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EMPIRICAL VALIDATION OF AN MICRO AND SMALL ENTERPRISES TYPOLOGY: IMPACT OF PERFORMANCE ON MICRO AND SMALL ENTERPRISES IN NAIROBI

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ABSTRACT

The Micro and Small Enterprises (SMEs) typology suggests competitive business strategies that MSEs can use to overcome the challenges they face and improve their performance. The typology combines strategic alliance (collaboration) and competency (differentiation and low cost) theories. The general objective of this study was the empirical determination of the extent to which the application of business strategies based on the MSE typology is associated with better performance. The study was carried out among Nairobi informal sector MSEs in the manufacturing sector. From the results, the ideal types captured in the typology were supported. In addition, there was partial support of better performance among four of the nine classes of strategies within the typology. These accounted for 64.8 percent of the sampled enterprises. None of the enterprises that did not fit into any of the classes, however, performed better than those that did.

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Introduction

Competitive business strategy typologies classify business strategies based on common elements and provide a framework for gaining competitive advantage over ones business rivals. Typologies can be defined as conceptually derived sets of ideal types that are interrelated. Typologies contain quantifiable constructs that are explicitly defined, have articulated relationships among the constructs, and the predictions associated with them are testable and subject to disconfirmation (Snow and Ketchen, 2014). Business strategy typologies typically seek to achieve improved business performance through a combination of measures that include increase in market share, market penetration, revenues, prof- its and number of employees. Although mainly developed for and tested on formal medium and large enterprises, there is increased interest in their applicability to informal sector enterprises, due to the recognised importance of the sector. Special attention is paid to enterprises in the manufacturing sec- tor that have the greatest potential for value addition, and therefore greater returns in a bid to meet developing nations' development and poverty alleviation agendas.

In Sub-Saharan Africa (SSA), it is estimated that the informal sector accounts for approximately 90 percent of all new jobs and up to 85 percent of total employment. The sector consists mainly of micro-enterprises (MEs) that 'typically operate at a low level of organisation, with little or no division between labour and capital, and on a small scale.' (International Labour Organisation, 2000). In Kenya informal sector employment was estimated at 80 percent of total recorded employment in 2014 (KNBS, 2015), mainly in the areas of manufacturing, building and construction; wholesale and retail trade; hotels and restaurants; transport and communications (mainly support services to transport activity); and community, social and personal services. This study focussed on informal sector micro and small enterprises (IS/MSEs) in manufacturing and agro-food processing.

Development and validation of generic strategy typologies has emerged as an important area in strategic management research (Porter, 1980; Kim et al., 2004; Spanos et al., 2004). Porter (1980) three generic strategies can be defined within a typology characterised along the two dimensions of competency (cost or differentiation) and market scope (focused or broad). Porter-based typologies include those of Mintzberg (1987), Beal and Yasai-Ardekani (2000), Pertusa-Ortega et al. (2009) and Ogot (2012).

For each of the generic strategies defined by the combination of dimensions within the typologies, there is a corresponding set of competitive business activities that characterise them. Firms that practice the various activities, are therefore said to be members of the corresponding strategic group. This study will use activity-based competitive business strategies as its theoretical framework.

Research Problem

Generic Competitive Business Strategies (CBS) typologies found in the literature have mainly been developed with the underlying assumption of applicability to medium and large firms. Combining competency theory (Porter 1980, 1985) with strategic alliance theories (Lange et al., 2000; De Propis, 2002; Kula et al., 2005). Ogot (2012)) incorporated competitive business methods shown from the literature to improve the business performance of IS/MSEs into a new MSE competitive business strategies typology. He posited that the proposed typology is

better suited to increasing the competitive advantage of IS/MSEs, than the current dominant business strategy theories found in the strategic management literature that seem to be geared towards formal large and medium enterprises. The typology is anchored on two dimensions: Collaboration (Peer and Mentor) and Competency (Low cost and Differentiation). The latter dimension was retained from Porter (1980) typology. An IS/MSE can therefore employ one or more of four key generic business strategies: Peer Differentiation, Peer Low Cost, Mentor Differentiation, and Mentor Low Cost. In theory, the applicability and adoption of successful strategies embodied in the proposed typology may start to address and overcome the myriad of challenges faced by IS/MSEs.

The validity of any typology, despite the important insights into strategic behaviour that it provides, is enhanced by empirical support (Galbraith and Schendel, 1983). The MSE typology has not been empirically tested. This study, therefore, sought to answer through empirical testing the following critical question: Does the application of business strategies based on a combination of competency and strategic alliance theories embodied in the MSE Typology correspond to better business performance of manufacturing MSEs in the informal sector?

Research Objectives

The general objective of this study was the empirical determination of the extent to which the application of business strategies based on a combination of competency and strategic alliance theories as captured in the MSE Typology lead to better business performance of MSEs in the informal sector. The specific objectives were to:

- Carry out exploratory empirical construct validation of the MSE typology to, determine IS/MSE strategic group membership based on the typology; and
- Establish if adopting the strategies based on competency and strategic alliance theories as defined within the MSE typology leads to improved business performance.

The validation was exploratory in that although strategies defined within the MSE typology are expected to be generally applicable to all IS/MSEs independent of sector, geographical location or economy, time constraints of the current study limited validation to urban MSEs in Nairobi in two business sub-sectors: manufacturing (wood and metal) and agro-food processing. These sub- sectors were chosen due to their being the dominant informal sub-sectors engaged in value addition (KNBS, 2015), the latter being key to the realization of significant economic impact and realization of Kenya's Vision 2030. For this study geographic location was defined as an enterprise being located in either an urban, peri-urban or rural area.

Literature Review

This study is anchored on strategic alliance theory and typology-based competitive business theory. Over the years, numerous definitions for strategy have been advocated in the literature. Chandler (1962) defines strategy as 'the determination of the basic long-term goals and objectives of an enterprise, the adoption of courses of action, and the allocation of resources necessary for carrying out the goals.' (p. 13) Alternatively, strategy may be defined as the common thread among a firm's activities and product markets. It comprises four components: product-market scope, growth vector (or changes

that a firm makes in its product-market scope), competitive advantage, and synergy (Ansoff, 1965). Porter (1996) argues that strategy is creating fit among a company's activities. The success of a strategy depends on doing many things well, and integrating among them. If there is no fit among activities, there is no distinctive strategy and little sustainability.

