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Assessing the effect of advisory services on growth of small scale food processors in Selangor

(Menilai kesan khidmat nasihat ke atas pertumbuhan firma pengilang makanan berskala kecil di Selangor)

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Keywords: public advisory services, food processors, logistic regression

Abstract

During the Ninth Malaysia Plan 2006 – 2010, the development of the Small and Medium-sized Enterprises (SMEs) have been prioritized by the government. Various initiatives were implemented with the aim to enhance SMEs competitiveness. One of the initiatives was the advisory service programme. This programme focuses on enhancing SMEs capacity and capability. After being implemented for several years, it is necessary to assess the effect of this programme. Hence, this study was to assess the effect of advisory service on growth of small scale food processors. Primary data was collected from 103 firms using a structured questionnaire. The data was analysed using descriptive analysis and logistic regression. The results obtained showed that the utilization of advisory service among the respondents is still low except from Department of Agriculture (DOA), Malaysian Agriculture Research and Development Institute (MARDI) and Federal Agriculture Marketing Authority (FAMA) where the number of clients served was above 40%. Majority of the firms surveyed received technical advices from government institutions. This indicated that the technical know-how is very crucial in the food processing industry. The results of the logistic regression showed that technical advice has greater influence on sale growth while business and management advice has greater influence on both sales growth and owner/manager's ability to manage the business. The study suggested that the advisory service programme should be continued with some transformations on the method and approach used.

Introduction

Small and Medium Enterprises (SMEs) play an important role in fostering growth, employment and income of a nation. SMEs are very critical to the economic transformation as they form the endogenous source of growth. SMEs can also act as growth stabilizers, especially during the economic downturn. Hence, it is necessary to create strong and competitive SMEs that are resilient to challenges brought about by liberalization.

It should be noted that various efforts have been taken by the government in order to strengthen the SMEs. This included the allocation of a huge amount of money to implement various initiatives that benefited the SMEs. For instance,

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during the Ninth Malaysia Plan (2006 – 2010), the government spent about RM26 billion in SMEs development programmes, representing 11.6% of the whole development expenditure during that period. The programmes were aimed to minimize constraints faced by SMEs. It can be categorized under the three strategic thrusts, namely, enhancing access to financing, building capacity and capability, and strengthening enabling infrastructure. One of the programmes is advisory services which is provided to enhance knowledge and skill among the SMEs.

Essentially, there are two types of advisory services, namely, business and management advisory and technical advisory. The former is related to the provision of supervised credit and training while the latter emphasized on production technology, product innovation, design improvement, processing techniques and many more (MohaAsri 1999; Ndubisi 2008). In this study, the term advisory services was expanded covering marketing advisory. The reason was to better represent each type of advice. During the implementation of the advisory service programme, the government allocated certain grant. Usually this grant is given to the qualified SMEs in order to help them quickly implement what has been suggested or recommended during the consultation (MohaAsri 1997).

For this study, advisory services also include the government grants that the firms received. Currently, there are more than 15 ministries and 60 agencies involved in providing advisory services to SMEs (SME Corp 2010). It is necessary to note that the SMEs, especially the new start-ups as well as micro size firms, are vulnerable by economic fluctuation. As such, they were encouraged to request for assistance in terms of consultation from the relevant agencies. By engaging with expert help, it was possible for them to be more competitive in the marketplace, as well as ensuring their business continuity. Furthermore, particular advice on business and financial could assist the SMEs to make some improvement on their business viability (Ndubisi 2008).

The objective of this study was to assess the effect of advisory services on firm growth. Specifically, this study focused on small-scale food processors as 80% of them belonged to this category. The main problems that related to these firms were inefficiency, low productivity, inferior technologies, limited resources and capabilities including financing and marketing and most of them catered for the domestic market. Furthermore, they also depended on public research institutes for advice and support in product and process improvement (Third Industrial Master Plan 2006 – 2020).

