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Abstract

Although there has been a sizeable amount of literature on the causes of failure as well as the determinants of success in small and medium enterprises (SMEs) in developed countries, empirical investigation into such factors in developing countries is extremely sparse. Therefore, the purpose of this study is to examine, through an empirical investigation, factors that would contribute to the success or growth of SMEs in a developing country. The data for the study were obtained from a questionnaire survey conducted on a sample of manufacturing SMEs in Sri Lanka.

Keywords

Factor, Analytic, Study, Determinants, Success, Manufacturing, SMEs

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A Factor Analytic Study of the Determinants of Success in Manufacturing SMEs

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Abstract

Small and medium enterprises (SMEs) play a vital role in the economy of Sri Lanka. Despite the ethnic unrest prevailed in the country, manufacturing SMEs have shown a striking progress over the past two decades. This paper attempts to analyse the main factors that are perceived to have contributed to the progress or success of these enterprises. The analysis is based on the perceptions of owner/managers who responded to a questionnaire survey conducted on a sample of manufacturing enterprises in Sri Lanka. The statistical technique of factor analysis has been used for analysing the data. The results indicate a set of six separately identifiable factors that have positive and significant impact on the success of the sample firms. These factors, when ranked in their order of importance, are as follows: customer orientation, product quality, efficient management, supportive environment, capital accessibility, and marketing strategy.

Keywords:
Success factors, factor analysis, small and medium enterprises, small business management.

Introduction

Small and medium enterprises (SMEs) play a vital role in the economies of both developed and developing countries, representing well over 90 per cent of all manufacturing enterprises in the world (Wijewardena and Cooray, 1995). Nevertheless, the folklore is that some of these enterprises collapse within a few years of their start up. Of those operating, some grow rapidly, while others lag behind or grow slowly. Therefore, it is important to identify the causes of failure as well as the factors contributing to the success or growth of these enterprises. Furthermore, the causes of failure and factors of success may vary from country to country, depending on their economic, geographical and cultural differences. Therefore, empirical investigation into these

aspects of SMEs in different countries is important because the findings of such research are useful to economic development planners as well as to individual entrepreneurs in the countries concerned.

Although there has been a sizeable amount of literature on the determinants of success in SMEs in developed countries, empirical investigation into such factors in developing countries is extremely sparse. Therefore, the purpose of this study is to examine, through an empirical investigation, factors that would contribute to the success or growth of manufacturing SMEs in a developing country. The data for the study were obtained from a questionnaire survey conducted on a sample of manufacturing SMEs in Sri Lanka.

Questionnaire Survey

For the questionnaire survey, a sample of 1,000 manufacturing enterprises was drawn from the Sri Lanka Telecom Telephone Directory – (Yellow Pages) for the Greater Colombo Area. Since the telephone directory did not list the SMEs separately, the sample included manufacturing firms belonging to all three sizes—small, medium and large. The strategy was to identify the SMEs at the time of recording responses to the questionnaire. Moreover, the authors wanted to include large firms also in the survey as some data representing all sizes of firms could be used for another study.

In addition to the general questions on the nature and performance of each firm, 25 factors that would be likely to contribute to the success or growth of manufacturing SMEs in a developing country like Sri Lanka were included in the questionnaire. The complete questionnaire was pre-tested on a small group of manufacturers and finalised before it was utilised for the survey. One thousand copies of the questionnaire along with a letter of request addressed to the chief executive officer (CEO) of each firm were mailed to the sample firms.. Respondents were asked to indicate their perception on each of these factors according to a five-point Likert scale. The scale for each factor ranged from 1 = Least important to 5 = Most important. The questionnaire and the letter of request were provided in both Sinhalese and English. A stamped envelope was also sent for facilitating the return of the completed questionnaire. A total of 262 firms responded to the questionnaire, giving a response rate of 26.2 per cent. Since 14 responses were not useable due to incomplete data and 80 responses were from large firms, the total useable responses representing SMEs amounted to 168. This criterion was based on a widely used method of classifying manufacturing firms with 1-100 employees as small-scale industry and those with 101-300 employees as medium-scale industry (Chusokigyo, 1981). The profile of these 168 firms is displayed in Table 1.

