THE EFFECTS OF ENTREPRENEURIAL QUALITY ON THE SUCCESS OF SMALL, MEDIUM AND MICRO AGRI-BUSINESSES IN KWAZULU-NATAL, SOUTH AFRICA

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Abstract

This paper estimates a logit model of the effects of entrepreneurial quality on business success in a stratified random sample of 44 small, medium and micro enterprise (SMME) agribusiness owners financed by Ithala Development Finance Corporation, using loan repayment as a proxy for success. These owners were surveyed during October 2003-February 2004 and asked to score four components of entrepreneurial quality identified by Guzman and Santos (2001): preference for working as self-employed, motivation type, energizer behaviours, and personal and external factors. The results show that strong energizer behaviours (such as current and planned business expansion and staff training), more business experience, and family assistance to become an entrepreneur, promote loan repayment, while lack of access to electricity (proxy for lack of access to services) negatively affects loan repayment. Policymakers and public and private financial institutions could give more attention to these factors when implementing policies to promote access to finance by, and the growth of, agribusiness SMMEs.

1.   INTRODUCTION

Rogerson (1999) and a World Bank Task Team (2000) assert that the promotion of small, medium and micro enterprises (SMMEs) is a key area of non-farm employment generation, and that a substantial share of new job creation in South Africa (SA) could be provided by agricultural processing and non-agricultural employment in SMMEs. Recent statistics, however, show that most SMMEs in SA are at the low end of the enterprise size scale, and exist primarily as black survivalist firms with little capacity for sustained survival or growth (Business Referral and Information Network, 2003). Guzman (1994) views the entrepreneurial quality of an SMME owner as a critical factor affecting an SMME's ability to overcome barriers to survival and achieve sustainable growth. A lack of access to finance has also been identified as a

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major constraint to SMME survival and growth in SA (Rogerson, 1998; Naude, 1998; Gemini Survey, 2001; Nieuwenhuizen and Kroon, 2003). Research on the components of entrepreneurial quality, and how these components affect loan repayment and hence access to credit, could, therefore, provide policymakers, local and provincial government institutions, and the private sector with information to help develop appropriate policies to promote the sustained growth of agribusiness SMMEs in KwaZulu-Natal (KZN). For example, it may help formal financial institutions to reduce adverse selection problems (borrowers turn out to be a greater risk than believed when granting a loan) and agency costs incurred in structuring, administering and enforcing loan contracts (Barry *et al*, 1995) when financing SMMEs.

This paper, therefore, analyses whether entrepreneurial quality affects the success of agribusiness SMMEs by surveying a stratified random sample of these clients financed by the Ithala Development Finance Corporation (Ithala) in KZN in 2003. Following Guzman and Santos (2001), entrepreneurial quality is a product of personal factors, psychological processes like the capacity to innovate, and motivation, and factors in the entrepreneur's external environment. These components are described in more detail in section 2 of the paper. The loan repayment status of these Ithala clients in 2003 is used as a proxy for success. To the best of the authors' knowledge, this is the first local attempt to study the link between entrepreneurial quality and agribusiness SMME success in SA. Following Harling (1995), an agribusiness SMME is defined as a business 'operating in the food and fibre sector of the economy' or 'having a high degree of interdependence with agricultural production'. In addition, small, medium and micro enterprises are defined in terms of the National Small Business Act (1996) as having 50 or less, 100 or less, and five or less full-time equivalent paid employees, respectively. Although such physical measures of size have limited usefulness in comparing different types of businesses (Barry *et al*, 1995), full information on more appropriate financial measures, such as gross sales, was not readily available for all of the survey respondents.

Section 2 develops a conceptual model linking components of entrepreneurial quality to business success, while section 3 describes the survey sampling procedure, and the survey respondents' characteristics. Section 4 specifies and discusses the results of an empirical logit model of entrepreneurial quality and loan repayment performance. Section 5 analyses relationships between components of entrepreneurial quality, while a concluding section discusses some policy and loan evaluation implications of the study.

2. CONCEPTUAL MODEL LINKING ENTREPRENEURIAL QUALITY AND BUSINESS SUCCESS

2.1 The functional spheres of an entrepreneur

Guzman (1994) identifies three functional spheres of an entrepreneur (see Figure 1) - the financial sphere (contribution of capital to gain ownership or part ownership of a business), the managerial sphere (to direct, organize, plan or control business operations), and the 'booster sphere'. The third function was also identified by Schumpeter (1965) and Knight (1948) in trying to explain the dynamics of economic activity. The booster sphere refers to the entrepreneur performing fundamental initiatives so that the business can start operating, survive and expand (for example, deciding to undertake a new project or to enter a new market). This function has a strong dynamic character and is more difficult to formalize, since it depends on the psychological and sociological qualities of the entrepreneur. The financial and managerial functions are ultimately seen as subordinate to the booster function because they have a more routine, technical character.
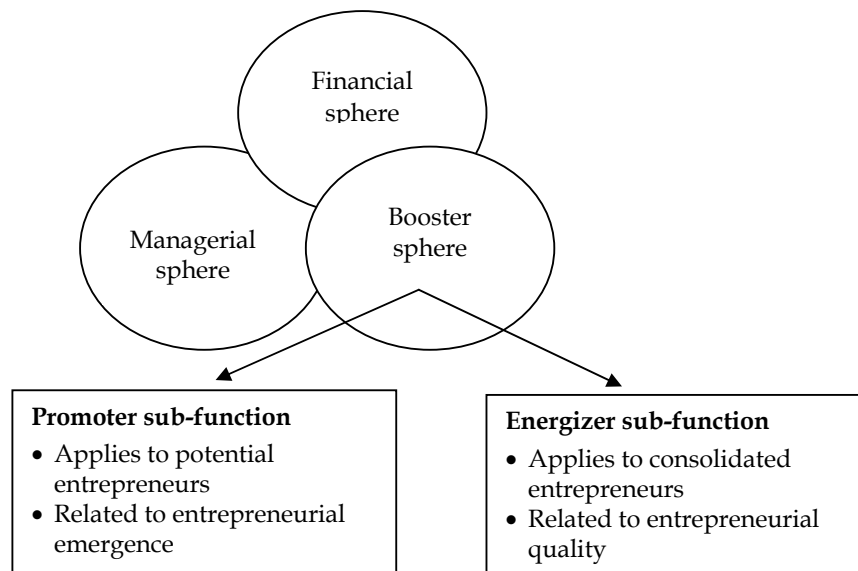
Figure 1: The functional spheres of an entrepreneur