Strategic management also looks at both corporate-level strategies that focuses primarily on decisions on which environments to compete in, and business-level strategies that focus on how to compete in those environments. This study exclusively focused on business-level strategies. It is also important to distinguish between strategic process and and strategic content. Strategic process focuses on how strategies are formulated and implemented. In contrast, strategic content refers to the type of decisions and actions taken. A brief discussion of each follows.

Strategy content refers to how organisations actually behave, as opposed to strategies that are stated or intended, but not realised. Strategy content can be conceptualized at two levels, strategic stance and strategic actions (Boyne and Walker, 2004). Strategic stance is how an organisation seeks to maintain or improve its performance. Also referred to as strategic posture, it indicates how a business is choosing to compete (Schendel and Hofer, 1979). It is relatively enduring and unlikely to change substantially in the short term (Zajac and Shortell, 1989). Strategic actions, on the other hand, are the specific steps that an organisation takes to operationalize its stance, and are more likely to change in the short term (Fox-Wolfgramm et al., 1998). As most MSEs, especially in the informal sector, do not have documentation of intended strategy (for example, strategic plans), the strategic content view, i.e. determining an enterprises strategic stance and actions, was used.

Generic strategy typologies, often referred to as theories of different strategy types (Smith et al., 1986), has emerged as an important research area in strategic management (Porter, 1980; Kim et al., 2004; Spanos et al., 2004; Gopalakrishna and Subramanian, 2001; Proff, 2000). A broad categorization of strategic choice, generally applicable regardless of industry, organisation type or size is referred to as a generic strategy (Herbert and Deresky, 1987). Numerous generic strategy typologies are described in the literature including those that focus on structural aspects of the firm (Hofer and Schendel, 1978), life-cycle theories (Chandler, 1962; Herbert and Deresky, 1987); portfolio models ; product market evolution (Glueck, 1980), and competitive business strategies (Porter, 1980; Wright, 1987; Murray, 1988; Kim et al., 2004; Spanos et al., 2004; Gopalakrishna and Subramanian, 2001; Pertusa-Ortega et al., 2009; Ogot, 2012). The use of generic strategies typologies gained dominance in the late 1970s and early 1980s, with those of and based on Porter (1980, 1985) dominating the literature. Pepper (cited inCampbell-Hunt (2000)) put forward two hypotheses on how the 'world' can be described: formism that describes the world in categories; and mechanism that describes the world in elements and the relationships between them. Campbell-Hunt (2000) went further in a descriptive analysis of Porter's typology, to present four approaches that may be used to describe generic strategy typologies. The first three approaches, taxonomic, empiricist and nominalist are based on formism perspective of the world; while the fourth, dimensional definition, is based on the mechanism perspective.

Despite the recent focus on Resource-Based View (RBV) approaches to strategy, the usefulness and applicability of generic strategic typologies still remains. According to Parnell (2006) the differences between RBV and generic

strategy perspectives are not as different empirically as they are conceptually due to the need to assume level of resource value consistency across firms, and assumption that is the basis in strategic group perspectives. Further, as suggested by Barney, Wright and Ketchen (2001), and Kim et al. (2004), firm performance is related to both strategic factors that are constant across firms (generic strategy perspective) as well as strategic factors unique to individual firms (resource-based view). Continued improvement of generic strategy approaches alongside or integrated with RBV may provide a balanced perspective of the strategy-performance framework.

Parnell (2006) sought to reconceptualize generic strategies within a RBV context. He proposed two dimensions: Value and Market Control. The value dimension represents the relationship between perceived worth and cost, where a product or service worth is independent of price, and may be directly linked to the needs of one or more targeted customer groups. Value can be delivered in two ways. First, and on one end of a continuum, by providing great worth of a particular group of customers. This is analogous to Porter (1980)'s differentiation strategies. The other end of the continuum seeks to find a compromise between worth and price, analogous to Porter's low cost strategies. An enterprise may therefore choose to operate anywhere along the value dimension in order to yield an overall value proposition. The Market control dimension incorporates the RBV perspective. It describes the extent to which organisational resources are used to configure the market spaces to be most favourable to the firm. Within Parnell's typology, therefore, business strategy may emphasize and operate anywhere along the dimensions value and market control in order to get competitive advantage.

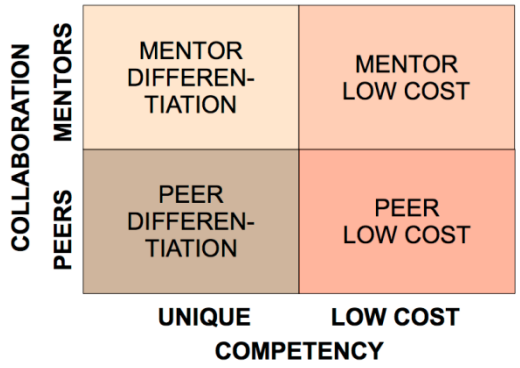
Further, Snow and Ketchen (2014) state that a great value can be found in typologies that have ideal types (referred to as strategic groups for business typologies) that are comprehensive and mutually exclusive, where the strategic groups can be validly and reliably measured, and the typology has a clearly articulated theoretical foundation. The theoretical framework for this study is therefore grounded on generic strategy typology theory.

Micro and Small Enterprises Typology

Ogot and Mungai (2012) proposed the two-dimensional generic MSE typology, presented in Figure 1. It is anchored on the established competency (low cost/differentiation) and strategic alliance theories. The typology is based on the synthesis from the literature of activities employed by MSEs to achieve competitive advantage, thereby providing the typology with strong theoretical underpinnings. He employed a two-dimensional approach, as adopted by Porter (1980), due to its simplicity and ease of understanding, especially considering the target MSE audience.