All industry groups were fairly well represented by the sample firms. While chemical, petroleum, rubber and plastic products accounted for 25 per cent of all firms, the textile and wearing apparel group and the food, beverages and tobacco products group were the next two dominant groups in the sample. The number of small and medium firms included in the sample were 52.4 per cent and 47.6 per cent respectively. The majority of these firms (66.6 per cent) were private limited companies with the others comprising sole proprietorships (17.9 per cent) and partnerships (15.5 per cent). This indicates that private limited company has become the most popular form of business organisation among manufacturing firms in Sri Lanka in recent years.

Table 1: Profile of the sample firms

Type of Industry	Firms	%
Chemical, petroleum, rubber and plastic products	42	25.0
Electronic and electric equipment	10	6.0
Fabricated metal products, machinery and transport equipment	12	7.1
Food, beverages and tobacco products	22	13.1
Furniture, fixtures, lumber and wood	14	8.3
Machinery, computer, and transportation equipment	8	4.7
Paper and paper products	18	10.7
Stone, clay, glass, and concrete products	8	4.8
Textile and wearing apparel	28	16.7
Miscellaneous	6	3.6
All firms	168	100.0

Forms of Organisation	Firms	%	Employees	Firms	%
Sole proprietorship	30	17.9	1 – 100	88	52.4
Partnership	26	15.5	101 – 200	51	30.4
Private limited company	112	66.6	201 – 300	29	17.2
All firms	168	100.0	Total	168	100.0

Sales (Millions of Dollars)	Firms	%	Nature of Sales	Firms	%
< 1	42	25.0	Local only	56	33.3
1 – 10	62	36.9	Local and overseas	70	41.7
11 – 15	46	27.4	Overseas only	42	25.0
> 15	18	10.7			
Total	168	100.0	Total	168	100.0

When the firm size was measured in terms of annual sales, 25 per cent of firms had sales less than 1 million US dollars while the next 36.9 per cent of firms had sales ranging from 1 million to 10 million dollars. Only 10.7 per cent of firms had an annual sales turnover exceeding 15 million dollars. Most of the sample firms (66.7 per cent) were engaged in export trade while only 33.3 per cent confined their sales to local customers. Most of the firms that sold their products only to overseas customers were in the textile and wearing apparel industry.

Results of the Statistical Analysis

The statistical analysis of data was carried out in two stages. Firstly, the technique of factor analysis was utilised to reduce the number of variables to a few meaningful factors, each representing separately identifiable characteristics that could be considered as a set of principal components or determinants of success in manufacturing firms. "Factor analysis has the ability to produce descriptive summaries of data matrices, which aid in detecting the presence of meaningful patterns among a set of variables" (Dess and Davis, 1984, p. 472). However, before using the factor analysis, a number of initial tests were conducted to determine the suitability of our data for such an analysis. The correlation matrix produced by SPSS showed a considerable number of correlations exceeding 0.3. The Bartlett test of sphericity was significant (P= .000). Furthermore, the anti-image correlation matrix revealed that all of the measures of sampling adequacy were well above the acceptable level of 0.5, confirming the suitability of our data for a

factor analysis. Secondly, descriptive statistics were used for ranking the factors in their order of importance.

When the original 25 variables were analysed by the principle component factor analysis with varimax rotation, a six-factor solution emerged in 26 rotations, with an eigenvalue of ≥ 1. Then, two variables were dropped from the analysis because of their low loadings and difficulty of interpretation. The analysis of the remaining 23 variables yielded six significant factors, which explained 61.1 per cent of the total variance. These factors were also considered satisfactory according to the reliability test of Cronback's alpha with a value greater than 0.6 (Cronbach, (1951). These six factors and the variables loaded against each, along with the relevant statistical values, are given in Table 2. The factor loadings have ranged from 0.787 to 0.450. The higher a factor loading, the more its test reflects or measures a factor. The literature on factor analysis shows that loadings equal to or greater than 0.40 are considered large enough to warrant interpretation (Kerlinger, 1979, p.189.). Thus, only factor loadings greater than 0.4 are shown in Table 2

Table 2: Principal Components Factor Analysis – Varimax rotation
Factors contributing to the success of manufacturing enterprises