Source: Guzman (1994).

The essence of the entrepreneurial function thus lies in the booster sphere that Guzman (1994) further divides into a 'promoter' sub-function, and an 'energizer' sub-function. The former is materialized when an entrepreneur creates a new business; it describes the task that *potential entrepreneurs* perform. The latter is materialized along the lifespan of the business; it reflects

the fundamental initiatives that *consolidated entrepreneurs* (relatively more established entrepreneurs) perform daily to increase the likelihood of business survival or growth. The energizer sub-function, therefore, is the basis of *entrepreneurial quality*, which Guzman and Santos (2001:213) define as 'the initiatives and behaviours of entrepreneurs to energize their businesses, which depend on their own personal qualities and the factors that influence them'. Other models of entrepreneurial behaviour identify the entrepreneur's psychological processes and personal factors, and external factors that explain entrepreneurial emergence (Chell, 1986; Cunningham and Lischeron, 1991; Yukl, 1989), but not the *quality* of the entrepreneur that derives from the *energizer* sub-function. The SMME sector can grow via net firm creation (start-ups exceed closures) and/or via net firm expansion (expansion exceeds contraction of existing firms). Guzman's model in Figure 1 relates net firm creation (start-ups) to the promoter sub-function, and net firm expansion (survival and subsequent growth) to the energizer sub-function that underlies entrepreneurial quality. Four components that affect the quality of an entrepreneur shown in Figure 2 are discussed in section 2.2.
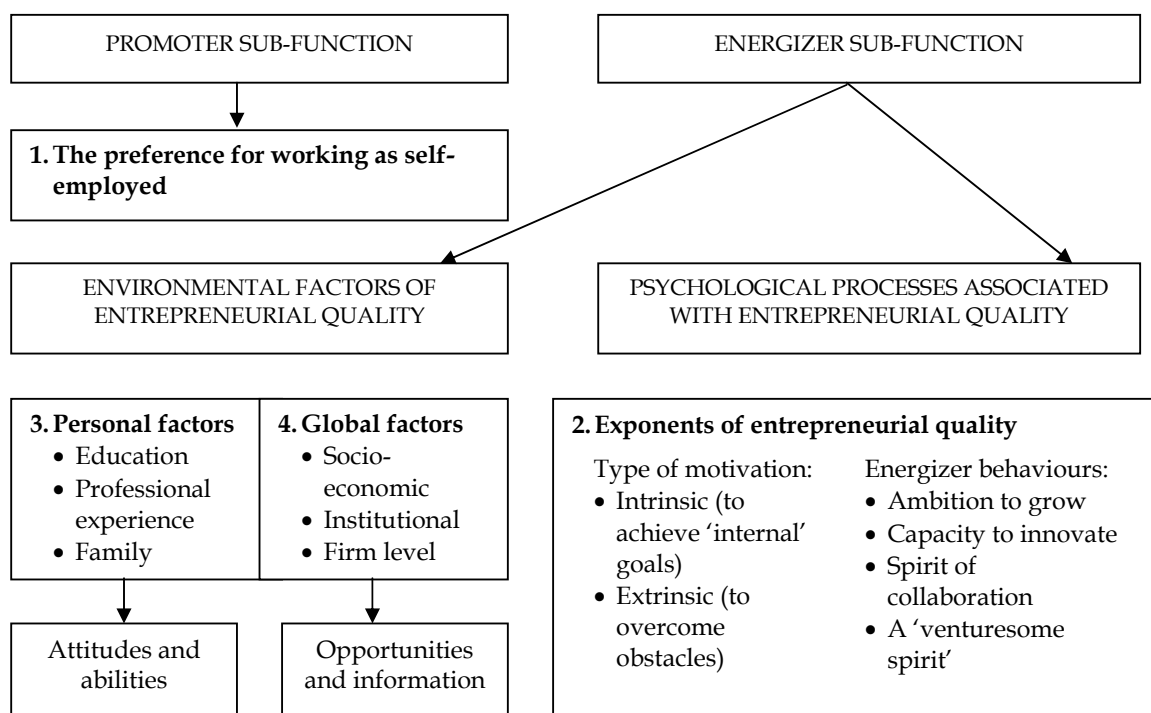
2.2   Four components of entrepreneurial quality

The first component in Figure 2 'the preference for working as self-employed' underlies the promoter sub-function, and is influenced by specific psychological features of entrepreneurs, such as the desire for independence, a resistance to authority, and an aversion to the hierarchical structures of many organizations. This component, therefore, is a *necessary but not sufficient* condition to be a quality entrepreneur; it is linked with the exponents of the energizer sub-function.