With reference to the Figure 1, an MSE can adopt one or a combination of four key generic business strategies: peer differentiation, peer low cost, mentor differentiation, and mentor low cost. The four strategies are characterised along the two dimensions of Collaboration (peer or mentor), and Competency (cost or differentiation). The latter dimension was retained fromPorter (1980) typology. The peer strategies are based on activities carried out by MSEs within networks and linkages with other MSEs to achieve competitive advantage either through differentiation or low cost. Similarly, MSEs may seek to achieve the same through relationships with larger enterprises and organisations (for example forward and backward linkages, membership in organisations and associations) who play both a business

partner, and a mentor role. Those pursuing this avenue are said to be adopting the mentor strategies. A brief description of each follows.



Source: Ogot and Mungai (2012)

Figure 1 : IS/MSE Competitive Business Strategies Typology

The peer differentiation strategies seek to leverage on peer relationships to set their products and services apart from others in the localised market. This may be realised through, working within groups to maintain quality control, developing new products together, and group lending/borrowing to finance differentiations initiatives, amongst others.The peer low cost strategies aim to reduce production and operating costs, and thereby selling costs through peer relationships. Example activities include lowering of the cost of capital through participation in informal financing groups; sharing of expensive equipment that allow reduction in production efficiencies and costs; and collective purchasing of raw materials to lower unit costs.

The mentor differentiation strategies are pursued mainly through forward and backward linkages with larger enterprises, as well as membership and participation in umbrella organisations and associations. Benefits accruing to the IS/MSEs through these relationships include technology transfer promoting differentiation, branding of products or services, increased awareness and publicity of products and services through trade shows and fairs, amongst others.

Finally, the mentor low cost strategies are also mainly pursued through forward and backward linkages with larger enterprises, as well as membership and participation in umbrella organisations and associations. For these generic strategies, however, the aim is to accrue benefits that lower costs of production and operation, thereby providing the IS/MSEs with a low cost advantage, vis-a-vis their peers. This is mainly achieved through technology transfer, training, reduction in cost of capital, access to new markets and therefore increased economies of scale. The competitive business strategies closely aligned to each of the proposed four generic strategies were presented in Ogot and Mungai (2012).

Conceptual Framework and Research Hypotheses

Collections of firms within an industry following the same or similar competitive business strategies may be referred to as strategic groups (Porter, 1980). Strategic groups can be developed from multivariate measures of intended or implemented strategies, and provide a framework for

empirically demonstrating that strategies differ among firms, and that better strategies lead to better performance. Demonstration, therefore, of the ability of multivariate measures of strategic choice to classify firms into homogenous groups based on the MSE typology will provide empirical evidence of its construct validity. A similar approach was employed by Dess and Davis (1984), Beal and Yasai-Ardekani (2000), Pertusa-Ortega et al. (2009). For this study, due to general lack of documentation on or the existence of intended strategy among IS/MSEs, implemented strategy will be used. The multivariate measures for the strategic groups will be based on the competitive business activities most closely aligned to each of the four generic strategies.

The conceptual framework, presented in Figure 2 shows the competitive business activities that the MSEs may employ, strategic groups and performance form the independent, intervening and dependent variables, respectively. The basis for any typology is the ability to group the independent variables in a manner that captures the similarities between them, the strategic groups. This will be tested by the hypotheses between the independent and the intervening variables. The relationship between member- ship in a strategic group and performance will be tested by the hypotheses between the intervening and dependent variables. These will be captured in the following research hypotheses. The first hypothesis focusses on the validity of the strategic groups defined by the new typology:

H_1: The MSE typology can serve as determinants of strategic group membership among manufacturing IS/MSEs.

Further, studies done with medium and large firms and based onPorter (1980) typology found that those companies employing any or a combination of the defined strategies had generally better performance than those adopting none. Will these conclusions still hold true with the new typology for MSEs? This will be answered by testing the following two hypotheses:

H_2: Manufacturing IS/MSEs employing pure strategies in the MSE typology will lead to better performance.

H_3: Manufacturing IS/MSEs employing mixed strategies in the MSE typology will lead to better performance.

Research Methodology

A cross-sectional survey was used for this study. The study draws on primary data from the IS/MSEs in the manufacturing (wood and metal works) and agro-food processing in Nairobi. If prop- erly developed and conducted, surveys provide relatively quick, inexpensive and accurate means of collecting information and was therefore used in this study. The survey instrument was grounded on secondary research material for its development. It combines a mixture of Likert scale type and direct data questions. In addition, it is structured in a manner that would be readily understood by the target population.

Population of the Study

The study population was all the IS/MSEs in the manufacturing (wood and metal working) and food-processing sectors in Nairobi. These sectors were picked as they are in the top two informal sector categories (KNBS, 2015). Information from the random sample allows the drawing of certain conclusions about the study population. Logical arguments can then be made to derive inferences from the study population to other populations of interest (Bonnet and Wright, 2007).

Membership in the informal sector presents a major challenge as it is difficult to determine the population size. Although

membership lists can be obtained from business associations such as the Jua Kali Association, that approach has a few drawbacks. First a large portion of the target population are not association members due to a perception that not much value is derived from membership. In addition, one of the aspects of the study seeks to establish differences derived in strategies employed as a result of an IS/MSEs membership in a trade organisation, against those who are not members. Restricting the population to only IS/MSEs who are members would therefore have negated this central aspect of the study. Finally, although data could have been obtained from the Nairobi City County licensing department, a very large number of IS/MSEs are not registered. In addition, the County's definitions of small, medium or large businesses do not correspond to those used in this study.

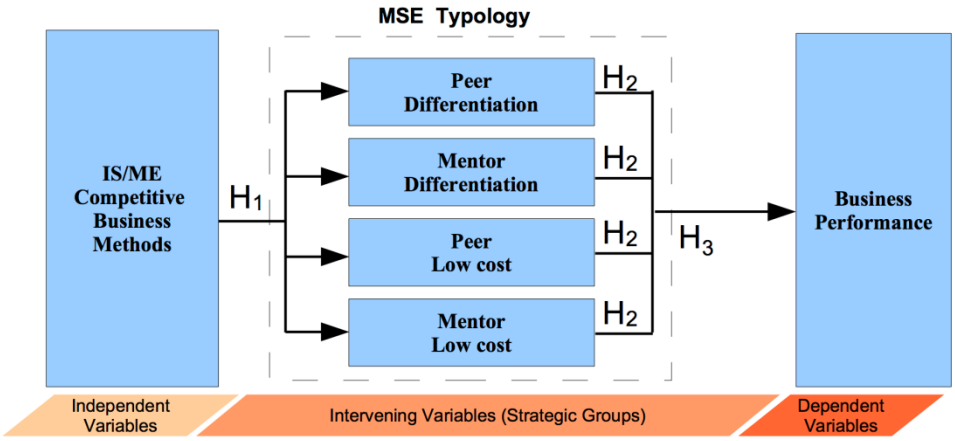


Figure 2 : Conceptual framework for exploratory empirical validation of the MSE typology