Effect of advisory services on growth

Essentially, the effects of advisory service can be demonstrated either through objective or subjective criteria, or by a combination of both. Objective criteria are easy to quantify, like growth in employment and turnover, while subjective criteria is difficult to quantify, like improvement in technical competences and product or service quality (Lambrecht and Pirnay 2005). Some of the findings pertaining to the effect of advisory services on growth is described below.

Wren and Storey (2002) revealed that those SMEs receiving marketing advice demonstrated growth in sales turnover and employment. Similarly, Berry et al. (2006) found that external advisors have positive contribution towards SMEs' growth. The business growth rate was directly related to the frequent use of financial management and business advices. An empirical finding by Kent (1994) showed that SMEs financial performance, which was measured in terms of profit and sales growth was positively related to the use of advisory services on management aspects. SMEs involved with external consultants in strategic planning showed a significant improvement in sales and employment (Robinson 1982; Chrisman and Katrishen 1994).

Other studies reported that SMEs could increase the productivity level and sales after their involvement with manufacturing extensions (Jarmin 1999). Furthermore, Robson and Bennett (2000) found that advice on business strategies and staff recruitment have significant impact on employment and turnover growth while advice on taxation and financial management have positive and significant relationship only with turnover growth.

Ramsden and Bennett (2005) found that the use of advisory services could help SMEs owners/managers to improve their ability to manage and cope with problems rather than to reduce cost or to increase turnover or profits. Sturdy (1997) suggested that external consultants could help to overcome uncertainties and insecurities of managers, to reassure, and also to support owners/managers in developing their identity and control their business. In an other study, Turok and Raco (2000) described that the impact of external advice was exhibited mainly on management capabilities such as business strategies, products or services and methods rather than production costs.

Methodology

Conceptual framework

The relationship between the variables in this study are shown in *Figure 1*. The proposed framework indicated that a firm's growth is determined by internal and external factors (Raymond 2006). Internal factors are characteristics of owner managers, nature of the firm and the firm's business strategy while external factors included government support in terms of advisory services.

Sampling and data collection

This study uses primary data which was gathered through face to face interviews using structured questionnaires. The location of this study was the state of Selangor, which is the centre of various public institutions and agencies that were involved in providing advisory services to SMEs. Our sampling frame was drawn from the list obtained from prominent public advisory service providers, namely, Small and Medium Enterprise Corporation Malaysia (SME Corp), Malaysian Agriculture Research and Development Institute (MARDI) and Federal Agriculture

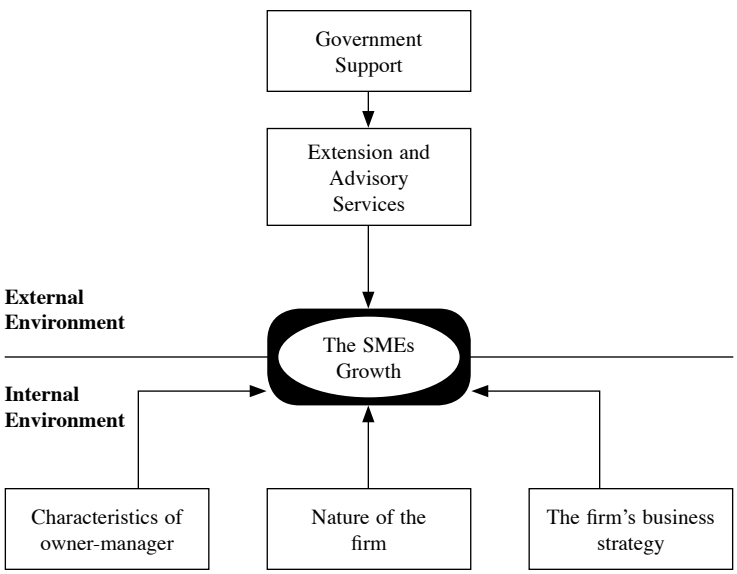

Figure 1. Proposed relationship among the variables

Marketing Authority (FAMA). Prior to sample selection, the list was scrutinized in order to avoid duplication. These selected firms were initially contacted via telephone to inform them about the study and request their willingness to participate in the survey.