The second component 'the exponents of entrepreneurial quality' includes the nature of an entrepreneur's motivation, and the execution of certain 'energizer' behaviours. Models of entrepreneurial intentions (Herron and Robinson, 1993; Krueger and Casrud, 1993) identify either intrinsic or extrinsic motivation to become an entrepreneur as a key element driving the booster function. Intrinsic motivation results from the pleasure associated with carrying out a certain activity, and it reflects an individual's desire to fulfil his/her aims in life (e.g. wealth accumulation or career satisfaction). Entrepreneurs driven by such motivation have higher potential to carry out the energizer sub-function (Guzman, 1994).

Extrinsic motivation results from the desire to achieve material goals and has a stronger relationship with material factors such as avoiding unemployment, or satisfying material needs. Extrinsically motivated entrepreneurs usually look for tasks that are easier to carry out, reach a lower level of conceptual learning,

require little creativity, maintain their behaviour for only a short time after reaching their goal and are usually more inclined to negative emotions (Cordoba and Caracuel, 1996 cited by Guzman and Santos, 2001). Motivation has an influence on the actions of the entrepreneur, how the booster function is developed, and consequently on the quality of the entrepreneur. Intrinsic motivation is thought to result in greater entrepreneurial quality.

PROMOTER SUB-FUNCTION		ENERGIZER SUB-FUNCTION

1. The preference for working as self-employed

ENVIRONMENTAL FACTORS OF ENTREPRENEURIAL QUALITY	PSYCHOLOGICAL PROCESSES ASSOCIATED WITH ENTREPRENEURIAL QUALITY

3. Personal factors	**4. Global factors**	**2. Exponents of entrepreneurial quality**
• Education • Professional experience • Family	• Socio-economic • Institutional • Firm level	Type of motivation: • Intrinsic (to achieve 'internal' goals) • Extrinsic (to overcome obstacles) Energizer behaviours: • Ambition to grow • Capacity to innovate • Spirit of collaboration • A 'venturesome spirit'
Attitudes and abilities	Opportunities and information	

Figure 2: The four components of entrepreneurial quality

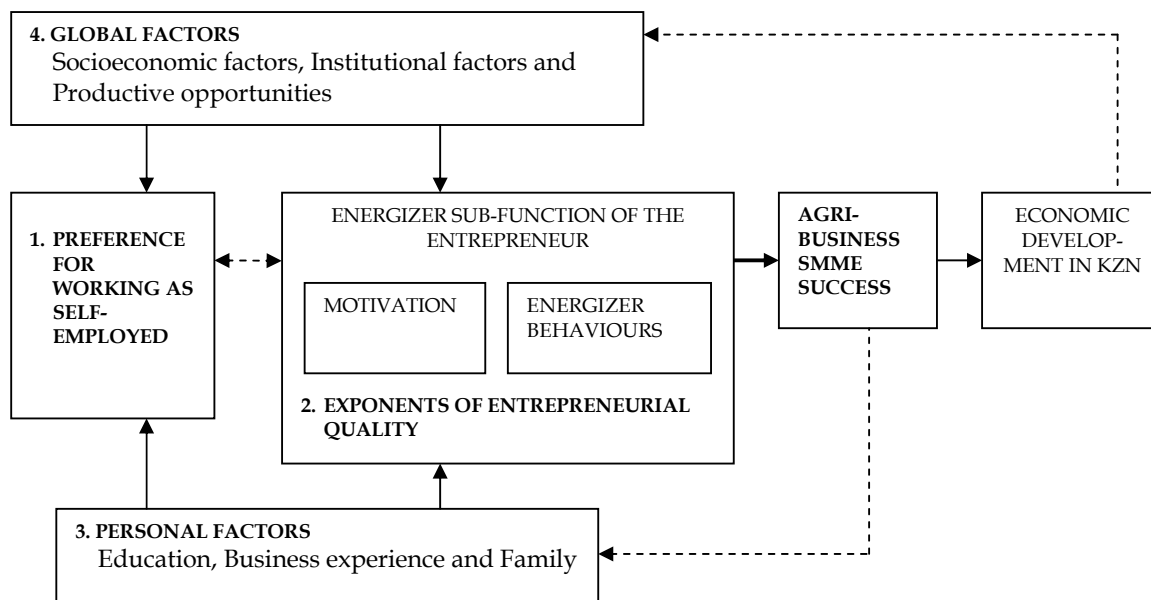*Source*: Adapted from Guzman and Santos (2001).

Chell (1986) suggests that entrepreneurs develop some behaviours in the exercise of the energizer sub-function that manifest psychological features considered to be essential in 'good' entrepreneurs. They include the ambition or capacity to grow (McClelland, 1961, cited by Guzman, 1994); the capacity to innovate (Schumpeter, 1950); collaborating with other businesses and individuals in order to achieve a higher level of enterprise growth; and other behaviours such as planning, budgeting, and training employees, that derive from a 'venturesome spirit' which should imbue any decision the entrepreneur makes to promote business survival and growth. Although these other behaviours have important managerial content, they are better dealt with as energizer tasks since they imply a dynamic, not routine, behaviour.

The third component 'factors of the personal environment of the entrepreneur' most directly affects the exponents of the energizer sub-function. These personal factors interact with one another to influence entrepreneurial attitudes and abilities, which, in turn, affect and condition the development of motivations (Herron and Robinson, 1993; Krueger and Casrud, 1993). Such abilities and attitudes include the capacity to identify new products and opportunities, to know how to evaluate business opportunities and to think critically, persuasive communication and/or negotiation skills, and problem-solving. Personal factors include the extent of the entrepreneur's formal education; professional experience in the sector he/she operates in and the influence of the entrepreneur's family.