Stratified sampling was used in six representative regions of Nairobi with high concentrations of MSEs: Eastlands, Westlands, Nairobi West, Industrial Area, Dagoretti Corner/Kawangware and Kangemi. Stratification will ensure an equal proportion of manufacturing and agro-food processing MSEs are included in the sample from each of the representative areas. The minimum sample size, *n*, was estimated from Cochran (1977) sample size equation for scaled data, and populations greater than 10,000. A critical part of using the formula is estimating the variance of the population. The vast majority of the variables in this study are scaled variables mainly from 1-5. The standard deviation was therefore estimated from (Bartlet et al., 2001),

$$\tilde{s} = \frac{p_t}{N_\sigma} \quad (1)$$

where N_σ is the number of standard deviations that include nearly all of the possible values in the range (normally taken as 6). Assuming 5-point inclusive scales, I*t* ; N_σ equals 6 – captures 98 percent of all responses; a desired accuracy level of 95 percent; margin of error, ε, of 3 percent; the minimum sample size. *n*, is,

$$n = \frac{Z^2\tilde{s}^2}{(p_t\varepsilon)^2} = \frac{1.96^2(5/6)^2}{(5*0.03)^2} \backsimeq 119 \quad (2)$$

where *Z*, $s^{\sim}$, p_t, and ε, are the normal *z*-value corresponding to the desired level of accuracy, estimate of the standard deviation in the population, number of points on the primary measurement scales,

and the acceptable margin of error, respectively.

Data Collection

The survey data collection method was used. It relies heavily on the voluntary participation of IS/MSE owners, meaning that not all questionnaires are likely to be filled out and returned. To ensure that the minimum sample size is reached, some researchers have recommended oversampling (Bartlet et al., 2001). From a review of the response rate of several studies on IS/MSEs in Kenya an average response rate of 56.5 percent was found, and is therefore assumed for this study . In an attempt to meet the minimum sample of 119, therefore, the sample size was increased to 239. As a result, within each of the six sample regions, 20 manufacturing (wood and metal works) and 20 agro-food processing IS/MSEs were sought, totalling 240. The questionnaires were handed to owners of the IS/MSEs, as they are considered the person most knowledgeable of the enterprises key competitive actions.

The research instrument was inductively derived to be able to evaluate the extent to which IS/MSEs employ each of the competitive methods that define the four generic strategies of the MSE typology. The instrument had three main parts. Part I seeks demographic information including age, educational background, gender, and family history in business. Part II asks respondents to provide data on several business performance measures, multi-year data on revenue and on number of employees, as well as number of years the IS/MSE has been in business. Part III, respondents were requested to indicate the extent to which they use all of the 28 competitive business methods that form the basis of the new typology. Ratings were based on a 5-point ordinal scale ranging from '1-Never' to '5-All the time.' The business performance variable was formed by combining the values from the three identified performance variables: revenue, business age and number of employees. This approach ensures increased validity of the resulting compound performance variable than if a single variable was chosen (Rahman, 2001; Wood, 2006). Variables were assumed to be equally weighted.

Data Analysis

The binary logistic model was used for analysing the data. The model may be expressed as,

$$log\left(\frac{\pi}{1-\pi}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + ... + \beta_k X_k + \varepsilon \quad (3)$$

where π is the probability that the observed variable meets a stated condition. The term $\pi/(1-\pi)$ is referred to as the odds, and is the ratio between the probabilities of the observed variable meeting a stated condition, to it not meeting the condition, respectively. The dependent variable is referred to as the log odds, and can take on values from negative to positive infinity. Estimation of the model values was carried out using the maximum likelihood technique (Hosmer and Lemeshow, 1989), which for large samples yields regression coefficients that are approximately normal, making significance testing of each coefficient via z-test possible (DeMaris, 1995).

In the context of this study, application of this approach was done by dummy coding each of the variables (business strategies) for each IS/MSE either as a '1' if they applied the strategy or a '0' if they did not. A business is assumed to apply the particular strategy if the respondent gave it a score of 4 (frequently) or 5 (all the time), when answering the question 'how often do you use each of the following strategies?'. The dependent variable was also dummy coded. When testing for generality across genders, a '1' was used to represent male owner/manager

businesses, and '0' female. Similarly for testing of the generality vis-a-vis sector, an enterprise was code '1' if in manufacturing and '0' if in agro-food processing.

Approach for Testing of Hypothesis 1: Hypothesis 1 sought to determine the extent of membership of the enterprises in the different strategic groups as defined by the MSE typology. This was achieved by establishing the extent of use of the business activities as defined within each of the strategic groups, are adopted more by members of the strategic group than by non-members.

Dummy coding schemes for the independent (predictor) variables and linear regression techniques were used to determine the extent of the differences. This approach finds use where analysis involves nominal (categorical) variables, with groups of unequal sizes. In dummy coding, a '1' is used to indicate that a business is a member of a group and a '0' if not. The regressed variables (predictors), *xki*, therefore, are arrays consisting of only '0s' and '1s'. The dependent variable is coded as the deviation of the dependent variable of interest from the mean of a comparison group. For hypothesis 1, the dependent variable, δSi, thus becomes the difference in the average score of member businesses employing the business strategies of the member group of interest, and the average score of the non-members as defined by

$$\delta S_i = S_i - \frac{\sum_{j=1}^{N_{nm}} S_{nmj}}{N_{nm}}$$

(4)

where δS_i, S_i, S_{nmj}, and N_{nm} are the deviation of the activities score of the i^{th} enterprise from the mean score of non-members, activities score of the i^{th} enterprise, activities score of the j^{th} non-member, and the number of non-members, respectively. The activities score, S_i, is formed from the sum of the perception ratings provided by each business for the extent of their use of activities belonging to each of the strategic groups and defined as

$$S_i = \sum_{k=1}^{N_a} s_{ik}$$

(5)

where N_a and s_{ik} are the number of activities in a particular strategic group, and the i^{th} enterprises perception score for each activity in that strategic group, respectively. The linear regression equation takes on the form,

$$\delta S_i = \beta_0 + \beta_1 x_{1i} + \varepsilon$$

(6)

where the regression coefficients, β_1, represent the difference in the activities score between the strategic group of members and the score of the non-members (the comparison group). They provide an indication to what extent the mean values of the strategic group members are larger or smaller than the comparison group and level of significance. Further, x_{1i} is an dummy array with '1' indicating that enterprises is a member of the strategic group, and '0' if a non-member.

