The innovation drivers, strategies and performance of food processing SMEs in Malaysia

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Abstract

Malaysian SMEs play an important role in sustaining the nation's economic move toward a developed country status by 2020. The main aims of this study were to examine how the innovation drivers and the initiatives affect the performance of food procesing SMEs in Malaysia by analysing primary data gathered from 247 executives of food processing SMEs in Malaysia with statistical and econometric techniques. Multiple logistic regression models were employed to estimate how new innovations affect the annual sales turnover of SMEs in Malaysia. The study revealed that while the Malaysian SMEs were exploring innovations to maintain their performance and annual growth, multiple logistic regression model outputs showed that there were significant positive impacts of innovation, especially in the category of new product, new operational process, new managerial process, new markets and new sources of supply on the annual sales turnover of food processing SMEs in Malaysia. As such it is recommended that the Malaysian SMEs be considered as key drivers in improving the development of new products, new market and new sources of supply for sustainable performance and growth in the coming future.

Keywords: The Small and Medium Enterprises (SMEs), innovations, growth drivers, new managerial process, new operational process, new products

Introduction

Since the 1970s, Malaysian SMEs have been playing a remarkable rolein contributing to the national economy. The SMEs contributed 99.2% to the overall business establishments in Malaysia. The SMEs alsoaccounted32 % of GDPand 19 % of exports. Further, SMEs employed about 56% of the country's workforce and the value added products are expected to worth RM120 billion in the manufacturing sector in 2020. SMEs have to be competitive for their business survival; and innovation is an effective strategy to develop competitive advantage (Hussain & Idris, 2010). The foodprocessing SME accounts a large portion of mainstream business. The Malaysian food industry encompasses fish and fish products, livestock and livestock products, fruits, vegetables and cocoa including processed seafood products like frozen and canned fish, crustaceans and mollusks, surimi and surimi products.

Due to Malaysia's halal image, there is an increasing trend in domestic as well as foreign markets. Particularly, processed food exports have increased dramatically in Malaysia. However, due to shortage of raw materials, lack of technology and limited research and development, these sectors are facing various challenges to compete in theglobal arena. In 2009, Malaysia's food imports were valued at $9.1 billion. Studies identified that the food industry is currently facing a period of rapid change, driven by

globalization, trade liberalization, development of genetic, processing and information technology, intellectual property rights, changes in family structure and health and food safety concerns (De Silva & Takeda, 2005).

On the other hand, the processed food products have become the choice of many Malaysians due to their increasing standard of living and purchasing power. The changes of Malaysians' lifestyle have resulted in an increase in the demand for convenience food and health food which in turn leads to innovative new products in the food processing based SMEs in Malaysia. In such issues, innovation is considered as the key element tosuccess in an increasing global competitive environment (Ussman et al., 2001; De Silva & Takeda, 2005). It is one of themost powerful but difficult activity to SMEs in Malaysia. This is because it is the process of introducing new products (goods or service) or significantly improved product to the competitive market. It is the results of new technological development, combination of existing technologies or the utilization of other knowledge acquired by the company (Lee & Lee, 2007). In spite of various supports from the government, Malaysian SMEs are still facing many challenges in innovating new and timely demanded product as per market requirement.

In such circumstances, few studies and reports had showed that only a small number of SMEs in Malaysia are aware of the benefits of innovation. As such, there is a need for morefocused and concerted efforts at increasing the awareness among SMEs on the benefits of innovation. The aim of this study is to identify the determinants of innovation driver and the effects on the performance of food processing based SMEs in Malaysia.

Empirical studies on SMEs and innovation

Ramlan and Malekin 2011 mentioned that small and medium enterprises (SMEs) play a vital role in the Malaysian economy and are considered as the backbone to industrial development in the country. The critical area that needs to be strongly looked into by the SMEs is their ability to sustain their competencies in the business. Therefore, it is crucial for SMEs to invest in R&D and innovation programs as to always ensure that they are moving ahead (Ramlan & Malek, 2011). Moreover, Yahya et al. in 2011 explored process innovation of small and medium enterprises (SMEs) in Malaysia. In this study, a definition of innovation was established based on past studies and a systematic approach to measure company innovativeness was adopted. Company innovativeness was measured using ten indicators. The top 20 percent firms were compared against bottom 80 percent firms in terms of product innovation management, systems and technology. Means of responses were compared for two sets of companies. The results showed that the characteristics of more innovative SMEs manufacturing firms are perceived to be different as compared to the less innovative SMEs manufacturing firms (Yahya et al., 2011).