Variable	Factor 1 **Efficient management**	Factor 2 **Marketing strategy**	Factor 3 **Customer orientation**	Factor 4 **Supportive environment**	Factor 5 **Capital accessibility**	Factor 6 **Product quality**
Efficient team of management	0.728					
Production efficiency and productivity	0.708					
Strong and exemplary leadership	0.703					
Systematic planning for the future	0.702					
Acquiring high-calibre workforce	0.657					
Good relations with employees	0.533		0.516			
Effective cost management	0.507					
Advertising and promotional activities		0.761				
Use of external advisory services		0.731				
Emphasis on specialised markets		0.614				
New product development		0.569				
Commitment to customer satisfaction			0.786			
Good relations with customers			0.758			
Good service and delivery system			0.472			
Competitive prices of products			0.450			
Open economic policy of the government				0.703		
Political stability & peaceful environment				0.678		
Government assistance/tax incentives				0.574		
Availability of capital					0.787	
Availability of bank loans & other credit					0.777	
Availability of quality raw materials						0.739
Use of new technology and automation		0.535				0.568
Maintaining high quality of products						0.534
Eigenvalue	3.99	2.88	2.66	2.13	1.95	1.68
Proportion of Variance Explained	15.9%	11.5%	10.6%	8.5%	7.8%	6.7%
Cumulative Variance Explained	15.95%	27.4%	38.1%	46.6%	54.4%	61.1%
Alpha	0.85	0.75	0.77	0.72	0.69	0.59

Factor 1: Efficient management. This factor was represented by seven variables with factor loadings ranging form .728 to .507 (Cronbach's alpha = .85). They were efficient team of management, production efficiency and productivity, strong and exemplary leadership, systematic planning for the future, acquiring high-calibre workforce, good relations with employees, and effective cost management. Although the variable "good relations with employees" was correlated fairly highly with Factor 3 as well, considering its higher loading and importance it was included in Factor 1. This factor accounted for 15.9 per cent of the rated variance.

Factor 2: Marketing strategy. Four variables with loadings ranging from .761 to .569 (Cronbach's alpha = .86) belonged to this factor and they included advertising and promotional activities, use of external advisory services, emphasis on specialised markets, and new product development. This factor explained 11.5 per cent of the rated variance.

Factor 3: Customer orientation. This factor comprised four variables representing commitment to customer satisfaction, good relations with customers, good service and delivery system, and competitive prices of products. Factor loadings of these variables ranged from .786 to .450 (Cronbach's alpha = .77). A variance of 10.6 per cent was explained by this factor.

Factor 4: Supportive environment. Three variables were included in this factor. They were open economic policy of the government, political stability and peaceful environment in the country, and government assistance and tax incentives. Their factor loadings ranged from .703 to .574 (Cronbach's alpha = .72). The factor explained 8.5 per cent of the variance.

Factor 5: Capital Accessibility. This factor comprised two variables, namely, the availability of capital, bank loans and other credit. They carried factor loadings of .787 and .777 respectively (Cronbach's alpha = .69). The factor explained 7.8 per cent of the variance.

Factor 6: Product Quality. This last factor consisted of three variables relating to the high quality of products. They were the availability of quality raw materials, use of new technology and automation, and high quality of products. Their factor loadings ranged from .739 to .534. The variance explained by this factor amounted to 6.7 per cent. Although the reliability of this factor with a Cronbach's alpha coefficient of .59 was marginally below the minimum acceptable level of .6, considering the nature and importance of the variables involved, it was included in the analysis. Further, although the variable "use of new technology and automation" was loaded fairly highly on Factor 2 as well, because of its higher loading and greater relevance it was also included in this factor.

Relative importance of factors

Ranking of the above six factors in order of their importance, along with mean and standard deviation, is shown in Table 2. The importance of these factors, as perceived by the respondents, has been ranked on the basis of their mean values. The closer the mean to 5, the higher is the importance of the factor. Accordingly, the ranking followed the following order: (1) customer orientation, (2) quality products, (3) efficient management, (4) supportive environment, (5) capital accessibility, and (6) marketing strategy. Their means ranged from 4.4781 to 3.3814.