Approach for Testing Hypotheses 2 and 3: Dummy coding schemes for the independent (predictor) variables and linear regression techniques were used to compare performance from the various strategic groups through hierarchal regression models to test hypotheses 2 and 3. This approach finds use where analysis involves nominal (categorical) variables, with groups of unequal sizes. In dummy coding, a '1' is used to indicate that a business is a member of a group and a '0' if not. The regressed variables (predictors), x_{ki}, therefore, are arrays consisting of only '0s' and '1s'. The dependent variable, Y_i, is coded as the deviation of the dependent variable of interest from the mean of a comparison group. For example, if considering the business performance of

enterprise *i* as compared to those enterprises stuck- in-the-middle, the dependent variable becomes the deviation of the business performance enterprise *i* from the mean business performance of the stuck-in-the-middle group, that is,

$$\delta Y_i = Y_i - \frac{\sum_{j=1}^{N_c} Y_{cj}}{N_c} \quad (7)$$

where δY_i, Y_i, Y_{cj}, and N_c are the deviation of the i^{th} dependent variable of interest from the mean of a comparison group, i^{th} dependent variable of interest, dependent variable of j^{th} comparison group member, and number of members of comparison group, respectively. Business performance is formed from a combination of nominal revenue (R), age (A), and number of employees (N_e) as presented in Equation 8.

$$Y_i = R_i + log_e(A_i) + log_e(N_{ei}) \quad (8)$$

Use of natural logarithm for both age and employee variables has been shown to yield better regression results, and is therefore adopted here (Pertusa-Ortega et al., 2009; Rand and Torn, 2012). The linear regression equation takes on the form,

$$\delta Y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + ... \beta_k x_{ki} \quad (9)$$

where the regression coefficients, β_k, represent the difference between the group of interest and the comparison group. They provide an indication to what extent the mean values of the group of interest are larger or smaller than the comparison group. For data analysis, the R-Statistical Package version 3.0.0 was used.

Results

Cronbach (1951)'s, α, was used to measure the internal consistency of the items used to measure the same construct within the MSE models. The coefficient varies from 0 to 1, with higher scores indicating higher internal consistency between the items, and by extension higher reliability. Nunnally (1978) suggested, as a rule of thumb, that scores in the ranges 0.5-0.6, 0.6-0.7, 0.7-0.8, and 0.8-0.9, should be considered to have an internal consistency that is poor, questionable, acceptable or good, respectively. Values above 0.9 represent excellent internal consistency, while values less than 0.5 are considered to be unacceptable.

With reference to Table 1 values of Cronbach's α where calculated for all the constructs in the model. Values ranged from 0.8519 to 0.9502, all within the good or excellent ranges. The items defining the constructs therefore all have high internal consistency, and therefore high reliability.

Table 1 : Summary Results from Reliability Tests with Cronbach's Alpha on Items Defining Strategic Groups

Strategic Group	No. Items	Alpha	% Downweighted
Peer Differentiation	7	0.9041	2.93
Peer Low Cost	9	0.9278	1.26
Mentor Differentiation	7	0.8885	3.77
Mentor Low Cost	5	0.8519	1.67

Hypotheses Testing

H_1 : The MSE Typology Can Serve As Determinants of Strategic Group Membership Among Manufacturing IS/MSEs Regression results are presented

in Table 2. The estimators are the regression coefficients and provide an indication to what extent the mean values of the strategic group members are larger (positive number) or smaller (negative number) than the comparison group, in addition to the level of significance. From the results of the four tests presented in the table, all members had a significant ($p <$ 0.0000) positive difference between members and non-members with mean differences ranging from 0.8722 (for Peer Differentiation) to 1.015 (for Peer Low Cost).

Within the same table are values for the Coefficient of Determination, *R*2, for each of the tests. From Table 3, *R*2 values range from 0.5702 (mentor differentiation) to 0.6652 (peer low cost) inferring that the models provide good fit of the data, capturing between 57 percent and 66.5 percent of the variation in the data.

Table 3 provide the confidence intervals from the regression at 95 percent level of confidence. From the table the bounds range from a difference of 0.7754 (peer differentiation) to 1.1071 (peer low cost) on a 1- 5 scale, thereby confirming the appreciable difference in scores between members and non-members of strategic groups within the IS/MSE typology. From the presented sets of results, therefore, Hypothesis 1 testing if the IS/MSE typology can serve as determinants of strategic group membership is therefore supported.

H_2 : Manufacturing IS/MSEs Employing Pure Strategies in the MSE Typology Will Lead To Better Performance. From the four strategic groups of mentor differentiation, mentor low cost, peer differentiation, and peer low cost, and depending on which combination of strategies they used, IS/MSEs were categorised as presented in Table 4. Expanding on the different possible combinations yields a total of 27 strategy types. An IS/MSE averaging a score of 4 (Frequently) or 5 (All the time) within any of the strategic groups received a 'High' rating; a score of 3 (occasionally) a 'Mid' rating; and a score of 1 (Never) or 2 (Rarely) a 'Low' rating. A similar approach was used by Pertusa-Ortega et al. (2009).

For practical purposes and to facilitate the analysis, the strategic combinations have been grouped into 10 broad strategic types as defined in the table: (i) pure peer low cost, (ii) pure peer differentiation, (iii) pure mentor low cost, (iv) pure mentor differentiation, (v) hybrid low cost, (vi) hybrid differentiation, (vii) hybrid peer, (viii) hybrid mentor, (ix) broad hybrid and (x) Stuck-in-the-middle. These strategy types as defined formed the basis for testing of hypotheses 2 and 3. In order to measure performance, the three parameters that formed the performance measure, nominal revenue (*R*), age (*A*), and number of employees (*Ne*), were coded as presented in Tables 5 and 6.