The study by Tuanmat and Smith in 2011 showed that the majority of responding companies recognised the changes in their business environment and advanced manufacturing technology, which impact organisational strategic behaviour. Structural equation modelling shows positive relationships among competitive environment, manufacturing technology and organisational strategy, with a positive impact on performance. The study makes an incremental contribution to the existing organisational change literature for SMEs in developing countries (Tuanmat & Smith, 2011). Furthermore, Hilmi et al. in 2010 examined performance as the outcome of product and process innovativeness. Process innovativeness has a significant relationship with the performance of SMEs. Apart from providing some new evidences in the important area of innovativeness of Malaysian SMEs, this study also has important implications for managers and policy makers, while revealing considerable scope for future research (Hilmi et al., 2010).

Osman bin Jusoh and Hariri bin Kamis in 2010 examined the general characteristics of generic capabilities of SMEs and challenges faced by Malaysian SMEs which engage in the logistics industry. The results of the analyses revealed that two out of three independent variables are positively and significantly associated with business performance. This research findings have contributed to the body of

knowledge and provided further understanding of characteristic of generic capabilities, management practices, challenges and the relationship to business performance of the Malaysian logistic SMEs (bin Jusoh & bin Kamis, 2010). Meanwhile,Azizi and Adis in 2009 investigated the impact of strategic orientation, marketing strategy, and market research activities on new product development among manufacturing companies in Kota Kinabalu, Sabah. The results showed that both strategic orientation and marketing strategy directly influence new product development process; and the market research activities showed no significant relationship with new product development. Also, the environmental factors did not appear to moderate the relationship between strategic orientation and marketing strategy on new product development of Kota Kinabalu manufacturing industry (Azizi & Adis, 2009). Amriah, Abdullah and Zainol (2010) study highlighted success of Malay small scall farmers throguh contract farming (CF). Their study concluded that the FAMA's CF programme has had very limited success and as such could not be regarded as an effective mechanism to further develop Malay small scale farmers. Saleem (2012) studied on small business success in Pakistan. This study results shown that socioeconomic factors such as entrepreneurial experience, business profile and culture have significant effect on success of small business. Lim and Lyndon (2013) expressed about the important of social network for Chinese peasantry agricultural marketing in Malaysia. Their study results reveal that Strong social networks ensure Chinese farmers to maximize profit for survival of their business.

Martínez-Román et al. in 2011 analyzed organizational characteristics associated with innovative outcomes of SMEs in the local economies with low technological and R&D activities; however, the indicators generally used to gauge technological innovation did not offer sufficient data. The resulting quadratic model has undergone various hypotheses; thus, demonstrating the effectiveness of the model as a whole and of its basic components, as well as the importance of the main explanatory variables. Finally, the model has also proven to be valid in all sectors (Martínez-Román et al., 2011). On the other hand, Sok, P. and A. O'Cass in 2011 indentified the relationship between innovation resource–capability complementarity and innovation-based performance. The findings showed a significant effect of innovation resource–capability complementarity on innovation-based performance. The results also showed that firms with superior learning capability were willing to question their operational processes and routines and make adjustments following the feedbacks obtained from customers and channels; thereby enhancing their abilities to develop more new products and increase their speed in delivering products to the customers (Sok & O'Cass, 2011).

Van de Vrande et al. in 2009 found that the responding SMEs engaged in many open innovation practices and have increasingly adopted such practices for the past 7 years. Furthermore, they found that SMEs pursued open innovation primarily for market-related motives such as meeting customer demands, or keeping up with competitors. Their most important challenges are related to organizational and cultural issues, as a consequence of dealing with increased external contacts (van de Vrande et al., 2009). Moreover, Amara et al. in 2008 contributed to the advancement of knowledge in the degree of novelty of innovation in established small and medium manufacturing firms;and both innovation and the degree of novelty of innovation were utilised as the dependent variables. The results indicated that various types of learning impact the presence (or absence) of innovation as well as on the degree of novelty of innovation. Overall, the results showed that variables related to learning by doing, learning by training, and learning by interacting have the highest impact on the degree of novelty of innovation in established SMEs. The results of the paper are also used to derive practical implications for owners and managers of established SMEs and for policy makers (Amara et al., 2008).