Table 3: Ranking of Factors according to their Importance

Factor	No. of variables	Mean	S.D.	Rank
Factor 1: Efficient management	7	4.2777	0.6491	3
Factor 2: Marketing strategy	4	3.3814	0.9547	6
Factor 3: Customer orientation	4	4.4781	0.6487	1
Factor 4: Supportive environment	3	3.5924	1.0578	4
Factor 5: Capital accessibility	2	3.5603	1.0834	5
Factor 6: Product quality	3	4.3264	0.6418	2

Discussion

The results of the factor analysis show a set of six separately identifiable factors that have positive and significant impact on the success of manufacturing enterprises in Sri Lanka. Although efficient management and marketing strategy emerged as the first and second most highly loaded factors respectively, customer orientation has been ranked by our respondents as the most important factor for the success of their enterprises. Similarly, product quality (Factor 6) and efficient management (Factor 1) have occupied the second and third highest levels of importance, while supportive environment (Factor 4), capital accessibility (Factor 5), and marketing strategy (Factor 2) have been perceived as the fourth, fifth and sixth important factors respectively. However, since the means of these factors have dispersed within a short range (3.3814—4..4781), the differences between ranks are quite small. The following discussion focuses on each of these six factors and relates the results to those reported in the existing literature.

Customer orientation

As perceived by the CEOs who responded to our questionnaire survey, customer orientation is the most important factor for the success of their enterprises. This factor is characterised by four variables, namely, commitment to customer satisfaction, good relations with customers, good service and delivery system, and competitive prices of products.

Customer orientation, which is often synonymous with *market orientation*, has been defined in the literature as an enterprise culture or philosophy that characterises an organisation's disposition to deliver superior value to its customers continuously (Slater and Narver, 1994). Peter Drucker (1954), the well-known management expert, emphasised this customer-oriented philosophy to American manufacturers almost half a century ago by stating that the sole purpose of a firm was "to create and keep customers". As interpreted by many of his disciples, this meant that in order to be successful, organisations must ascertain the customer's needs and wants and then produce the products and services that will satisfy these needs and wants (Berthon, at al, 1999). However, only a few American manufacturers took Drucker's advice seriously until 1980s because income generation could be best accomplished by the mass production paradigm which was so successful after the world war when pent-up demand required little market planning. Its essence was to produce first and then advertise heavily until a product caught on. This was the path pursued in that era to achieve profitability and success.

In the late 20th-century, however, as a result of the increased competition and international trade coupled with many technological developments, the high production-high profits paradigm followed by many Western manufacturers became ineffective and out-dated.

Consequently, in the 30-year period from 1950 to 1980, the United States's share of the motor vehicle market plummeted from 76 per cent to 21 per cent. In 1980, Ford lost $1.54 billion and General Motors 763 million. The motor vehicle manufacturers did not grieve alone. Other backbone industries throughout the US economy suffered similar fates. On the other hand, from about 1950s, Japanese manufacturers have been practising a customer-driven philosophy known as *kaizen*. Central to *kaizen* is listening to the voice of the customer, designing products which meet his/her expectatons and continually improving all organisational processes that lead to customer satisfaction. For example, Toyota, which followed this philosophy closely, was sitting on $22 billion in cash at the beginning of 1990. This was enough to buy both Ford and General Motors at then current stock prices and still have $5 billion left over (Romani, (1977).

Today, many manufacturers in both the West and the East have realised from their own experiences that by adhering to a customer-oriented enterprise philosophy, possibilities for success can be enhanced greatly. Thus, the perception of Sri Lankan manufacturers that customer orientation is the most important contributor to their success is undoubtedly a realistic one. Since Sri Lankan manufacturers have begun to face increasing competition both internally and externally as a result of the country's outward-oriented industrialisation concept and the open economic policy, the customer-oriented enterprise philosophy should help them greatly in successfully facing this competition and achieving sustainable growth performance.

Product Quality

Product quality has been perceived as the next most important success factor. This factor is associated with three variables: availability of quality raw materials, use of new technology and automation, and maintaining high quality of products. In a highly competitive market environment, customers obviously look for high quality products at reasonably low cost (Chaganti and Chaganti, 1983). According to the findings of a survey conducted in Japan on a sample of successful small manufacturing enterprises, high quality of products has been perceived by their owner/managers as the second most important success factor (Wijewardena and Cooray, 1996). It is common knowledge that in response to the increased participation of Sri Lankan manufacturers in export trade and the availability of many different varieties of imported products on the local market, the importance of achieving and maintaining high quality of products in local industry has increased greatly in recent years. As shown in Table 1, 64.5 per cent of our sample firms participated in export trade with 24.2 per cent selling their products only to overseas customers. Since overseas customers usually have a greater choice of products to select from, they are most likely to pay a greater attention to product quality than their local counterparts. Thus, it is realistic to see that our respondents have attached a high degree of importance to product quality.