Education is thought to increase intrinsic motivation and energizer behaviours (Guzman and Santos, 2001), and the more enterprise education an individual receives, the greater the possibility of entrepreneurial success (Gibb, 1993). An entrepreneur's professional experience is an essential means of acquiring abilities and attitudes, reinforcing motivations and improving energizer capacity. An increased professional experience improves the quality of an entrepreneur. According to Role Model theory (Scherer *et al*, 1991), parents influence their children when they opt for an entrepreneurial career. The role of the family may have a positive motivational and material influence on entrepreneurial quality that may derive from having been educated in an environment where entrepreneurial culture is highly considered, or from the supply of economic resources, labour or personal contacts by an entrepreneur's family.

The fourth component 'factors of the global environment of the entrepreneur' is based on sociological-economic models, cultural models, and models of the infrastructure of the economic environment (Shane, 1994; Wilken, 1979; and Van den Ven, 1989; cited by Guzman and Santos, 2001). These external factors directly influence the preference for working as self-employed, the type and strength of entrepreneurial motivation, and the energizer behaviours, thus creating a favourable environment for entrepreneurial opportunities and information.

Unlike personal factors, these factors impinge on all entrepreneurs in a region regardless of their education, experience or family support. Guzman and Santos (2001) group external factors into three categories: productive opportunities, socioeconomic factors and institutional factors. The link between the four components of entrepreneurial quality, agribusiness SMME success, and economic development in KZN is completed in Figure 3.

Figure 3:   Conceptual model linking the four components of entrepreneurial quality to agribusiness SMME success in KwaZulu-Natal

Source: Adapted from Guzman and Santos (2001).

2.1   Potential constraints to SMMAEAdapted s' survival and growth

Personal and external factors affect both the preference for working as self-employed and the exponents of entrepreneurial quality. Additional relationships of interdependence include the effect of enterprise success or failure, derived from the behaviour of an entrepreneur, on the economic development of KZN. The impact of entrepreneurial success or failure on the personal factors implies that success or failure would create a new situation that could result in a higher education, more experience, or different type of family support. The impact of a specific level of economic development on the global factors would cause changes in the quality and quantity of productive opportunities, socio-cultural aspects of a population and changes in the mode of operation of the institutions involved in the support of entrepreneurial initiatives.

An empirical logit model of the relationship between the four components of entrepreneurial quality shown in Figure 3 and agribusiness SMME success in KZN (using loan repayment performance at Ithala as a proxy for success) is specified and reported in section 4. The next section describes the sample survey design and questionnaire, and the respondents' characteristics.

3.   SAMPLE SURVEY DESIGN AND CHARACTERISTICS OF
      RESPONDENTS

3.1   Sample survey design and questionnaire

Study data were collected via personal interviews with 44 Ithala agribusiness
SMME clients during the period October 2003 to February 2004. All of the
respondents had secured loans with Ithala to fund either the creation or
expansion of their own agribusiness that they managed in their individual
capacity or as the leader of a management team. The 44 clients were selected
by applying stratified random sampling to the population of 266 agribusiness
SMMEs financed by Ithala in KZN at the time of the study. This procedure
(see Clover and Darroch (2005) for a full description) generated four sufficiently
representative strata: 23 Harvester contractors (timber and sugarcane), eight
Processors (mainly maize millers and butcheries), eight Retailers (furniture,
farm machinery repair, spaza shop, beer distributor, etc.) and five Speculators
(cattle traders).

The questionnaire first asked each owner to indicate whether they would
prefer to work for themselves at their current income level, and the nature of
their entrepreneurial motivation (intrinsic or extrinsic). The next question
identified the entrepreneur's capacity for the five energizer behaviours given
in Table 1 that are the materialization of psychological features thought to be
essential in quality entrepreneurs.

**Table 1: Five energizer behaviours and the psychological feature they derive
from, that were analyzed in the study, KwaZulu-Natal, 2003-2004**

Psychological feature	Ambition	Innovation	Spirit of collaboration	Venturesome spirit	
Energizer behaviour	Enterprise expansion	Creation of new products or services	Formal agreements with industry players	Compiling budgets for the business	Undertaking to train employees

Source: Adapted from Guzman and Santos (2001).

Each of these behaviours was assessed in terms of the entrepreneur's past
behaviour and which activities he/she planned to undertake in the future. A
maximum score of 3 for any behaviour occurs when an entrepreneur has
exercised an energizer behaviour in the past, and plans to do so again in the
following year. The minimum score of 0 occurs when he/she has not exercised
the particular energizer behaviour in the past, and will not do so in the
following year. For example, Yes to past and planned enterprise expansion = 3;

Yes to past, and No to future, product development = 2; and No to past or planned agreements, budgeting and employee training = 0. In this case, the respondent's overall energizer behaviours' score is 7 out of a potential 15.

The questionnaire also collected data on years of education, work experience in current business sector, and family assistance to become an entrepreneur. The sample entrepreneurs also had to self-rate their 'attitudes and abilities' for personal skills (such as evaluating potential business costs and opportunities, and negotiation skills) on a scale from 5 (excellent) to 1 (poor). A final question asked respondents to rank 36 potential socioeconomic, institutional and firm level constraints to SMME survival and growth based on past international and local research (see Clover and Darroch, 2005) on a Likert-type scale from 1 (minor constraint) to 5 (major constraint). These constraints were then used as proxies for the external factors that affect loan repayment success.