Table 2 : Results Summary from Regression Analysis used to Test Hypotheses 1

Test No.	Strategic Group	Estimator	p-value	R^2		
1.	Mentor Differentiation	0.9804	17.8	< 2e-16	0.5702	****
2.	Mentor Low Cost	0.8956	18.15	< 2e-16	0.5815	****
3.	Peer Differentiation	0.8722	17.76	< 2e-16	0.5711	****
4.	Peer Low Cost	1.015	21.7	< 2e-16	0.6652	****

Sig. Codes:'****' 0.000, '***' 0.001

Table 3 : Confidence Intervals at 95 percent Confidence Level for Regression Coefficients used for Testing Hypothesis 1

	Coefficient	Lower Bound	Upper Bound
Mentor Differentiation	0.9804148	0.87188011	1.08894951
Mentor Low Cost	0.895631	0.79840231	0.99285983
Peer Differentiation	0.8721852	0.7754594	0.9689110
Peer Low Cost	1.014923	0.92277960	1.10706716

Table 4 : Classes of Strategies Derived from the IS/MSE Model

No.	Peer LC	Peer Diff	Men. LC	Men. Diff	Strategy Type
1	High	Low	Low	Low	Pure Peer Low Cost (PEER.LC)
2	Low	High	Low	Low	Pure Peer Differentiation (PEER.DIFF)
3	Low	Low	High	Low	Pure Mentor Low Cost (MEN.LC)
4	Low	Low	Low	High	Pure Mentor Diff. (MEN.DIFF)
5	High	Low	High	Low	Hybrid Low Cost (HYBRID.LC)
6	Low	High	Low	High	Hybrid Differentiation (HYBRID.DIFF)
7	High	High	Low	Low	Hybrid Peer (HYBRID.PEER)
8	Low	Low	High	High	Hybrid Mentor (HYBRID.MENTOR)
9	Low	High	High	Low	2-Dimension Mixed
10	High	Low	Low	High	2-Dimension Mixed
11	High	High	High	Low	Broad hybrid (BROAD.HY)
12	High	High	Low	High	Broad hybrid (BROAD.HY)
13	High	Low	High	High	Broad hybrid (BROAD.HY)
14	Low	High	High	High	Broad hybrid (BROAD.HY)
15	High	High	High	High	Broad hybrid (BROAD.HY)
16-27	Mid/Low	Mid/Low	Mid/Low	Mid/Low	Stuck-in-the-middle

Table 5: Coding for Annual Revenue

Annual Revenue (Kshs.)	Coding	Annual Revenue (Kshs.)	Coding
10,000-50,000	1	301,000-350,000	7
51,000-100,000	2	351,000-400,000	8
101,000-150,000	3	401,000-500,000	9
151,000-200,000	4	501,000-1million	10
201,000-250,000	5	Above 1 million	11
251,000-300,000	6		

Table 6 : Coding for Business Age and Number of Employees

Business Age (Yrs)	Coding	No. Employees	Coding
0-2	1	0-5	1
3-7	2	6-10	2
12-8	3	11- 20	3
>13	4	>21	4

Table 7 : Mean Values for Revenue, Business Age and Number of Employees for the Strategic Group within the IS/MSE Model. Standard Deviations in brackets

Strategic Group	N	Revenue	Bus. Age	Employees	textbfPerf. Var.
Peer Differentiation	11	7.273	3.455	1.455	8.887
		(2.988)	(0.522)	(0.522)	
Hybrid Differentiation	14	7.214	3.143	1.643	8.856
		(2.833)	(0.663)	(0.842)	
Hybrid Mentor	21	6.810	2.952	1.571	8.344
		(2.839)	(0.590)	(0.598)	
Mentor Low Cost	11	6.727	3.273	1.364	8.223
		(2.339)	0.647	0.505	
Broad Hybrid	109	6.459	3.046	1.587	8.035
		(2.901)	(0.699)	(0.760)	
Peer Low Cost	5	6.800	3.00	1.00	7.899
		(2.713)	(0.000)	(0.000)	
Mentor Differentiation	21	6.431	3.000	1.429	7.887
		(2.647)	(0.707)	(0.507)	
Hybrid Peer	5	5.000	2.600	1.400	6.292
		(3.464)	(0.548)	(0.548)	
Stuck-in-the-Middle	28	5.077	2.923	1.115	6.258
		(2.96)	(0.744)	(0.319)	
Hybrid Low Cost	5	4.800	3.200	1.200	6.145
		(2.683)	(0.837)	(0.447)	

Based on the coding scheme, the means and standard deviations corresponding to each of the strategy groups are presented in Table 7. Also presented therein are the number of enterprises per strategic group. The following observations can be made. The 109 enterprises, the vast majority, fit within the broad hybrid strategic group and only 28 stuck-in-the middle. Further, businesses in the peer differentiation group have the highest revenue and have been in existence the longest. Hybrid differentiation, with the second highest revenue and the third highest average age, on average had the largest number of employees.

Testing of Hypothesis 2 used dummy coding schemes, with linear regression. The dependent variable was coded as the deviation of the performance variable of interest from the mean performance of the 'stuck-in-the-middle' group that served as the comparison group, that is,

$$\delta Y_i = Y_i - \frac{\sum_{j=1}^{N_s} Y_{sj}}{N_s} \quad (10)$$

the stuck-in-the-middle group, *ith* performance variable of interest, performance variable of *jth* stuck- in-the-middle group member, and number of members in the stuck-in-the-middle group, respectively. The regression coefficients therefore represent the difference between the performance of the group of interest and the that of enterprises in the stuck-in-

the-middle group. They provide an indication to what extent the mean values of the group of interest are larger or smaller than the comparison group. In the first step, Model I, all strategic group members (predictors) were regressed onto their difference from those members stuck-in-the middle to determine which coefficients would be significant. Note that where coefficients are not significant implies there was no statistical difference between that cor- responding strategic groups performance and that of enterprises who are stuck-in-the-middle. From Model I, only broad hybrid (p=0.0628), hybrid differentiation (p=0.0523), hybrid mentor (p=0.0908) and peer differentiation (p=0.0645) where significant at $p < 0.1$ level of significance.