Methodologies

In order to achieve the study's objectives, the descriptive statistical and econometric techniques as well as factor analysis through the field survey on executives of food processing SMEs in Malaysia were utilized.

The purposive stratified random sampling methodology was used to select samples of respondents. There were 247 samples collected from the survey done.

The descriptive statistics had been used through means, ranges, and frequency, percentages, ratios, etc. for the measurement of the socioeconomic productivity of SMEs in terms of total SMEs' profile, growth, performance and innovation at a glance. Factor analysis was used to extract common themes from a number of statements (Sharma, 1996).

On the other hand, the multiple logistic regression model was constructed to explain how innovation and other socio-economic and demographic factors are affecting the annual sales as well as innovation of goods or products of SMEs in Malaysia. Moreover, the logistic regression model is a special form of the general log-linear model, which has become increasingly popular for categorical data analysis, whereby the dependent variable is categorical (nominal or non-metric) and the independent variables are metric. The linear combination from a logistic analysis, also known as the logistic function, is derived from an equation that takes the following form;

$$Ln\frac{P_i}{1-P_i} = Zj = a + \beta_i X_i + \varepsilon_i$$

Where,
Z_j = Logistic Z score of Logistic function *j*
a = intercept
β_i = Logistic weight for independent variable *i*
X_j = Independent variable *i*

Further, the ratio of $\{ P\,i /(1- P\,i)\}$is known as the odds ratio Which is not only linear in X, but also linear in the parameters from the estimation view point. Furthermore, in order to estimate the vector of parameters β, the ordinary least square (OLS) method cannot be applied as the dependent variable in the above equation is a dichotomous observation, which is not normally distributed. In the above cases, the least square estimation does not satisfy the condition "$0 \leq P\,i \leq$". Thus, the maximum likelihood (ML) method can be applied here as a suitable estimation technique.

Empirical model

The logistic regression model on the SMEs' annual sales turnover:

$$Ln\frac{P_i}{1-P_i} = Zj = a + \beta_i X_i + \varepsilon_i$$

Where,
P_i = 1 if SMEs' annual sales turnover
$1\text{-}P_i$= 0 if SMEs' annual sales below
X= the list of explanatory variables
$L = \beta_o+\beta_1 X_1+\beta_2 X_2+\beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5+ \beta_6 X_6 + \beta_7 X_7+ \beta_8 X_{8+} \beta_9 X_9 + \beta_{10} X_{10}+\beta_{11} X_{11+} \beta_{12} X_{12} + \beta_{13} X_{13} + {}_u$

Where,
L = SMEs' annual sales (dummy variables where annual sales Over =1, annual sales Below =0)
X1= Types of Business, X2= Types of Ownership, X3= Ownership by Ethnicity, X4= Years of Business establishment, X5= Location of Business area, X6 = Sources of Finance, X7= Exporting your business products, X8= Overall Development Innovation, X9= Developed New Goods or Products, X10= Developed New Operational Process, X11= Developed New Managerial Process, X12= Developed New Market, X13= Developed New Sources of supply

U = Error term
βo = Constant (intercept term) $\beta_{1,2...10}$ are the coefficients of explanatory variables

Findings of the study

Types of business

There are 247samples collected from the survey on Malaysian SMEs. The table below shows the distribution of selected samples of various types of SMEs in Malaysia. The study found that about 20 % of the SMEs dealt with fruits and vegetables products, 16.6 % of livestock production, 14.2% of fish and related products, 12.1% of agro-bio products, 10.1% of palm oil products and 27.1% of them involved with various products.