3.2   Characteristics of the sample survey respondents and their enterprises

In Appendix A, Table A1, 45% of the respondents were in the 41-50 years age group, 32% in the 51-60 years range, and 21% in the 31-40 years category. Female enterprise owners made up 16% of the sample, their largest group being Retailers. Book-keepers were hired either contractually or permanently by 73% of owners, and 32% of respondents had supplementary income from one or more other sources. Some 70% of the owners felt that their business was generating sufficient income to support themselves and their dependents. Almost half (48%) of the owners had secured equipment loans with Ithala, 34% had loans for land and fixed improvements, and 18% had borrowed working capital. The average approved loan amount (ALA) for the sample was R421,600 versus an average loan collateral (LC) of R943,475. Harvester contractors and Retailers had the highest average ALA's, while Speculators had the lowest average ALA but the highest LC to ALA ratio (2.97). This ratio may overstate their loan security, as cattle are a relatively more fungible asset (more easily sold for cash) than land and fixed improvements. The average number of employees per sample enterprise was 30, with a sample mode (most frequent response) of five employees. Harvester contractors had the highest, and retailers the lowest, average number of employees.

Reflecting the materialization of the promoter sub-function, most (86%) of the owners would prefer to work for themselves at their current income levels, particularly the Harvester contractors, Processors and Retailers. About 41% of respondents had qualified at tertiary level (certificate, diploma, or bachelor's degree) and 36% had a Matric certificate pass. Only 9% of the sample had a Standard 6 level education, and 14% had completed some high schooling.

Nearly 70% of the owners had over five years experience in their current industry, with Harvester contractors and Retailers being the most experienced. Respondents with between one and five years experience made up 18% of the sample. Some 59% of the respondents had parents who had been entrepreneurs, and 66% of the sample considered that their immediate family had assisted them in becoming an entrepreneur by providing less expensive labour, finance, or business contacts in their industry.

Appendix A, Table A2 presents the energizer behaviours and types of motivation shown by the 44 sample respondents. About 86% of owners had expanded their business since start-up, and 80% planned expansion in the following year. Some 64% of owners had already devised new products or services (mainly Processors), while 55% planned to do so. Most respondents had formal business agreements (77%), and 59% (including all of the Processors) planned to conclude formal agreements. Over 85% of owners either had or planned to draw up budgets, and 82% had sent their employees for formal training or provided in-house training. Some 43% of the sample owners were intrinsically motivated, with Processors having the highest (63%), and Speculators the lowest (20%), incidence.

In Appendix A, Table A3, respondents' ratings of their business skills (attitudes and abilities) was similar across the four strata. Overall, negotiating skills seem to need relatively more attention from sample respondents. Regarding the proxies for external factors (see Clover and Darroch (2005) for a full discussion), insufficient government support for agribusiness SMMEs was ranked the highest constraint overall to business survival and growth (mean score of 3.86 out of five), particularly by Speculators and Harvester contractors. Respondents felt that government legislation and policy were biased towards larger businesses, and that government should either reduce the amount of legislation that SMMEs must comply with or provide more accessible information and skills enabling SMMEs to cope with these 'rules and regulations'.

Lack of access to start-up capital was ranked second overall (mean score of 3.45). Respondents, particularly Retailers, believed that this may be due to private financial institutions being reluctant to finance small business start-ups due to the perceived risk associated with SMMEs. This supports previous research in SA reported by Bannock (2002). Respondents also attributed this constraint to their lack of collateral, or difficulty in understanding and completing loan application procedures. Cash-flow stress was the third ranked constraint (mean score of 3.27), probably due less to the seasonal nature of incomes for agriculture–related enterprises, and more to capital requirements at start-up. Respondents also stated that having to comply with value-added tax (VAT) legislation added considerably to their cash-flow stress.

Lack of access to capital for expansion, 'too many rules and regulations', and crime were ranked fourth, fifth, and sixth overall (all mean scores over 3.00). Lack of access to capital for expansion – particularly for Processors, Retailers and Speculators – was again attributed to private financial institutions being reluctant to finance small business start-ups due to the perceived risk. Speculators in this sample seemed to be relatively more affected by crime (mean score of 4.20), which they attributed to incidents of livestock theft. Security guards, fences and alarm systems were perceived to reduce the threat of crime but impose another relatively large expense on SMMEs. Complex labour legislation and minimum wage legislation were ranked seventh and tenth respectively, with the highest ratings from Harvester contractors. Their relatively higher scores for the minimum wage constraint probably reflect the higher costs it creates when they employ casual labour during sugarcane and timber harvesting (Nhleko, 2003).

Having to pay and register for VAT was ranked the eighth most limiting constraint (mean score of 2.68), and respondents felt that this procedure increased their business cash-flow stress. Some businesses paid a bookkeeper primarily to ensure VAT compliance. The VAT registration procedure was seen as too complex for smaller businesses, while owners also stated that SMMEs that were not registered as VAT vendors could undercut the prices of their rivals who had registered as VAT vendors. These results support conclusions reached by the World Bank Task Team (2000) in SA.

4. EMPIRICAL MODEL OF THE EFFECT OF ENTREPRENEURIAL QUALITY ON AGRIBUSINESS SMME SUCCESS

Agribusiness SMME success was proxied by the agribusiness SMME owners' repayment performance and loan status at Ithala at the time of the survey. Just under 40% of the respondents had previously defaulted on their loan repayments to Ithala, with Harvester contractors (17%) having the lowest, and Speculators the highest (80%) rates of default, respectively. A respondent was classified as a loan defaulter if he/she had failed at least once to make a loan repayment when due during the loan period. Four Processors (50%) and five Retailers (63%) had previously defaulted on their loan repayments.