Efficient Management

Another most highly rated success factor is efficient management. This finding is consistent with the universally accepted phenomenon that efficient management is crucial for the success of any type of organisation. Moreover, while a sizeable amount of studies have identified poor management as a major cause of business failures (Zacharakis, et al, 1999; Bruno, et al, 1896; Gaskill, et al, 1993), many studies have found that efficient management is the key to business success (Aquino, 1990; Bharadwaj and Menon, 1993; Steiner and Solem, 1988). Efficient management in our analysis consists of seven variables, namely, efficient team of management, production efficiency and productivity, strong and exemplary leadership, systematic planning for

the future, acquiring high-calibre workforce, good relations with employees, and effective cost management.

The positive relationship of the above variables to the success of Sri Lankan manufacturing enterprises is further confirmed by the fact that these variables have been widely cited in management literature as key contributors to profitability and enterprise growth. For example, a survey conducted in Singapore has found that good team of management was one of the major success factors for Singaporean SMEs (Ghosh, et al, 1993). Similarly, a survey conducted on a sample of small mature firms in the United States has reported that sophisticated planning has been a major contributor to their high performance (Bracker and Pearson (1986). Acquiring high-calibre workforce and maintaining good relations with employees have also been reported as two important success factors for Japanese manufacturers (Wijewardena and Cooray, 1996). Moreover, it has been widely cited that the effective cost management system of Japanese manufacturers was a major contributor to the miraculous industrial and economic development achieved by Japan in the recent past (Worthy, 1991). These examples well confirm the validity of the efficient management variable as a key to enterprise success.

Supportive Environment

This factor is made up of three major sources of support that are crucial for the success of Sri Lankan manufacturing enterprises. They are the open economic policy of the government, political stability and peaceful environment in the country, and government assistance/tax intensives. Our respondents have perceived this factor as the fourth most important contributor to the success of their enterprises.

It is evident from the published statistics that the open economic policy and its outward-oriented industrialisation strategy introduced in 1977 has already resulted in impressive growth performance in the manufacturing sector of Sri Lanka. The average annual growth of manufacturing output during the first two decades after initiating these liberal policy reforms was 11.7 per cent whereas it was only 1.3 per cent during the 1970-76 period, which was the last six years of the inward-oriented and highly regulated economic policy regime who followed an import-substitution based industrialisation strategy. Similarly, the ratio of manufacturing exports to output was 54 per cent in 1995 compared to a mere 3 per cent in the mid 1970s (Athukorala and Rajapathirana, 2000).

It is a well known fact that Sri Lanka's Industrial transformation and economic development have been hampered by the continuing ethnic war since 1983 and the radical youth uprising during 1986-89. Many public utilities, infrastructure facilities and safety of property and employees in business enterprises have been damaged or threatened by these adversities. The fear of civil unrest as well as the political uncertainty created in the minds of both existing and potential investors with regard to the continuation of the open economic policy and private sector-led industrialisation had a significant adverse effect on the development of manufacturing enterprises in the country. In view of these unfavourable experiences, it is realistic that our respondents have perceived the political stability and peaceful environment in the country as a strong supporter for the success of their enterprises.

The next important ingredient of the supportive environment includes various forms of government assistance such as tax incentives, infrastructure facilities and industrial zones, and loan facilities through state banks particularly for small and medium-scale industries. These different forms of government assistance undoubtedly contribute to the development of manufacturing enterprises in the country.

