that their training was extended to cover its financial requirements. Together, these elements of the institutional, management and empowerment constructs are positively related to performance indicators, particularly worker benefits (*housing, conditions and capgains*) flowing from longer-term investment. Workers at project 3 were particularly pleased to have rules against “smoke breaks” overturned.

All of the case studies had favourable scores on most of the variables contained by cluster 3, projects 1 and 3 in particular. This consistency might indicate a healthy trend in combining social and commercial objectives in land reform projects co-financed with public grants (as is the case for all nine projects).

5.4 Cluster 4

In cluster 4 there is positive correlation between the performance indicators *wages, collateral* and *pvtfin*; the institutional variables *moratorium, noout, exit* and *grpsize*; and the management variable *future*. Positive correlations between the institutional variables and these performance indicators may indicate financiers’ preference for projects that are more liquid (*wages*) and which maintain worker incentives by preventing the transfer of shares to non-employees (*moratorium, noout* and *exit*).

All of the case studies imposed a moratorium of either three or five years on the sale of shares by the previous owner and employees. While appreciating that even a temporary moratorium could discourage member investment, a new equity-sharing project is unlikely to be considered creditworthy by lenders unless its equity and the previous owner’s managerial expertise are “locked in” during the early, critical years of its life. Of course, it is also unlikely that a moratorium will have much bearing on creditworthiness in projects where workers initially take up a large share of the total equity. For example, projects 1 and 3 both imposed a five-year ban on the sale of shares, but project 3 with its much larger worker-shareholding (49%) has not attracted loan finance (*pvtfin*). Projects possessing the management attribute *future* are also more attractive to private financiers as they can expect a gradual (rather than a sudden) transfer of ownership to workers over a period of time long enough to allow for adequate training and mentoring in decision-making skills. Project 5, for example, has a very specific plan to reduce the previous owner’s shareholding relative to that of workers as the need for mentoring diminishes.

A further advantage to private lenders and investors in dealing with the previous owner as the majority shareholder is that the influence problem (Hendrikse and Veerman, 2001) is reduced. This may explain the presence of *grpsize* in the cluster as external financiers could find it difficult to influence policy decisions taken by directors representing large groups of workers with diverse interests in the project. For example, project 8 - which has no external finance - has a large worker shareholding and a large number of worker-shareholders relative to the other projects.

6. CONCLUSIONS

The cluster analysis undertaken in this study lends support to the positive relationships postulated between sound institutional arrangements, effective worker empowerment, competent

management and the successful performance of a farmworker equity-share scheme. Elements of these four constructs combined readily with each other in four natural groupings (clusters) of 35 variables measured across nine land reform projects in the Western Cape. Even so, trends were apparent within the clusters.

The first cluster contains only five variables, of which four are positive indicators of worker empowerment through skills transfer, gender sensitivity and share of equity owned in the enterprise. The second cluster is dominated by performance variables (relating primarily to enterprise profitability) and empowerment variables indicating a transfer of life skills to workers and active participation of their representatives in business decisions. Cluster 3 links measures of management quality (like competence in financial planning, labour relations and salary incentive schemes) to performance indicators such as improved housing and working conditions.

The fourth and last cluster is dominated by institutional variables and performance variables, both related to creditworthiness. In particular, cluster 4 emphasises institutional arrangements that maintain worker incentives by preventing shares from transferring to non-workers, and which preserve creditworthiness by preventing a sudden transfer of control to inexperienced owners.

Most importantly, the institutional variables occur in every cluster and gather in a way that reveals best practices. Cluster 3 includes property rights designed to eliminate free- and forced-rider problems in collective action, *i.e.* tradable voting and benefit rights assigned to participants in proportion to their individual investment. Cluster 4 highlights a trade-off between the ideal of fully transferable shares and restrictions on certain transfers to prevent free-riding by non-workers, or the loss of creditworthiness through sudden outflows of equity and managerial expertise. Cluster 1 favours the use of a company (rather than other legal entities) to empower workers participating in equity-share schemes. In South Africa, companies offer well-defined property rights, accommodate restrictions on share mobility, and entrench legal requirements for transparent and accountable management. Cluster 2 emphasises the need to ensure that farmworkers are able to exercise their property rights.

A successful farmworker equity-share scheme should therefore be operated as, or like, a company with voting and benefit rights proportional to the investment made by each member, but with restrictions on certain share transactions. These include:

- Limits on the transfer of shares by employees to non-employees through sale or bequest. The workers' trust usually buys shares from workers who leave a project, disbursing the proceeds to the worker or, in the event of death, his or her estate.
- A temporary moratorium on the sale of shares (especially by the previous owner) coupled with a long-term plan to effect a gradual reduction in the proportion of equity held by the previous owner.

These institutional arrangements should be accompanied by other best practices such as worker participation in the design of the equity-share scheme and its operating rules, provision for female representation in the workers' legal entity, and a general transfer of basic literacy, life and technical skills followed by continuous mentoring in financial, administrative and managerial skills so that worker representatives can perform their duties as office bearers, participate meaningfully in policy decisions, and ultimately establish their own enterprises.

In addition to these empowerment practices, an equity-share scheme should entrench financial transparency and accountability in all of its legal entities by appointing a reputable external auditor and adhering to broadly accepted procedures for reporting, conducting meetings and holding elections. These elements of good corporate governance usually stem from competent management, as do the presence of a long-term business plan (especially one accepted by a commercial financier), formal procedures for resolving labour disputes and protecting minority interests, incentive schemes for good performance, and a history of good labour relations.

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ANNEX 1. DATA USED IN THE CLUSTER ANALYSIS

Variable	Project								
	1	2	3	4	5	6	7	8	9
busplan	1	1	1	1	1	1	0	1	-1
capgains	1	-1	1	-1	-1	1	1	-1	0
collateral	1	0	0	0	0	1	1	0	0
company	0	1	1	1	0	0	1	0	0
conditions	1	1	1	1	1	1	0	1	0
decpower	1	1	1	1	1	0	1	1	-1
dividend	1	0	0	0	0	0	0	0	0
empower	1	1	1	1	1	0	0	1	0
enterprise	1	0	0	0	0	0	0	0	0
equity	0	0	1	0	0	0	1	1	1
exit	1	1	0	0	1	1	0	1	-1
extaudit	1	1	1	1	1	1	1	1	-1
femtrust	0	1	1	1	0	0	0	1	0
future	1	0	0	0	1	1	0	1	-1
grpsize	1	0	0	0	1	1	1	0	0
housing	1	1	1	1	1	1	1	1	1
incentives	1	1	1	1	1	1	0	0	0
labrel	1	1	1	1	1	1	1	1	-1
mgtqual	1	1	1	1	1	0	1	1	-1
moratorium	0	0	0	1	1	1	1	0	-1
noheirs	1	0	1	0	1	1	1	1	-1
nolimit	1	1	1	1	1	1	1	1	-1
noout	0	1	0	0	1	1	1	0	-1
partdm	1	1	1	1	1	0	0	1	-1
partest	1	1	1	1	0	1	0	1	1
profits	1	0	1	0	1	0	1	0	0
propprof	1	1	1	1	1	1	1	1	-1
propvote	0	0	1	0	1	1	0	1	-1
pvtfin	1	1	0	1	0	1	1	0	0
resolve	1	0	1	1	1	1	1	1	-1
skillsf	1	1	1	0	1	1	0	1	0
skillsg	0	1	0	1	0	0	0	1	0
skillsl	1	1	1	1	0	0	1	0	0
skillsm	0	1	1	0	0	0	1	1	0
wages	1	0	0	0	1	1	-1	-1	-1