4.1 Empirical logit model specification

The conceptual model in section 2 suggests that enterprise success depends upon four components of entrepreneurial quality: the preference for working as self-employed, the exponents of entrepreneurial quality (intrinsic motivation and the execution of various energizer behaviours), personal factors, and firm level and external factors. Discriminant analysis and logistic regression are

commonly used to estimate the determinants of dependent variables that have binary outcomes, such as loan repayment status that shows no default or previous incidence of default. Discriminant analysis was not used in this study because some of the potential determinants of loan repayment performance were dichotomous (see below). Discriminant analysis requires that, within groups, variables follow a multivariate normal distribution, with equal covariance matrices (Press and Wilson, 1978; Manly, 1986). Although the violation of this assumption will not necessarily lead to poor results, Press and Wilson (1978) recommend the logistic regression model because of its robustness in respect of the underlying distribution of the independent variables, which need not be multivariate normal. Given that P_i is the probability that the ith agribusiness SMME owner will not default on loan repayment, the logit model of loan success for the 44 sample agribusiness owners can be expressed in equation (1) as follows (see Gujarati (2003) for a summary of the model's properties):

$$\ln [P_i / (1 - P_i)] = \beta_1 + \beta_2 X_{2i} + ... + \beta_k X_k + \mu_1 \qquad (1)$$

where $1 - P_i$ is the probability that the ith agribusiness SMME owner would default, and $\ln [P_i / (1 – P_i)]$ is the logit or log odds in favour of the ith agribusiness SMME owner not having defaulted on loan repayments to Ithala. A respondent was classified as a defaulter if he/she had defaulted on a loan repayment during the course of the repayment period. The X_k are hypothesized determinants of loan success, while the β_k are the parameters to be estimated. Using the conceptual model in section 2, and equation (1), the loan status of the ith agribusiness SMME owner was estimated as a function of the following variables:

PREF   = the ith owner's preference for working as self-employed (Yes = 1; No = 0);

MOTN   = 1 if the ith owner is intrinsically motivated, and 0 if extrinsically motivated;

ENGSCORE = the ith owner's score for the energizer behaviours (ranges from 0 to15);

EXP   = the ith owner's experience in the industry that he/she currently operates in (1 = less than one year, 2 = 1-5 years experience, and 3 = more than 5 years);

FAMILY   = the ith owner's perception of whether family members had assisted him/her to become an entrepreneur (Yes = 1; No = 0);

EDUC   = the ith owner's score for highest education level attained (ranges from 7 years (less than Standard 6) to 15 years (Bachelors degree));

BUSKILLS   = the ith owner's self-rating of own business skills (ranges from 1 to 5); and

EXTERNAL AND FIRM LEVEL FACTORS = the ith owner's scores for own perceptions about what potential constraints cited above limit his/her business growth (ranges from 1 to 5).

The variables PREF, MOTN, ENGSCORE, the personal factors EXP, FAMILY and EDUC, and BUSKILLS are all expected to be positively related to loan success (no default history). The model developed in Figure 3 suggests that entrepreneur's who prefer to work as self-employed, are intrinsically motivated, execute certain energizer behaviours, have more business experience, have more education, are assisted by their family, and have better business skills, are more likely to be higher quality entrepreneurs, and hence to meet loan repayments as they fall due. EXTERNAL AND FIRM LEVEL FACTORS were more difficult to specify in the empirical model, particularly as the number of constraints (36) was almost equal to the sample size (44). The researchers, therefore, tried to use the principal components estimated from these constraints by Clover and Darroch (2005), which identify dimensions like perceived 'lack of access to services' and 'lack of institutional support', as determinants of loan repayment to economize on the number of external factors (see Manly (1986) for a description of Principal Component Analysis and its applications). These factors, *a priori*, were expected to negatively affect loan repayment performance.

4.2   Logit model results

None of the coefficients estimated for the principal components defining dimensions of the potential (external and firm level) constraints affecting loan repayment were statistically significant at acceptable levels. The researchers decided, therefore, after reviewing correlation coefficients between the individual constraints and loan repayment status, to proxy the external and firm level factors using two individual constraints: TRAINING (the extent to which an owner perceives that access to training facilities constrains agribusiness SMME survival and growth), and ELEC (the extent to which an owner perceives that access to electricity is a constraint). Both of these variables should be negatively related to loan repayment success, as higher scores indicate relatively greater constraints that reduce the likelihood of business growth and, hence, loan repayment. The resulting logit model of

entrepreneurial quality and agribusiness SMME success (loan repayment) estimated by the method of maximum likelihood using the SPSS statistical package (Norusis, 1994) is shown in Table 2. Note that 41 cases were used, as loan repayment data were incomplete for three of the owners.

The estimated coefficient for PREF, the first component of entrepreneurial quality, has the expected sign but is not statistically significant. The positive signs for the coefficients estimated for MOTN and ENGSCORE, the elements of the second component of entrepreneurial quality, agree with *a priori* reasoning, but the MOTN estimate is not statistically significant. The parameter estimates for the personal factors EXP and FAMILY, reflecting the third component of entrepreneurial quality, are positive as expected, and statistically significant. The EDUC variable was excluded by the stepwise regression procedure. The variable EVALCOST, a proxy for BUSKILLS, also belongs in the third component of entrepreneurial quality as it reflects the self-rating of own ability to evaluate the potential costs and benefits of business opportunities. The negative sign for the EVALCOST parameter estimate was not expected, and it may show that the sample respondents tend to overstate their personal ability to evaluate such costs and benefits (higher self-ratings are correlated with poorer loan repayment performance).

Table 2: Logit model of the effect of entrepreneurial quality on agribusiness SMME success (loan repayment to Ithala), KwaZulu-Natal, 2003-2004 (n=41)

Variable	Coefficient estimate
Constant	7.249[NS]
PREF	0.259[NS]
MOTN	2.162[NS]
ENGSCORE	0.803**
EXP	3.328***
FAMILY	3.262**
EVALCOST	-3.365***
ELEC	-1.550**
TRAINING	1.124**

Note: [NS], ** and *** indicate not statistically significant, and statistically significant at the 5% and 1% levels, respectively.