Table 1. Distribution of types of business and SMEs in Malaysia

Types of Business		
Particulars	Frequency	Percent %
Palm Oil Products	25	10.1
Livestock product	41	16.6
Fish and related products	35	14.2
Agro-Bio products	30	12.1
Fruits and Vegetables products	49	19.8
Others	67	27.1

Source: Primary data from survey in 2012

Types of ownership SMEs in Malaysia

The study shows that most of the SMEswere of partnership (48%), sole proprietorship (about 34.8%), joint venture (13.4 %) and very few (4%) were of other forms.

Table 2. Distribution of types of ownership of SMEs in Malaysia

Types of Ownership		
Particulars	Frequency	Percent %
Sole proprietorships	86	34.8
Partnership	118	47.8
Joint Venture	33	13.4
Others	10	4
Total	247	100

Source: Primary data from survey in 2012

SMEs'ownership by race in Malaysia

The table below shows that the Chinese community dominated the SMEs in terms of the total number of population in Malaysia. This is because the Chinese made up only 30% of total population, but they control about 44.5% of SMEs' businesses. On the other hand, the Malaysdominatedthe population at about 55% of total national population,but they only made up 44.5% of SMEs' businesses. In the same way, the Indians'involvement made up about 7% of Malaysian SMEs.

Table 3. Distribution of ownership of races of SMEs in Malaysia

SMEs Ownership by Race		
Particulars	Frequency	Percent %
Malay	110	44.5
Chinese	110	44.5
Indian	17	6.9
Others	10	4
Total	247	100

Source: Primary data from survey in 2012

Ownership by nationality of SMEs in Malaysia

The study found 89.5% of SMEs with 100% Malaysian ownership. As for 100% foreign ownership, there was only 6.5%. On the other hand, SMEs of predominantly foreign, and joint venture were both at 0.8%.

Table 4. Distribution of ownership by nationality of SMEs in Malaysia

Ownership by Nationality		
Particulars	Frequency	Percent %
100% Malaysia	221	89.5
100% foreign owned	16	6.5
Predominantly Malaysian	6	2.4
Predominantly Foreign	2	0.8
Equity Joint Venture	2	0.8
Total	247	100

Source: Primary data from survey in 2012

Annual Sales Turnover of SMEs in Malaysia

The survey data of this study showed that about 56.7 % SMEs' annual sales were at RM200000 to RM1 Million; and 32.4 % of them ranged between RM1 Mil to RM5 Mil. On the other hand, only 4.9% of SMEs had annual sales of RM5 Mil to RM10 Mil, and 2.8% with the annual sales of RM10 Mil to RM25 Mil. However, only a few SMEs (1.6 %) were in the category of more than RM25 Mil in annual sales in Malaysia.

Table 5. Distribution of Annual Sales Turnover of SMEs in Malaysia

Annual Sales Turnover		
Particulars	Frequency	Percent %
RM200000-RM1 Million	140	56.7
RM1Mil-RM5Mil	80	32.4
RM5Mil-RM10Mil	12	4.9
RM10Mil-RM25Mil	7	2.8
More than RM25 Million	4	1.6

Source: Primary data from survey in 2012

Source of finance of SMEs in Malaysia

The study also concluded that commercial banks are the main sources of finance for Malaysian SMEs; with about 70.4% of working capital being supported by commercial banks in Malaysia. On the other hand, Islamic banks provided running capital of about 11.3%. Furthermore, SMEs also obtained their funds from personal funds, savings, retained earnings at about 11.3%. They also borrowed from friends or relatives (about 6.5 %).

Table 6. Distribution by source of finance of SMEs in Malaysia

Source of Finance		
Particulars	Frequency	Percent %
Commercial Banks	174	70.4
Islamic Banks	28	11.3
Personal Funds/savings/retained earnings	28	11.3
Borrowing from friends/relatives	16	6.5
Others	1	0.4
Total	247	100

Source: Primary data from survey in 2012

Years of establishmentof SMEs in Malaysia

The study observed that the average number of years of establishment for SMEs is about 12 years; with the maximum being 47 years and minimum of 3 years.