Model specification

The relationship between the variables was analysed using logistic regression analysis. The selection of this analysis is appropriate in analysing categorical data. It has less stringent requirements where linear relationship between dependent and independent variables does not assume and hence the variables are not necessarily to be normally distributed. The logistic function is given as follows:

$$f(\pi) = e^{\alpha\beta}/(1 + e^{\alpha\beta}) \quad (1)$$

π = is the probability of the outcome of interest

$\alpha\beta$ = represents a linear function of independent variables

The relationship between independent and dependent variables in equation (1) is nonlinear. Hence, the natural log of outcome of interest (the natural log of the odds ratio) in equation (1) is transformed to form a linear relationship between independent and dependent variables. The general form of the logistic equation can be written as follows (Chao et al. 2002):

$$\ln \left[\frac{\pi}{1 - \pi} \right] = \alpha + \beta X + \ldots + \beta_n X_n \quad (2)$$

The left hand side of equation (2) represented the logit which is the natural log of odds of the occurrence of events. The odds ratio is the probability of the event occurring divided by the probability of the event not occurring. The coefficient is estimated using maximum likelihood estimation. The exponential of the logistic coefficient implies that when one unit changes in the independent variables, the ratio is expected to change by the same amount exponentially. The significance of the models have been tested using Chi-square Omnibus Tests of Model Coefficients while the models goodness of fit was evaluated using *Hosmer*and *Lemeshow* Test. The Nagelkerke R^2 indicates the percentage of variation in dependent variable explained by the model thus implying the greater the R^2 value the better the model.

In this study, the growth which is the dependent variable was estimated using two models. Model 1 was used to determine the extent to which the advisory services received influenced the firm sale. The dependent variable 'sale' is coded 'one' if the firm can increase sales and otherwise coded as 'zero'. Annual sales value for three consecutive years starting from 2008 until 2010 was gathered for the increase in sales calculation purposes. Sales increase ratio was calculated based on the difference between 2010 sales and 2008 sales value divided by the sales value of 2008. Sales is considered increased if the ratio is equal to 1.09 times or more (Malaysian Industry – Government Group for High Technology, 2010). This model has 24 variables and the detail indication of the variables is shown in Appendix 1. Model 2 was used to determine the extent to which the advisory services received influence from the owner's/ manager's ability to manage the business. The dependent variable is coded 'one' if the owner/manager could enhance their ability to manage the business and otherwise coded as 'zero'. The enhancement of owner/ manager ability to manage the business was assessed based on the recipient's view before and after receiving advisory services (Storey 1998). This model has 21 variables and the detail indication of the variables is shown in Appendix 2.

Results and discussion

Respondent's profiles

Out of the total of 103 small scale food processors interviewed, about 57.3% of

the respondents were females and 37.9% were in the age group of 46 years and above. Nearly 52.4% of the respondents received secondary education while 47.6% had tertiary education. In terms of experience, majority (62.1%) had at least five years experience. Around 73.8% respondents claimed themselves as business owners and 84.5% attended technical as well as management courses. The results of the study also showed that almost 62.1% respondents perceived the external environment as a threat to their business. About 60.2% and 66.0% respondents aimed to increase the size of business and the market share respectively.