The estimated coefficient for ELEC - an external factor reflecting the fourth component of entrepreneurial quality - is statistically significant and has the expected sign. A lack of access to electricity in part reflects the difficulty that entrepreneurs in rural areas experience in accessing infrastructure services. The parameter estimate for TRAINING, another external factor, is statistically significant, but has an unexpected positive sign. This may indicate that

agribusiness SMME owners in the sample that more strongly perceived lack of access to training as a constraint had taken actions to remedy this problem, thereby increasing the likelihood of loan repayment. The estimated logit model correctly classifies 90% of cases (92% of non-defaulters and 88% of loan defaulters). These classification results are biased upwards, as the same 41 cases were used to both estimate the logit model and to assess its classification accuracy. These correct classification results compare well with rates of between 62% and 85% reported in local and international research on determinants of loan repayment reviewed by Mashatola and Darroch (2003). The –2LL (log of the likelihood) statistic of 22.504 with a χ^2 distribution and 33 degrees of freedom has an observed probability level of close to 0.750, indicating a good model fit to the data.

Attempts to improve the logit model by estimating the determinants of loan repayment within a simultaneous-equation model that specifies the inter-relationships between the four components of entrepreneurial quality in Figure 3 did not generate meaningful results. This result and the lack of statistically significant coefficients for the PREF component, MOTN element, and principal components in the logit model may be due to a lack of variability in some of the sample data, as multicollinearity was not identified as a problem in the data (Gujarati, 2003). For example, owners' scores for their perceptions about the individual external constraints were quite similar across all strata. Further research is needed to study the impact of business type on loan success, as Harvester contractors in this sample had relatively lower loan default rates.

5.   RELATIONSHIPS BETWEEN COMPONENTS OF ENTREPRENEURIAL QUALITY

This section briefly describes a chi-square test for independence between some of Guzman's (1994) components of entrepreneurial quality, and presents the results of applying this test to the 44 agribusiness SMME owners' scores on these components.

5.1   Chi-square test for independence

A chi-square test for independence between two variables is based on a contingency table that summarizes the measurements on these variables for each case in a sample survey (Mirer, 1983). Based on the frequency proportions observed in the data, expected frequencies can be predicted on the assumption that the two variables are independent of each other. A chi-square test statistic, χ^2, value can be calculated by equation (2) as:

$$\chi^2 = \Sigma \, (n_k - p_k)^2 / \, p_k \tag{2}$$

where n_k = the absolute frequency of observations in category k, and p_k = the number of cases predicted to be in the kth category. For a contingency table of $(r - 1)(c - 1)$ degrees of freedom, where r = the number of rows and c = the number of columns in the main body of the contingency table, the null hypothesis of independence is tested by comparing the estimated χ^2 value to the critical χ^2 value at conventional levels of statistical significance. If the estimated value exceeds the critical value, the null hypothesis of independence is rejected (Mirer, 1983). Relationships between the preference for working as self-employed, the type of entrepreneurial motivation, and the capacity for energizer behaviours were tested using the 44 SMME agribusiness owners' scores on these components that were derived as explained in section 3.

5.2 Results of chi-square tests for independence

In Table 3, the null hypothesis of independence between motivation type and preference for working as self-employed is rejected at the 5% level of statistical significance. Intrinsically motivated entrepreneurs in the sample would prefer to work as self-employed, while it seems that only the extrinsically motivated owners would work as an employee rather than for themselves at their current income level. This provides some support for Guzman's (1994) contention that entrepreneurs with intrinsic motivation have higher potential to carry out the energizer sub-function.

Table 3: Relationships between motivation type and the preference for working as self-employed by agribusiness SMME owners, KwaZulu-Natal, 2003-2004 (n = 44)

Number of cases	n = 38	n = 6			
Type of motivation	Prefer to work as self-employed (%)	Prefer to work as employee (%)	χ^2 value	df	Significance level for χ^2
Intrinsic	50	0	5.280	1	0.022**
Extrinsic	50	100			

Note: ** indicates statistical significance at the 5% level; df denotes degrees of freedom.

Chi-square tests for independence were also conducted between the five energizer behaviours and the preference for working as self-employed, and between these energizer behaviours and the nature of an agribusiness SMME owner's motivation. The full table of results cannot be presented here due to space limitations, but the hypothesis of independence is rejected at the 10% level of statistical significance for the preference for working as self-employed

and an agribusiness SMME owner having devised a new product or service since start-up, having compiled budgets for the business since start-up, the desire to compile budgets for the business in the future, and the desire to train employees in the future. This implies that there is a degree of dependence between the preference for working as self-employed and the capacity for innovation, planning and a venturesome spirit. There was also a high degree of dependence at the 5% level of significance between being an intrinsically motivated agribusiness SMME owner and the ability to plan by compiling budgets. Overall, these findings show some support for Guzman's (1994) hypothesis that entrepreneurs who prefer to work as self-employed tend to be intrinsically motivated and have a capacity for innovation, a desire to plan, and a venturesome spirit.

6.   CONCLUSIONS AND POLICY RECOMMENDATIONS

A stratified random sample of 44 agribusiness SMME owners financed by the Ithala Development Finance Corporation (Ithala) in KZN were asked to score four components of entrepreneurial quality identified by Guzman and Santos (2001): preference for working as self-employed; capacity for five energizer behaviours; the nature of their entrepreneurial motivation; and the factors of their personal and external environments. The estimated logit model of the effects of entrepreneurial quality on business success (using loan repayment performance at Ithala as a proxy for success) using 41 cases shows that strong energizer behaviours (such as current and planned business expansion and staff training), more years of business experience, and family assistance to become an entrepreneur, promote loan repayment, while a perceived lack of access to electricity (a proxy for access to services) negatively affects loan repayment. The overall model correct classification rate of 90% - some 92% of non-defaulters and 88% of loan defaulters - compares very well with rates reported in other international and local studies of factors affecting loan repayment.