Table 7. Distribution of years of establishmentof SMEs in Malaysia

Years of firm establishment	Years
Average years of Establishment	11.8623
Minimum	3.00
Maximum	47.00
Total Number	247

Source: Primary data from survey in 2012

Perception on the innovation drivers of SMEs in Malaysia

The table shows the level of perception of the innovation drivers of SMEs in Malaysia by the respondents. The survey data were categorized based on five observation scales such as: (i) Strongly Disagree =1, (ii) Disagree=2, (iii) Moderately Agree =3, (iv) Agree =4 and (v) Strongly =5. The study output revealed that in profit related drivers, improvement in productivity is an important driver to innovation of the SMEs in Malaysia. About 66.4% respondent strongly agreed to improve productivity and it is considered as one of the important drivers of innovation. Furthermore, based on the average value of all responses, improving productivity averages at 3.87 (based on a scale of five) and the standard deviation stands at 1.04. Furthermore, revenue is also considered as one of the innovation drivers. Based on the perception of respondents, the study revealed that about 76.1% strongly agreed and only 23.9 % disagreed on increased revenue as innovation drivers. Moreover, based on the average value of all responses, increased revenue averages at 4.04 (based on a scale of five); and standard deviation stands at 1.01. In regard to reduction of cost as innovation drivers, it was found that about 75.3 % strongly agreed

and only 24.7% of them disagreed. Moreover, based on the average value of all responses, reduced cost averages at 4.08 (based on a scale of five); and standard deviation stands at 0.99.

As for the market related driver, the study found that cutting edge is of important driver to innovation in the SMEs in Malaysia; with about 54.7% of respondents strongly agreed that it is one of the important drivers of innovation for SMEs. Furthermore, based on the average value of the responses, cutting edge averages at 3.61 (based on a scale of five); and standard deviation stands at 0.76.

Table 8. Distribution of perception on the innovation drivers of SMEs in Malaysia

Perception of the Innovation Drivers									
Issues	Observation Scale					Average Value of Scale	S.D	Proportion of High	Proportion of Low
	1	2	3	4	5*			4 & 5 (%)	1&2 (%)
Profit related Drivers									
Improve in Productivity	7	16	60	83	81	3.87	1.04	66.4	9.3
Increase in Revenue	30	29	88	100	0	4.04	1.01	76.1	23.9
Reduce of cost	25	36	80	106	0	4.08	.99	75.3	24.7
Market related Drivers									
Be a cutting edge company	13	99	106	29	247	3.61	.76	54.7	45.3
Increase in customer needs	1	13	56	105	72	3.95	.87	71.7	5.7
Establish a new market	1	14	75	92	65	3.83	.90	63.6	6.1
Develop new ways for business supply chain	11	10	77	82	67	3.74	1.04	60.3	8.5
Increase in exports opportunities	21	9	90	81	46	3.49	1.10	51.4	12.1
Develop a competitive price of products	11	10	117	53	55	3.53	1.02	43.7	8.5
Legal Drivers									
Be environmentally responsible	8	35	56	93	55	3.62	1.08	59.92	17.41
Improve safety and working conditions	18	15	44	94	76	3.79	1.16	68.83	13.36
Meet govt. regulations and standards	29	2	58	80	77	3.71	1.25	63.56	12.55

Source: Primary data from survey in 2012

As for increased customer needs as innovation drivers, the study revealed that 71.7 % of the respondents strongly agreed, but only 5.7 % disagreed. Moreover, based on the average value of all responses, increased customer needs averages at 3.95 (based on a scale of five); and the standard deviation stands at 0.87. Moreover, as for to establish new markets,about 63.6 % of the respondents strongly agreed, but only 6.1 % disagreed. In regard to establishing new markets, it averages at 3.83 (based on a scale of five); and the standard deviation stands at 0.90.