Model II dropped the strategic group with the largest p-value from Model I, hybrid peer (p=0.7267) and regressed the remaining variables. There was an improvement in the significance of the same four strategic group members: broad hybrid (p=0.0394), hybrid differentiation (p=0.0413), hybrid mentor (p=0.0710) and peer differentiation (p=0.0529). The other strategic groups remained with $p > 0.1$. Continuing with the sequential modelling, Model III dropped the strategic group with the largest p-value from Model II, hybrid low cost (p=0.6863) and regressed the remaining variables. With reference to Table 8, there was an improvement in the significance of the same four strategic group members: broad hybrid (p=0.0237), hybrid differentiation (p=0.0326), hybrid mentor (p=0.0551) and peer differentiation (p=0.0433). The other strategic groups remained with $p > 0.1$. Further sequential modelling resulted in a deterioration of the significance of the coefficients in the model. Model III was therefore retained as the final model. For Hypothesis 2 and with reference to Model III in Table 8, only pure peer differentiation practicing enterprises performed better than those 'stuck in the middle.'

The confidence intervals for the coefficients from Model III are given in Table 9. The coefficients represent an averaged difference in performance between the group of interest and the MSE typology stuck-in-the-middle group. For the highlighted groups, the range remains positive indicating consistent superior performance. All four pure strategies remained in Model III. Enterprises employing pure differentiation enjoyed a robust superior performance, with the performance difference with those stuck-in-the middle ranging from 0.0675 to 4.3209 at a 95 percent confidence level. As expected, coefficients that were not significant have negative lower bounds, and positive upper bounds indicating that the difference in performance of the group of interest and the reference group (stuck-in-the-middle) is sometimes above and sometimes below, that is, there is no significant difference. There was no significant difference, therefore between enterprises employing mentor differentiation, mentor low cost and peer low cost when compared to those stuck-in-the-middle. Hypothesis 2 is therefore only marginally supported.

H3 : Manufacturing IS/MSEs Employing Mixed Strategies in the MSE Typology Will Lead to Better Performance

Hypothesis 3 sought to investigate the efficacy of adopting broad hybrid, hybrid differentiation, hybrid low cost, hybrid mentor or hybrid peer strategies to improve performance vis-a-vis those enterprises stuck-in-the-middle. With reference to Model III in Table 8, broad hybrid, hybrid differentiation and hybrid mentor practicing enterprises performed better than those stuck-in-the-middle.

Table 8 : Results Summary from Hierarchical Regression Analysis with Dummy Coding to Test Hypotheses 2 and 3

IS/MSE Typology	Number	Stuck-in-the-Middle
Pure Strategies		
Peer differentiation	11	+
Peer low cost	5	
Mentor differentiation	21	
Mentor low cost	11	
Mixed Strategies		
Hybrid peer	5	
Hybrid mentor	21	+
Hybrid low cost	5	
Hybrid differentiation	14	+
Broad hybrid	109	+

Table 9 : Confidence Intervals at 95 percent Confidence Level for Coefficients of Model III from Hierarchical Regression Analysis with Dummy Coding to Test Hypotheses 2 and 3 with the IS/MSE Stuck-in used as Performance Reference

	Coefficient	Lower Bound	Upper Bound
BROAD.HY	1.2808814	0.1727628	2.389000
HYBRID.DIFF	2.1100660	0.1765931	4.043539
HYBRID.MENTOR	1.6311997	-0.0355946	3.297994
MEN.DIFF	1.1730158	-0.4937784	2.839810
MEN.LC	1.5225024	-0.6044357	3.649440
PEER.DIFF	2.1939837	0.0670456	4.320922
PEER.LC	1.2754249	-1.7117033	4.262553

The confidence intervals for the coefficients from Model III were given in Table 9. The coefficients represent an averaged difference in performance between the group of interest and the IS/MSE typology stuck-in-the-middle group. For the mixed strategies strategies, only broad hybrid, hybrid differentiation and hybrid mentor remained in Model III. Enterprises employing hybrid differentiation enjoyed a robust superior performance, with the performance difference with those stuck-in-the middle ranging from 0.17659 to 4.04354, followed by broad hybrid with performance difference ranging from 0.17276 to 2.389, and finally hybrid mentor with a difference range from -0.03559 to 3.297994, all at a 95 percent confidence level. Note that though the lower bound for hybrid mentor is negative (-0.03559), it represents a negligible inferior performance lower bound. There was no significant performance difference between enterprises employing the other mixed strategies and those stuck-in-the-middle. Hypothesis 3 is therefore only partially supported. A summary of the results from Hypotheses 2 and 3 is provided in Table 10. In the table, '+' indicate where the MSE typology strategic group enterprises performed better than the

corresponding enterprises stuck-in-the-middle. Blank cells represent where there was no significant differences in performance. From the results, enterprises adopting any four of the the nine IS/MSE typology strategies perform better then those stuck-in-the-middle. They collectively represent 155 out of 239 enterprises, or 64.8 percent.

Discussion of Research Findings

The general objective of this study was the empirical determination of the extent to which the application of business strategies based on a combination of strategic alliance and competency theories captured in the MSE typology lead to better performance among IS/MSEs. Typology theory posits propositions that highlight the internal consistency among the dimensions (Concepts) that define each ideal type (Constructs), and their causality on specified levels of the dependant Construct. In other words typologies proposition relationships on the level of similarity between an actual business and an ideal type and impact of that similarity on the dependant construct(s). For this study the propositions were captured in the first three hypotheses.