In terms of firm characteristics, around 64.1% were micro-sized with 47.6% operating for less than 5 years. About 54.3% were formed as sole proprietorship. Firms with less than 10 workers accounted for 80.6% and almost 90.0% focused on the domestic market. About 18.4% firms were snack producers and the annual sales value for 40.8% firms were less than RM100,000. Of the total firms surveyed, nearly 68.0% had prepared an annual planning while 45.6% stated that they had practised online marketing. Most of the firms (85.4%) had developed networking with other parties. The results also showed that 67.0% firms provided training programmes for their employees and 70.9% firms stated that they had R&D initiatives. Firms having website and had introduced their product into the new market accounted for 34.0% and 36.9% respectively.The distribution of the types of advisory services received indicated that majority of the firms (85.4%) received technical advice, followed by business and management advice (61.2%) and marketing advice (50.5%). The number of firms which had received grants from government were also high, around 72.8%. There were eight prominent agencies involved in providing advisory services to the firms surveyed. Three institutions that had the highest number of recipients were the Department of Agriculture (DOA)(62.2%), followed by MARDI (55.3%) and FAMA (48.5%).

Estimated binary logit model

The results of the Chi-square Test and *Hosmer* and *Lemeshow* Test indicated that each model was significant and fitted the data well. Despite the standard errors being greater than one, it was still within the acceptable range. As suggested by Chan (2004), standard errors between 0.001 – 5.0 were considered as satisfactory. The overall accuracy of these models in making a prediction on sales growth and enhancing owner's/manager's ability to manage the business was high, 86.3% and 85.4% respectively. However, the models showed that there might be some other factors which could influence the dependents variables, which is beyond the scope of this study. This was because the Nagelkerke R^2 obtained for these models was 0.581 and 0.648 respectively. This meant that about 58.1 – 64.8% of the variations in the dependent variables were explained by the independent variables that included in the model (Tapsir and Fadhilah 2010).

Effect of advisory services on sales growth

From a total of 103 firms surveyed, only 80 firms provided data on annual sales. Out of 80 firms, 21.4% recorded increase in sales while 56.3% did not. *Table 1* shows the results of the binary logit model. In general, advisory services received with positive relationship with sales growth and having significant effect was only recorded for technical and business and management advices. The parameters estimated indicated that firms which received technical advice were more likely to increase sales by 58.95 times higher than those firms which did not. This could be due to the fact that the technical advice received could have helped the firm to produce good products or at least make some product improvements in terms of quality, taste and presentation. It is important to note that the demand for

processed food continued to increase as the consumers had more purchasing power (Mad Nasir and Jinap 2005).

Thus, by offering good products with good quality, the firms could satisfy the current market need and hence the sales could be stimulated. Firms that received business and management advices also had higher likelihoods to increase sales by as much as 7.42 times. The possible argument to support this finding was business and management advice could enhance the ability and confident levels of owner's/manager's in managing the business. It can also be argued that the advisor may help the owners/managers to realize the potential

Table 1. Estimated logistic regression model for increase in sale

Variables	Estimated coefficient	S.E.	*p*-value	Odds ratio
Owner-manager				
Gender	–0.344	1.090	0.753	0.709
Experience	0.140	0.093	0.132	1.150
Education	0.360	1.412	0.829	1.358
Ownership status	2.169	1.148	0.059*	0.114
Perception towards the external environment	2.383	1.108	0.032**	10.842
Aim to increase the size of business	–0.273	0.903	0.762	0.761
Aim to increase the market share	0.019	1.194	0.988	1.019
Firm				
Age	–0.056	0.087	0.520	0.945
Size	0.197	1.898	0.917	1.218
Workers	–0.119	0.065	0.068*	0.888
Investment	–1.517	1.756	0.388	0.219
Legal form	0.563	1.068	0.598	1.755
Served the export market	0.197	1.516	0.012**	11.149
Strategy				
Have training programme for employee	–0.088	1.076	0.935	0.916
Have practice online marketing	0.631	0.944	0.504	1.880
Have a networking with other parties	3.847	1.782	0.031**	1.021
Have R&D initiatives	–1.624	1.302	0.213	0.197
Have a website	1.296	1.095	0.237	3.653
Have introduced product into the new market	–0.545	0.877	0.535	0.580
Have an annual plan	0.476	1.081	0.659	1.610
Extension and advisory service				
Received technical advice	4.077	2.465	0.098*	58.949
Received marketing advice	1.572	1.123	0.161	4.819
Received business and management	2.005	1.139	0.079*	7.423
Received grant	0.324	1.176	0.783	0.723
Constant	–2.752	1.756	0.316	0.064