As for developing new ways for business supply chain, about 60.3% of the respondents strongly agreed, but only 8.5 % disagreed. Moreover, based on the average value of all responses, developing new ways for business supply chain averages at 3.74 (based on a scale of five); and the standard deviation stands at 1.04. Furthermore, in the case of increase in export opportunities, about 51.4 % strongly agreed, but only 12.1 % disagreed. Moreover, based on the average value of all responses, increase in export opportunities averages at 3.49 (based on a scale of five); and the standard deviation stands at 1.10. On the other hand, about 43.7 % strongly agreed and only 8.5 % disagreed on developing a competitive price of products. Moreover, based on the average value of all responses, developing a competitive price of products averages at 3.53 (based on a scale of five); and the standard deviation stands at 1.02. As for the legal drivers, the study found thatenvironmental responsibility is an important driver of innovation to the SMEs in Malaysia; with about 59.92% strongly agreed and 17.41 % disagreed. Moreover, based on the average value of all responses, developing a competitive price of products averages at 3.62 (based on a scale of five); and the standard deviation stands at 1.08. On the other hand, in the case of improving safety and working conditions, the study found that about 68.83 % strongly agreed and only 13.36 % disagreed. Moreover, based on the average value of all responses, developing a competitive price of products averages at 3.79 (based on a scale of five); and the standard deviation stands at 1.16. The study also revealed that for the perception of meeting government's regulations and standards, about 63.56% strongly agreed but only 12.55 % disagreed. Moreover, based on the average value of all responses, developing a competitive price of products averages at 3.71 (based on a scale of five); and the standard deviation stands at 1.25.

SMEs innovation growth and performance in Malaysia

The survey data depict the innovation growth and performance of Malaysian SMEs. The study found that 51.4 % of the SMEs had made or introduced a new product within the three-year period, butthe rest of them were not able to produce or introduce a new product within this time frame. In terms of new operational process, about 53.8% of SMEs had developed new operational processes to promote their products. On the other hand, for innovation of new managerial process, about 52.2 % had invented new managerial process; and for new market innovation, about 51.0% of them had done it. As for innovation of new sources of supply, about 56.3 % had found new alternative sources of supply during the mentioned period.

Table 9. Distribution of SMEs innovation, growth and performance in Malaysia

SMEs Innovation Growth And Performance		
Particulars	Frequency	Percent
New products		
Yes	127	51.4
No	120	48.6
New operational process		
Yes	133	53.8
No	114	46.2
New managerial process		
Yes	129	52.2
No	118	47.8
New markets		
Yes	126	51.0
No	121	49.0
New sources of supply		
Yes	139	56.3
No	108	43.7

Source: Primary data from survey in 2012

The study concluded that Malaysian SMEs are more progressive in innovation, in terms of operational process and new sources of supply, rather than of new product and invention of their new managerial process.

Logistic regression result in annual sales of SMEs in Malaysia

The logistic regression model was constructed to explain factors affecting the annual sales of SMEs. The model considered 247 survey respondents who represent Malaysian SMEs of different categories. The study summarized results of the model and found them satisfactory. The Cox and Snell R2 is at0.504and most of the predictions are correct. The modification of the Cox and Snell R2 Nagelkerke was also estimated. It was found to be within an acceptable level of 0.673. Moreover, the prediction success table is symmetrical; indicating that the model performs well at predicting the annual sales turnover of SMEs in Malaysia.

Table 10. Distribution of result of Logistic Regression on the annual sales of SMEs in Malaysia

	B	S.E.	Wald	Df	Sig.	Exp(B)
Constant	-5.46***	1.122	23.712	1	.000	.004
X1= Types of business	.52 NS	.458	1.278	1	.258	1.679
X2= Types of Ownership	-.28 NS	.268	1.091	1	.296	.756
X3= Ownership by Ethnicity	.64**	.312	4.173	1	.041	1.891
X4= Years of business establishment	.06**	.028	4.839	1	.028	1.063
X5= Location of Business area	-1.47***	.478	9.476	1	.002	.230
X6 = Sources of Finance	1.29***	.505	6.566	1	.010	3.648
X7= Exporting your business products	-.68*	.346	3.856	1	.050	.507
X8= Overall development Innovation	2.88***	.574	25.177	1	.000	17.821
X9= Develop new goods or products	4.31***	.569	57.443	1	.000	74.721
X10= Develop new Operational Process	-.39 NS	.419	.875	1	.350	.676
X11= Develop new Managerial Process	.02NS	.430	.003	1	.958	1.023
X12= Develop new Market	1.23**	.423	8.459	1	.004	3.422
X13= Develop new Sources of supply	.86**	.432	3.948	1	.047	2.360
Number of Observations= 247						
Chi-square= 172.17						
Wald Chi-Square=0.102						
Cox & Snell R- Square=0.504						
Log Likelihood=167.364						
Nagelkerke R- Square. = 0.673						
Hosmer and Lemeshow Chi-Square= 29.401 at0.000 Level of significance						
Overall Percentage Correct of predicted= 51.02						