Chi-square tests for independence show that among this sample of 44 agribusiness SMME owners in KZN, the relatively more intrinsically motivated owners would prefer to work as self-employed. The preference for working as self-employed also increases an entrepreneur's capability of executing energizer behaviours derived from innovation and a desire to plan, which may translate into the devising of new products or services, drawing up budgets for the business, and providing formal or informal training to employees. Intrinsically motivated entrepreneurs are also more inclined to plan into the future for their businesses.

These results suggest that public and private financial institutions could supplement their current loan evaluation policies by giving more attention to the applicant's capacity for energizer behaviours and extent of family assistance in becoming an entrepreneur. This may reduce adverse selection, and improve access to finance by agribusiness SMMEs and help to ease a major perceived constraint on their survival and growth. Nieuwenhuizen and Kroon (2003) also suggested the need for SA financial institutions to assess the costs and benefits of incorporating more information about *personal characteristics* into their loan evaluation procedures, but did not identify as wide a range of energizer behaviours, or the potential role of family assistance in promoting SMME success. The policy implication of the effects of training and lack of access to electricity is that SMME survival and growth could be promoted by providing accessible and appropriate skills training services – perhaps at school and tertiary level - and by providing, or improving the quality of, appropriate infrastructure. This raises the obvious question of how these measures would be financed. Further research for policy purposes is needed to determine if the effects of entrepreneurial quality on business success identified in this paper apply to agribusinesses in other provinces in SA. More research could also be directed at testing these results on a larger sample of agribusiness SMMEs in KZN and at identifying which explanatory variables influencing loan repayment performance are most important from a lending institution's perspective by enterprise type.

ACKNOWLEDGEMENTS

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Appendix A: Characteristics of Ithala agribusiness SMME survey respondents, KwaZulu-Natal, 2003-2004

Table A1: Enterprise and personal characteristics by stratum (n = 44)

Characteristic	Number of respondents				% or Mean
	Harvester contractors	Processors	Retailers	Speculators	
Age and gender					
21 – 30 years	0	0	0	1	2
31 – 40 years	3	2	1	3	21
41 – 50 years	13	3	4	0	45
51 – 60 years	7	3	3	1	32
Female	2	2	3	0	16
Male	21	6	5	5	84
Commercial features					
Use book-keepers	18	7	4	3	73
Other income	9	3	2	0	32
Sufficient income	14	6	7	4	70
Loan type					
Land and fixed improvements	7	3	4	1	34
Equipment	15	3	1	2	48
Working capital	1	2	3	2	18
Loan size					**Mean**
Average ALA	R623,261	R259,243	R731,515	R134,518	R421,600
Average LC	R728,988	R329,316	R768,405	R399,475	R943,475
Average ALA/LC	1.17	1.27	1.05	2.97	1.62
Average number of employees					**Mean**
	47	13	6	7	30
Preference for working as self-employed					
	21	7	7	3	86
Highest education level of respondents					
Standard 6	3	1	0	0	9
Some high school	4	1	1	0	14
Matric	8	2	3	3	36
Tertiary	8	4	4	2	41
Years of experience in current industry					
< 1 year	2	2	0	2	14
1-5 years	2	3	1	2	18
> 5 years	19	3	7	1	68
Respondents whose parents were entrepreneurs					
	11	6	4	4	59
Respondents whose families had assisted them in becoming an entrepreneur (with labour, finance, business contacts, etc)					
	16	5	5	3	66

Table A2: Energizer behaviours and type of motivation by stratum (n = 44)

Item	Number of respondents (% in parentheses)				
	Harvester contractors	**Processors**	**Retailers**	**Speculators**	**Total**
Energizer behaviours					
Have expanded their business	18(78)	8(100)	7(88)	5(100)	38(86)
Plan to expand their business	19(83)	7(88)	4(50)	5(100)	35(80)
Devised new products or services to market	15(65)	6(75)	5(63)	2(40)	28(64)
Plan to devise new products or services to market	13(57)	5(63)	3(38)	3(60)	24(55)
Have entered formal agreements with industry players	17(74)	7(88)	6(75)	4(80)	34(77)
Plan to enter formal agreement with industry players	12(52)	8(100)	4(50)	2(40)	26(59)
Have drawn up budgets for their business	19(83)	8(100)	8(100)	4(80)	39(89)
Plan to draw up budgets for their business	22(96)	6(75)	6(75)	4(80)	38(86)
Have trained employees, formally or informally	19(83)	6(75)	8(100)	3(60)	36(82)
Plan to train employees, formally or informally	16(70)	4(50)	3(38)	3(60)	26(59)
Respondents who are intrinsically motivated	9	5	4	1	19(43)

Table A3: Owners' perceptions of their business skills in terms of attitudes and abilities (mean scores) by stratum (n = 44)

Stratum	Attitudes and abilities					
	Identifying business opportunities	Evaluating potential business costs	Communicating with my employees	Communicating with my supplier	Communicating with corporate and financial intermediaries	Negotiating skills
Harvester contractors	3.70	3.78	4.13	4.13	3.74	3.61
Processors	4.38	4.00	3.88	4.25	4.00	4.13
Retailers	4.00	4.13	4.25	4.25	3.75	3.75
Speculators	3.80	4.20	3.80	4.20	4.00	3.75
Mean	**3.89**	**3.93**	**4.07**	**4.18**	**3.82**	**3.75**