Nagelkerke R^2 0.581
– 2 log likelihood 53.088
Chi-square 41.099** (df = 24)[a]
Hosmer and *Lemeshow* goodness of fit test $\chi^2 = 12.844$ (P-value = 0.117)[b]
Overall percentage 86.3 percent[c]

*Statistically significant at $p < 0.10$, ** at $p < 0.05$; [a]Model Chi-square used to test the overall significant of the model; [b]Indicator used to test goodness of fit. When the value is greater than 0.05, the model is desirable (Zeng et. al. 2006); [c]Indicates the percentage of the dependent variable which is explained by all independent variables

of the business and guide them towards achieving better performance which finally could affect sales. The model also indicated that other variables that had significant effect on sales were ownership status, perception towards the external environment, number of workers, served the export market and had networking with others parties.

Effect of advisory services on owner's/ manager's ability to manage the business

Results of the binary logit model for owners/ managers ability to manage the business is shown in *Table 2*. The results indicated that business and management advices were significant and had positive relationship with the indicator used, suggesting that the

Table 2. Estimated logistic regression model for owner's/manager's ability to manage the business

Variables	Estimated coefficient	S.E	*p*-value	Odds ratio
Owner-manager				
Gender	−4.251	1.190	0.000***	0.014
Experience	0.298	0.114	0.009***	1.347
Education	3.489	1.178	0.003***	32.763
Ownership status	0.175	1.103	0.874	1.191
Perception towards the external environment	1.877	0.836	0.025**	6.532
Courses attended	−1.296	1.154	0.261	0.274
Firm				
Age	0.015	0.069	0.823	1.015
Size	1.598	1.150	0.165	4.941
Workers	−0.022	0.052	0.678	0.979
Legal form	0.858	0.997	0.390	2.358
Strategy				
Have training program for employee	−0.087	0.927	0.926	0.917
Have practice online marketing	2.358	0.960	0.014**	10.567
Have a networking with other parties	3.084	1.366	0.024**	21.849
Have R & D initiatives	−1.317	1.018	0.196	0.268
Have a website	−2.633	0.997	0.108	0.072
Have introduced product into the new market	−0.469	0.793	0.554	0.626
Have an annual plan	−2.153	1.041	0.039**	0.116
Extension and advisory service				
Received technical advice	1.140	1.104	0.302	3.127
Received marketing advice	−2.901	1.107	0.009***	0.055
Received business and management	−1.715	0.991	0.083*	5.557
Received grant	−1.510	0.961	0.116	0.221
Constant	−0.737	2.113	0.727	2.091

Nagelkerke R^2 0.648
– 2 log likelihood 59.525
Chi-square 61.002*** (df = 21)[a]
Hosmer and *Lemeshow* goodness of fit test $\chi^2 = 4.539$ (P-value = .806)[b]
Overall percentage 85.4 percent[c]

Note: *Statistically significant at p <0.10, ** at p <0.05, *** at *P<0.01*; [a]Model Chi-square used to test the overall significant of the model; [b]Indicator used to test goodness of fit. When the value is greater than 0.05, the model is desirable (Zeng et. al. 2006); [c]Indicates the percentage of the dependent variable which is explained by all independent variables

likelihood of owner's/manager's to enhance their ability to manage the business was 5.557 times higher than those owners/ managers who did not receive business and management advices. This could be due to the argument that by receiving business and management advices, the owners/managers could have gained personal development through knowledge acquired or temporary help obtained from the advisor (Ramsden and Bennett 2005). Moreover, having access to expert advices could reinforce the owner's/manager's learning process as well as increase their motivation towards successful business.