Source: Primary data from survey in 2012

1. *** Indicates significant at 99% level
2. ** Indicates significant at 95% level
3. NS Indicates significant at 90% level

Based on the model performance in the coefficient table (classification Table 10), the model shows a high predicting power between dependent and independent variables at 51.02 percent. Furthermore, the

chi-square is also comparable to the overall F-Test. In the present model, the chi-square value of 172.17 at "P<0.01" significance level indicates that logistic regression is meaningful in the sense that the dependent variable is related to each specified explanatory variable. Furthermore, Log Likelihood statistics is at167.364 and the Wald Chi-Square is 0.102; thus, supporting the above outcome. Finally, the correlation matrix of the variables was also studied to identify the occurrence of multicollinearity. The model confirms that there is no multicollinearity; thus, no two variables has a correlation in excess of 0.80.

From Table 10, the results of logistic model revealed that nine independent variables are statistically significant while the four variables are found to be insignificant to the sales turnover of SMEs. The estimated equation shows types of business (X1), ownership by ethnicity (X3),years of business establishment (X4), respondent's occupation with business (X5), sources of finance (X6), total household earning members (X7), overall development innovation (X8), develop new goods or products (X9) develop new managerial process (X11), develop new market (X12) and develop new sources of supply (X13). On the other hand, types of ownership (X2), location of business area (X5), exporting your business products (X7) and develop new operational process (X10) negatively affect the dependent variable.

However, the overall result of this logistic regression model is strongly supported by the values of the Cox and Snell R2 at 0.504 and Cox and Snell R2 Nagelkerke at 0.673; at 0.000 level of significance in measuring the goodness of fit of the model. The R^2 value indicates that the increase in sales by SMEs could be explained by the all independent variables in the model. Thus, the study summarized that there is a significant and positive relationship of sales turnover including other demographic factors. Finally, from the above findings the study revealed that all the explanatory variables; especially years of business establishment, sources of finance, develop new goods or products, develop new market and develop new sources of supply, have been determined to be the main and important factors to improve the level of sales of SMEs in Malaysia.

Conclusion and recommendation

It has been proven that the food processing SME is the largest of the Malaysian SMEs' main stream; whereby they play an important rolein sustaining economic growth to achieve a developed country status by 2020. The objectives of the study are to examine the performance of food processing based SMEs in terms of innovation drivers and introduction of new product and process services in the SMEs in Malaysia. The study findings revealed that only 20 % of SMEs were involved in fruits and vegetables products, 16.6 % in livestock production, 14.2% in fish and related products, 12.1% in agro-bio products, 10.1% in palm oil products and 27.1% of them were involved with various products in Malaysia. It also showed that most (48%) of the SMEs were of partnerships, while about 34.8% of them were sole proprietors. In terms of ownership category, study's results showed that the Chinese dominated the SME business in terms of the total number population in Malaysia.

The study also showed more than 56.7% of the SMEs had an annual sales of RM200000 to RM1 Million and 32.4 % of them were of about RM1 Mil to RM5 Mil. Moreover, commercial banks were the main source of finance for Malaysian SMEs with about 70.4% working capital being financed by them. On the other hand, in terms of growth and innovation performance in Malaysian SMEs, the study found that 51.4 % SMEs had produced or introduced a new product within the three-year period. In terms of new operational process, about 53.8% of the SMEs had developed a new operational process to promote their products. On the other hand, for innovation of new managerial process, about 52.2 % had invented new managerial process. As for new market innovation, about 51.0% of them had done it; and as for innovation of new sources of supply about 56.3 % had found their alternative sources of supply during the mentioned period. The overall result of this logistic regression model is strongly supported by the values of the Cox and Snell R2 at 0.504 and Cox and Snell R2 Nagelkerke of about 0.673; these indicate that

increased sales of SMEs are due to the innovation process of product, process and service. The study concluded that there is a significant relationshipbetween sales turnover and product innovations of SMEs including other demographic characteristics, especially years of business establishment, sources of finance, developnew goods or products, develop new market and develop new sources of supply.

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