Table 10 : Summary of Regression Results for Testing Hypothesis 2 and 3

IS/MSE Typology	Number	Stuck-in-the-Middle
Pure Strategies		
Peer differentiation	11	+
Peer low cost	5	
Mentor differentiation	21	
Mentor low cost	11	
Mixed Strategies		
Hybrid peer	5	
Hybrid mentor	21	+
Hybrid low cost	5	
Hybrid differentiation	14	+
Broad hybrid	109	+

The first hypothesis provided a means to determine the extent to which the businesses sampled are similar (or not) to the defined ideal types. This would form the basis of falsifiability as stated in typology theory. From the testing of the first hypothesis, there were significant differences (all with $p< 0.0000$) between businesses that were similar or dissimilar to the ideal types, confirming the validity of the proposed ideal types. Turning to the hypotheses 2 and 3 and from the population sample, a majority (109 businesses) had similarity at the high rating level to the Broad Hybrid ideal types, with 28 business dissimilar (low or medium rating across the board) with all the ideal types. This latter group are what Porter (1980) referred to as 'Stuck-in-the-Middle.'

Using Binary logistic regression for the second hypothesis, the extent to which the performance of those members who were similar at the high level to each of the pure strategy ideal types, was compared to the mean performance of those businesses 'stuck-in-the-middle.' From the test results, only those businesses similar to the Peer Differentiation ideal type where shown to have statistically significantly

(p=0.0433) better business performance than those 'stuck-in-the-middle.' From the binary logistic regression, Peer Differentiation businesses had on average a performance measure larger than those 'stuck-in-the-middle' by 2.194 units, with a confidence interval of 0.0675 to 4.3209 at the 95 percent confidence level. This result provides support for Hypothesis 2, but only in reference to the Peer Differentiation ideal type.

Businesses similar with a high rating to the other pure ideal types (Peer Low Cost, Mentor Differentiation, Mentor Low Cost) did not exhibit a significant difference in performance with those 'stuck-in-the-middle.' The lack of significance in difference for inferior or superior performance, although not in support of the hypothesis, does not falsify it, leaving room for further investigation of these ideal types. Although Mentor differentiation had statistically adequate numbers (21 businesses), the low numbers of businesses similar to the Peer Low Cost (5), may have been statistically too low to achieve meaning full results.

The third hypothesis was also tested using binary logistic regression, to determine the extent to which the performance of those members who were similar at the high rating level to each of the identified hybrid strategy ideal types were to the mean performance of those 'stuck-in-the-middle.' From the test results, those businesses similar to the Broad Hybrid, Hybrid Differentiation and Hybrid Mentor ideal type where shown to have statistically significantly better business performance than those 'stuck-in-the-middle.' From the binary logistic regression, Broad Hybrid businesses had on average a performance measure larger than those 'stuck-in-the-middle' by 1.281 units, with a confidence interval of 0.1728 to 2.389 at the 95 percent confidence level. Hybrid Differentiation businesses had on average a performance measure larger than those 'stuck-in-the-middle' by 2.110 units, with a confidence interval of 0.1766 to 4.0435 at the 95 percent confidence level. Finally, Hybrid Mentor businesses had on average a performance measure larger than those 'stuck-in-the-middle' by 1.6312 units, with a confidence interval of -0.0356 to 3.2980 at the 95 percent confidence level.

These result provide support for Hypothesis 3 with reference to Broad Hybrid, Hybrid Differentiation, and Hybrid Mentor ideal types. Businesses similar with a high rating to the other hybrid ideal types (Hybrid Low Cost and Hybrid Peer) did not exhibit a significant difference in performance with those 'stuck-in-the-middle.' The lack of significance in difference for inferior or superior performance although not in support of the hypothesis, does not falsify it, leaving room for further investigation for these ideal types. Further, the low numbers of businesses similar to the Hybrid Peer (5) and Hybrid Low Cost (5) may have been statistically too low to achieve meaning full results.

In addition, the following observations can be made from the results from both hypotheses 2 and 3. First, for businesses who had a high similarity rating to the ideal types, and which had a significant performance difference with those businesses 'stuck-in-the-middle', the ideal types involving differentiation on the competency dimension, had higher average performances measures (hybrid differentiation=8.856; peer differentiation=8.887) than the others (broad hybrid=8.035, hybrid mentor=8.344). This seems to imply that differentiation strategies whether pursue solely in collaboration with peers or in combination with peers and mentors result in better performance, than if combined with peer and/or mentor low cost strategies. This is consistent with the basis of differentiation strategies that seek to obtain above average returns by developing unique products and services

(Porter 1980). Although low cost strategies may achieve the same, the low margins necessitate high volumes, a requirement that may not be readily achievable due to the micro and small scale nature of the businesses in the population under study.

Conclusions

The study sought to determine the extent to which use of strategies based on combining strategic alliances (collaboration) and competency (differentiation and low cost approaches) as captured in the MSE typology can lead to improved performance of MSEs. This is especially critical for a country like Kenya, and most developing countries where MSEs especially those in the informal sector account for 60 percent-80 percent of those employed. Many studies have focused on what can be done for the MSEs to improve their capabilities and help them overcome the numerous challenges they face as the seek to grow and prosper.

This study took an alternative approach by focusing on what the MSEs can do in terms of the strategies they adopt to improve their performance. Use of strategies that focus on both improving one's competitive advantage (competency-based strategies) and simultaneously seeking to obtain require resources and capabilities through collaborations with peer and larger firms (strategic alliances) were shown to improve business performance. This is important for the target population that face numerous challenges that often hinder their progressive growth to small or medium enterprises, or to provide the necessary incentive for formalization. The ability to improve business performance by collaboration, especially with peers may seem counter-intuitive given the fact that peers are also competitors. However, the need to mutually acquire resources often overcomes the impulse not to cooperate with competitors, as the mutually acquired resources lead to performance gains for both parties. In addition, a key outcome of the study was that MSEs that apply in combination multiple strategies as defined by the ideal types, benefit from the synergies that accrue and in general perform better than those who do not. This use of combined, hybrid or mixed strategies finds wide support in the literature.

The study was exploratory in that only MSEs in Nairobi and only in two sub-sectors, wood/metal furniture manufacturing and agro-food processing were investigated. Further studies would therefore need to be done to look at other sub-sectors and geographic locations to determine the extent to which the strategies within the MSE typology are applicable. Finally, the study successfully showed using his- torical data that strategies combining strategic alliance theory and competency based theory correspond to better performance among the MSEs. It would be significant for future work to conduct longitudinal studies to compare MSEs which purposely adopt the strategies with the typology, and those that do not.

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