The marketing advice shows an inverse relationship, indicating that firms which received marketing advice was less likely to increase owner's/manager's ability to manage the business as much as 0.055 times. In fact, the results was unexpected because the recipients of advisory services should be remarked with a positive effect. However, it can be argued that the advisory service may not be given intensively or firms may acquire the advice from inaccurate sources. This could happen because previous studies have reported that some of the government's institution had overlapping functions and responsibilities. Mohamed and SyarisaYanti (2003) reported that such confusion could lead to inefficiencies and ineffectiveness of the programmes being run. *Table 2* shows that the owner's/manager's ability to manage the business was also influenced by other variables such as gender, experience, education level, perception towards the external environment, online marketing, networking practices and annual planning.

Conclusion

In general, the number of firms that received advisory services from government institutions is still low except for certain agencies like the DOA, MARDI, and FAMA where the number of recipients recorded for these agencies were above 40%. Unawareness about the services provided was among the reasons cited in previous literatures. However, the data gathered by this study cannot be used to confirm this finding. It is necessary to note that in the food processing industry, technically related matter is very important. Therefore, it was not surprising that 84.5% of firms claimed that they had received technical advice. Among the technical advices provided were quality improvement, capacity expansion, new product improvement, plan layout, processing technology and many more.

The two models used in measuring growth were Model 1: increase in sale and Model 2: enhance owner's/manager's ability to manage the business. Based on the results obtained, business and management advice was consistent in demonstrating the effect on both models. It had greater influence on sales and owner's/manager's ability to manage the business. Technical advice had greater effect on sales but not on the owner's/manager's ability to manage the business while for grant, despite the positive relationship with the two growth models, the effect was insignificant. The negative coefficient obtained for marketing advice in model 2, suggested that the owner's/manager's ability to manage the business was less likely to be enhanced. The results of this study suggested that the advisory service programme helped in building capacity and capability of the SMEs and should be continued with some transformation on method and approaches used.

Moreover, the department and agency must ensure that all officers, especially the front liners, should have a sense of urgency in doing their job, give priority and extra focus for potential SMEs, try to understand the SMEs by keeping good relationship with them as well as perform regular visits on the SME's premises. Younger officers should prepare themselves with greater knowledge and communication skills. This would help them to answer any questions raised by clients without waiting for consultation with senior officers. As the referred person, they must equip themselves

with greater expertise on specific areas. They also need to be confident during the consultation process. In this regard, they must appear as a resourceful and skilled person. The most important thing is, they should treat the SMEs equally when dealing with them. In the meantime, all departments and agencies should recognize the officer's level of competency, creativity and ability with the aim of empowering them on decision making. The departments and agencies should provide intensive training and courses to their manpower involved in providing advisory services.

It is possible to establish industrial extension centres to train and recruit government officers to be an expert in providing advisory services in the food processing industry.

The provision of advisory services among departments and agencies involved directly with SMEs development should be clear. Previous studies indicated that most of the SMEs were confused about the function of various departments and agencies. This situation occurs because some of the departments and agencies tend to provide a variety of advisory services that is beyond their expertise. Consequently, they failed to provide better services and hence led the SMEs to be frustrated. Even the government has introduced mechanisms to overcome the overlapping functions among the departments and agencies, but there is still room for improvement. Therefore, it is necessary for the government to conduct internal performance audit so that each department and agency know their boundaries.

The policy maker should review the current implementation of extension and advisory services from each department and agency to rectify the existing weaknesses. The departments and agencies should focus on a specific area according to their expertise. This could help the SMEs to better recognize the services provided by each department and agency. As such, it will facilitate them in acquiring advisory services from the accurate advisors. As for the extension agents, departments and agencies should give intensive guidance needed by the potential SMEs regardless of their size. The collaboration between departments and agencies in guiding the SMEs should be enhanced and transparent. The government should encourage each department and agency to apply the blue ocean strategy in implementing their programmes and activities to benefit the SMEs. It is necessary to see the collaboration as complimentary rather than as competitors. Moreover, the departments and agencies should focus on the outcomes upon the target groups rather than please the national top leader's aspiration and appreciation.

