

## Factors Determining the Location of Small and Medium Enterprises in a Developing Economy

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**Abstract:** Small medium enterprises (SMEs) contribute tremendously towards the development of a country, including efficient allocation of resources, employment and development of indigenous entrepreneurship, equitable growth and poverty eradication. As with all economic catalysts the very location of SMEs has important bearings on their potential to spur and spread the benefits of their growth. This study used primary data obtained from fieldwork observations of 728 Malaysian firms. Factor analysis was performed to identify several important factors that affect the choice of the SME industrial location after which a logistics analysis was performed to identify which factors were significant in influencing the eventual placing of the industry. The results showed that from a total of 81 factors identified, nine principal factor groups were found to have determined the location of SMEs in the Malaysian case. These were INTERNATIONAL competitiveness, community related matters, water supply and rates, transportation costs, cargo costs, fuel supply and rates, industrial land availability, market and consumer related matters and environmental quality and laws. In conclusion, two principal factors critically determined the firms' location, viz. the availability of affordable land and affordable energy supplies. The implication is that the Malaysian government would have to pay more attention to ways and means of making land and energy affordable to the SMEs. The authorities would also have to ensure that not only is affordable land available but that affordable land also has ease of easy physical accessibility.

**Key words:** Small medium enterprises (SMEs) • Efficient allocation • factor analysis • SME's location

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### INTRODUCTION

Small and medium enterprises (SMEs) have long been recognised as the economic backbone of many developing countries. Their roles include the efficient allocation of resources, the generating of employment, the development of indigenous entrepreneurship, equitable growth and poverty eradication. As with all economic catalysts the very location of SMEs has important bearings on their potential to spur and spread the benefits of their growth. Where they are physically located will influence, if not determine, the state of socio-economic disparity in the country. Indeed, industrial location in general and SME location in particular have often been used by countries as both deliberate economic and social engineering tools; economically to spur growth and socially to close the wellbeing gap between regions. Thus

it is not surprising that numerous studies have directed their focus to factors influencing and determining the SMEs choice of location.

Button [2], for instance, provides an impressive assessment of Greenhut's idea on economic location, location theory and space microeconomics featuring various factors that normally influence and determine the locational decisions of industries and firms and which subsequent empirical research had sought to investigate. These factors were availability of labor, distance from the source of labour, availability of land for current operation and expansion, distance from raw materials, distance from market, wages and related labour costs, proximity to suppliers, utilities, adequate transportation facilities, transportation costs, taxation, market growth mover, employee productivity, consumer population growth, consumer income level and political climate [3-5].

In short, good location can minimise cost for the SMEs [19] in particular with respect to raw materials, labour and consumers.

Subsequently, new factors influencing SMEs location had also been identified such as proximity to learning institutions [6], market taste [7], inter-industry network [8], population trends [7], market share expectation [9], change in consumer location [10], estimation of local potential development [11], wage level [12], competitor location [13-14], natural resource [15], changes in local demand [16] and waste and pollution law [17]. Other new found factors were community assets like labour and the community's own size according to Buescher [20] as quoted in Sullivan [21].

It is also worth-noting that compared to large firms, Foreign Direct Investments (FDI) in SMEs were very sensitive to economic conditions [18]. For instance, survey results had found that electrical supplies was especially a critical factor for SMEs compared to large firms because large firms were able to cope by building their own electrical facility. Similarly, factors such as cheap labour, infrastructures and industrial agglomeration seemed to matter more to SMEs than large enterprises.

To substantiate further as to which factors currently influence the strategic location of SMEs in a developing economy, this paper renders a rigorous empirical analysis of the factors that affect the choice of SME's location in Malaysia.

**MATERIALS AND METHODS**

**The Study Area:** In Malaysia, as of 2009, the SMEs accounted for about 99% of total business establishments in the country, contributed 31% of the nation's Gross Domestic Product (GDP), 56% to its total employment and 19% to its total exports [1]. These illustrate the vast economic potentials of the SMEs to Malaysia's overall economic development.

Indeed, the SMEs are to drive Malaysia's economic growth so it can achieve its set goal as a developed and high income country in 2020. In line with this the focus in the current New Economic Model and the Tenth Malaysia Plan is to unleash the untapped potential of SMEs to be and make them more competitive and resilient to the changing business environment.