Capital Accessibility

Obviously, capital accessibility is an essential prerequisite for setting up and successfully operating a manufacturing business. Therefore, the lack of capital has been widely cited in the literature as a major constraint particularly for the development of small manufacturing enterprises throughout the world. For example, according to the results of a survey conducted on a sample of small and medium enterprises, the shortage of capital is the most critical problem faced by emergent businesses in Singapore (Ghosh, et al, 1993). Similarly, the lack of access to capital has been reported by Levy (1993) as the most severe constraint faced by small manufacturing firms in Sri Lanka and Tanzania. His findings were based on a world bank study on 38 leather manufacturers in Sri Lanka and 20 furniture manufacturers in Tanzania. In addition to the capital invested by owners in the form of equity or share capital, manufacturing enterprises often need both short and long-term funds in the form of loans and overdrafts to finance numerous capital projects and day-to-day operations. The Sri Lankan government has set up several financial institutions such as the Industrial Development Bank and the Development Finance Corporation for helping manufacturers in financing their long-term capital investment projects while many commercial banks also provide both short and long-terms loan facilities to businesses. Nevertheless, small manufacturers are handicapped by the shortage of capital because of their relatively low investment capability and the lack of collateral needed for borrowing. Accordingly, as shown in Table 4, the respondents in SMEs of our sample have attached a greater degree of importance to this factor than their counterparts in large enterprises.

The importance of this factor for the success of manufacturing enterprises in Sri Lanka is particularly evidenced by the fact that the impressive inflow of foreign direct investment (FDI) in response to the policy reforms initiated in 1977 has been a major contributor to the expansion of manufacturing industry in the country during the past two decades. Total annual net capital inflow has increased from $0.2 million during 1970-77 to $120 million during 1990-94 (Athukorala, 1997). This has resulted in setting up of many new manufacturing enterprises in collaboration with foreign investors.

Marketing Strategy

It is universally recognised that a marketing strategy based on the four basic elements of selecting the right product, charging the right price, using the right promotion, and taking the product to the right place or market is universally accepted as an extremely important factor for the success of a manufacturing enterprise (McCarthy and Perreault, 1993). Information needed for selecting and designing a product that will be attractive to customers primarily comes from marketing research. For firms operating in a competitive environment, fixing the right price is as important as producing the right product. Similarly, using advertising or any other suitable promotional devices is necessary for manufacturers to let the target market know about their products. Delivering the product on time and providing the related services efficiently also add to customer satisfaction. All these aspects of marketing are believed to be greatly beneficial to manufacturers.

The factor referred to as marketing strategy in our study encompasses four specific variables, namely, advertising and promotional activities, use of external advisory services, emphasis on specialised markets, and new product development. The use of external advisory services seems to be relevant to this factor because it is common among some manufacturers to use such services in designing and implementing their marketing strategies. Placing emphasis on specialised markets is believed to be particularly beneficial to firms engaged in export trade. Similarly, it is realistic to see that the CEOs in our sample firms have attached a high degree of

importance to new product development as a part of their marketing strategy because gathering information on customer reaction to the existing product in order to introduce quality improvements or to design a new product is necessary for overcoming the problems associated with product obsolescence and resultant declines in sales.

Conclusions

Through an empirical investigation, this study has identified six principal factors that are perceived to be major contributors to the success or growth of manufacturing firms in Sri Lanka. These factors in their order of importance are customer orientation, product quality, efficient management, supportive environment, capital accessibility, and marketing strategy. Some experiences of Sri Lankan manufacturers in the recent past and the existing literature on studies conducted in several other countries provide ample testimony to the validity of these factors.

However, it should be noted that the above conclusions should be treated with caution, as the results of this exploratory study stem from the perceptions of CEOs who represent only a small sample of manufacturing firms in Sri Lanka. Similarly, the small sample size does not permit generalisation of results to all firms in the manufacturing sector. Moreover, since the sample firms have been taken only from the Greater Colombo Area, they may not be representative of manufacturing industry throughout Sri Lanka. In addition, the results of this study were subject to the limitations commonly associated with all mail surveys in respect of the reliability and accuracy of information. Despite these imperfections, the study provides some useful insights to manufacturers and policy makers in Sri Lanka and other developing countries on some factors that may be considered as important contributors to the success of their manufacturing enterprises.

Finally, it is important to note that there is a need to replicate this study by using more measures and a larger sample which covers manufacturing enterprises operating in different geographical areas of the country. A comparison of Sri Lankan firms with their counterparts in other developing countries would also be a fruitful future research avenue.

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