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Abstrak

Semasa Rancangan Malaysia Ke-9 (2006 – 2010), pembangunan Perusahaan Kecil dan Sederhana (PKS) telah menjadi keutamaan kerajaan. Pelbagai inisiatif telah dilaksanakan dengan tujuan untuk meningkatkan kecekapan PKS. Satu daripada inisiatif tersebut ialah program khidmat nasihat. Program ini memberi fokus kepada peningkatan kapasiti dan keupayaan PKS. Selepas dilaksanakan untuk beberapa tahun, kesan program ini perlu dinilai. Oleh itu, fokus kajian ini adalah untuk menilai kesan khidmat nasihat ke atas pertumbuhan firm pengilang makanan berskala kecil. Kajian ini memberi fokus kepada penilaian kesan khidmat nasihat ke atas perkembangan firma pengilang makanan berskala kecil. Data primer dikumpul daripada 103 firma dengan menggunakan borang soal selidik berstruktur. Data dianalisis menggunakan analisis deskiptif dan regresi logistik. Keputusan kajian menunjukkan bahawa penggunaan khidmat nasihat di kalangan responden masih rendah kecuali bagi Jabatan Pertanian (DOA), Institut Penyelidikan dan Kemajuan Pertanian Malaysia (MARDI) dan Lembaga Pemasaran Pertanian Persekutuan (FAMA) di mana jumlah pelanggan yang diberikan khidmat nasihat melebihi 40%. Majoriti firma yang terlibat dalam kajian ini menerima khidmat nasihat teknikal. Ini menandakan bahawa pengetahuan teknikal adalah sangat penting dalam industri pemprosesan makanan. Keputusan regresi logistik menunjukkan bahawa khidmat nasihat teknikal berpengaruh besar ke atas peningkatan jualan manakala khidmat nasihat perniagaan dan pengurusan berpengaruh besar ke atas peningkatan jualan dan keupayaan pemilik/pengurus dalam menguruskan perniagaan. Kajian ini mencadangkan bahawa program khidmat nasihat perlu diteruskan dengan beberapa transformasi terhadap kaedah dan pendekatan yang digunakan.

Appendix 1. Explanatory variables to measure increase in sales

Variables	Coding system
Owner-manager characteristics	
Gender	0. Female
	1. Male
Experience	Number of years in food processing
Education	0. Otherwise
	1. Tertiary level
Ownership status	0. Not business owner
	1. Business owner
Owner-manager Perception toward external environment	0. Threats
	1. Opportunity
Owner-manager aim to increase the size of business	0. No
	1. Yes
Owner-manager aim to increase the market share	0. No
	1. Yes
Firm characteristics	
Firm age	Number of years the firm being established
Firm size	0. Micro
	1. Small
Worker	Number of full time workers being employed
Investment	Total investment made
Legal form	0. Otherwise
	1. Private limited
Firm served the export market	0. No
	1. Yes
Business strategy	
Firm have training programme for employees	0. No
	1. Yes
Firm have practice online marketing	0. No
	1. Yes
Firm have a networking with other parties	0. No
	1. Yes
Firm have R&D initiative	0. No
	1. Yes
Firm have a website	0. No
	1. Yes
Firm have introduced product into the new market	0. No
	1. Yes
Firm have an annual plan	0. No
	1. Yes
Extension and advisory service	
Received technical advice	0. No
	1. Yes
Received Marketing advice	0. No
	1. Yes
Received business and management advice	0. No
	1. Yes
Received grant	0. No
	1. Yes

Appendix 2. Explanatory variables to measure enhanced ability to manage the business