**Data Collection:** This study used primary data obtained from fieldwork observations on 728 firms from the northern, eastern, southern and central regions of Malaysia. The list of firms was obtained from Malaysian Manufacturers Association Guidelines. The current definitions of small and medium firms based on the number of employees are presented in Table 1.

Factor analysis was performed to analyse the factors that affect the choice of industrial location of the SMEs. After the identification of the major factors, the analysis was extended to that of the logistics. This latter analysis was performed to identify which factors were significant in influencing the placing of the industry. Both analyses involved the use of Statistical Package for Social Science (SPSS).

**Factor Analysis:** This method covered the principal component analysis and the estimation of factor analysis. The principle analysis is principal component analysis can may explain a set of variables that are less known. The estimation techniques involved correlation matrix, factor extraction, phase rotation and factor scores. In the course of performing a principal component analysis, it was possible to calculate a score for each subject on a given principal component.

**Logistic Regression Analysis:** Logistic regression was used to measure the relationship between the function of a dependent variable and the qualitative independent

Table 1: Definitions of Small and Medium Enterprise in Malaysia

	Micro Enterprise	Small Enterprise	Medium Enterprise
Manufacturing, services related manufacturing and agro industry	Annual sales value less than RM250,000 or full time workers less than 5 workers	Annual sales value less than RM 10 million or full time workers between 5 and 15 workers	Annual sales value less than RM 25 million or full time workers between 51 and 150 workers
Services, primary agriculture and information and communication technology (ICT)	Annual sales value less than RM 200,000 or full time workers less than 5 workers	Annual sales value less than RM 1 million or full time workers between 5 and 19 workers	Annual sales value less than between RM 1 million and RM 5 million or full time workers between 20 and 50 workers

Source: SME Corp Malaysia 2009 [1].

variables. This process was carried out after the component elements were identified and each factor given a new name to be included in the logistic regression model.

Logistic regression analysis in this study was to examine the factors that influenced the location of SMEs in Malaysia. Dependent variable used in the logit model was the preferred location or not. ‘Yes’ if the location was preferred by the firm and ‘no’ to non-preferred location. The logit model was then formed as the equation below:

$$\text{Log } P_i/(1-P_i) = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{11}X_{11}$$

Where:

- P = Probability of a firm to state the preferred location (Yes=1; No=0).
- X<sub>1</sub> = Community
- X<sub>2</sub> = Tax structure
- X<sub>3</sub> = Market
- X<sub>4</sub> = Cargo services
- X<sub>5</sub> = Environmental law
- X<sub>6</sub> = Government law
- X<sub>7</sub> = International factors
- X<sub>8</sub> = raw materials
- X<sub>9</sub> = Industrial sites
- X<sub>10</sub> = Transportation and labor
- X<sub>11</sub> = Water supply
- X<sub>12</sub> = Fuel
- X<sub>13</sub> = Electricity
- X<sub>14</sub> = Quality of life
- X<sub>15</sub> = Quality of air
- X<sub>16</sub> = Infrastructure

## RESULTS AND DISCUSSIONS

From a total of 81 factors identified, nine principal factor groups were found to have determined the location

of SMEs in the Malaysian case as compared to 11 in the case of large foreign firms [23]. These were International Competitiveness, Community related matters, Water supply and rates, Transportation Costs, Cargo Costs, Fuel supply and rates, Industrial land availability, Market and consumer related matters and Environmental quality and laws.

Many of the factors were common to locational factors of all firms including the non-SMEs. Among the most significant ones were those pertaining to industrial sites (Factor 7), in particular, access to and cost of industrial land. In the Malaysian SMEs case the strength of this particular factor was significant at the 95% confidence level.

Another vital group of factors determining the locational decision of the Malaysian SMEs was the supply and costs of electrical power (Factor 6 ) which was significant at the 90% confidence level, putting them in common with SMEs in other countries [17].

Nevertheless, there are additional factors in the case of the Malaysian SMEs. These pertained to the prevailing environmental laws and the availability of cheap labour which was quite in contrast to large firms’ emphasis on the stable supply of highly skilled and educated labour .

The nine principal factors determining the location choice of the Malaysian SMEs together with their respective components are summarised in Figure 1.

Results of the logistic regression analysis showed that the costs of transportation, cargo and fuel factors had negative coefficient values, while the other factors showed positive coefficient values. This means that if the fuel factor changes, the tendency of choosing the location will change by 0.21% (Table 2).

It is interesting to note that although relying on cheap labour this did not determine the locational decision of the Malaysian SMEs. This reflects the fact that the main source of cheap labour for Malaysia’s industrialisation was external, in the form of foreign

Table 2: Logistic Analysis

Factor	B	Sig	Exp(B)
FAC1_1	0.045	0.661	1.046
FAC2_1	0.095	0.383	1.099
FAC3_1	0.121	0.245	1.128
FAC4_1	-0.171	0.143	0.843
FAC5_1	-0.017	0.877	0.983
FAC6_1	-0.235	0.064	0.790
FAC7_1	0.209	0.041	1.233
FAC8_1	0.155	0.147	1.168
FAC9_1	0.152	0.150	1.164
Constant	-1.738	0.000	0.176

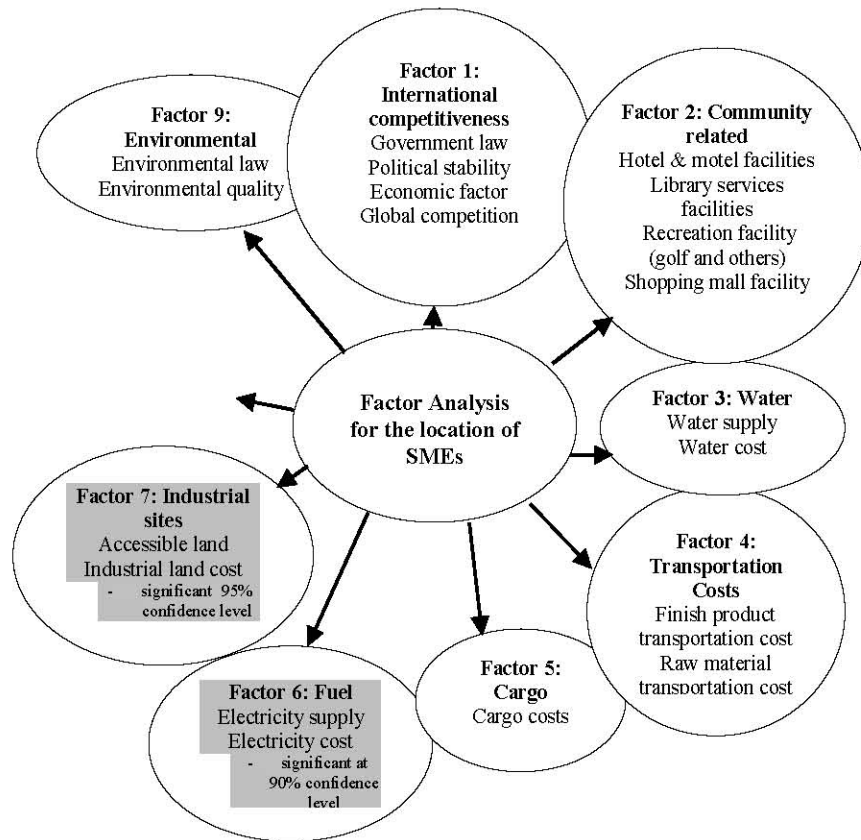


Fig. 1: Factors determining the SMEs location - Results of the Factor Analysis

migrant workers. Although this is not something that is easy to reconcile with as the continuous presence of a large foreign worker community has far reaching social implications for Malaysia (already, foreign workers are seen as adding pressures to existing housing, educational, health, utilities, security and recreational facilities in the country) the availability of cheap labour only determined the existence of the SMEs and not their location.

### CONCLUSION

To sum up, cost effective land and energy supplies determined the current location of the typical Malaysian SMEs. This was on the assumption that the continuous availability of cheap labour – although imported- ensures the existence of the SMEs in the first place. This means that the Malaysian government would have to pay more attention to ways and means of making land and energy affordable to the SMEs. The authorities would also have to ensure that not only is affordable land available but that affordable land also has ease of easy physical accessibility.

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