Variables	Coding system
Owner-manager characteristics	
Gender	0. Female
	1. Male
Experience	Number of years in food processing
Education	0. Otherwise
	1. Tertiary level
Ownership status	0. Non-business owner
	1. Business owner
Owner-manager Perception toward external environment	0. Threats
	1. Opportunity
Courses attended	0. No
	1. Yes
Firm characteristics	
Firm age	Number of years the firm being established
Firm size	0. Micro
	1. Small
Worker	Number of full time workers being employed
Legal form	0. Otherwise
	1. Private limited
Business strategy	
Firm have training program for employees	0. No
	1. Yes
Firm have practice online marketing	0. No
	1. Yes
Firm have a networking	0. No
	1. Yes
Firm have R&D initiative	0. No
	1. Yes
Firm have the website	0. No
	1. Yes
Firm have introduced product into the new market	0. No
	1. Yes
Firm have an annual plan	0. No
	1. Yes
Extension and advisory service	
Received technical advice	0. No
	1. Yes
Received Marketing advice	0. No
	1. Yes
Received business and management advice	0. No
	1. Yes
Received grant	0. No
	1. Yes

Appendix 3. Socio-economic and demographic background

Characteristic	Frequency (n = 103)	Percentage
Gender		
Male	44	42.7
Female	59	57.3
Age		
Below 25	11	10.7
26 – 35	26	25.2
36 – 45	27	26.2
46 and above	39	37.9
Race		
Malay	98	95.1
Chinese	5	4.9
Education level		
Primary school	4	3.9
Secondary school	50	48.5
Diploma	20	19.4
First degree	27	26.2
Master	1	1.0
PhD	1	1.0
Experience		
Less than 5	64	62.1
6 – 15	31	30.1
16 – 25	5	4.9
26 and above	3	2.9
Ownership status		
Business owner	76	73.8
Non-business owner	27	26.2
Courses attended		
Yes	87	84.5
No	16	15.5
Perception towards the external environment		
Threats	64	62.1
Opportunities	39	37.9
Aim to increase the size of business		
Yes	62	60.2
No	41	39.8
Aim to increase market share		
Yes	68	66.0
No	35	34.0

Appendix 4. Firm characteristics

Characteristics	Frequency (n = 103)	Percentage
Form of business		
Sole proprietorship	56	54.3
Private limited	29	28.2
Partnership	18	17.5
Firm age		
Less than 5	49	47.6
6 – 10	20	19.4
11 – 15	16	15.5
16 and above	18	17.5
Annual sale		
Less than RM100,000	42	40.8
RM100,001 – RM500,000	41	39.8
RM500,001 – RM1,000,000	4	3.9
RM1,000,001 and above	16	15.5
Firm size		
Micro	66	64.1
Small	37	35.9
Investment		
Less than RM100,000	56	54.4
RM100,001 – RM500,000	31	30.1
RM500,001 – RM1,000,000	10	9.7
RM1,000,001 and above	6	5.8
Number of workers		
Less than 10	83	80.6
11 – 20	11	10.7
21 – 30	3	2.9
31 and above	6	5.8
Market		
Domestic	92	89.3
Domestic and export	11	10.7
Product cluster		
Snack	19	18.4
Bakery	18	17.5
Frozen food	14	13.6
Meat based product	9	8.7
Drink	9	8.7
Fish based product	6	5.8
Spices	6	5.8
Sauces	5	4.9
Confectionery	5	4.9
Pasta and noodles	4	3.9
Jam and spread	1	1.0
Others	7	6.8

Appendix 5. Business planning and strategy

Strategy and planning used	Frequency (n = 103)	Percentage
Firms have prepared an annual plan programme		
Yes	70	68.0
No	33	32.0
Firms have practised online marketing		
Yes	47	45.6
No	56	54.4
Firms have developed networking with other parties		
Yes	88	85.4
No	15	14.6
Firms have training programmes for employees		
Yes	69	67.0
No	34	33.0
Firms have R&D initiatives		
Yes	73	70.9
No	30	29.1
Firms have a webpage		
Yes	35	34.0
No	68	66.0
Firms have introduced products into the new market		
Yes	38	36.9
No	65	63.1

Appendix 6. Source of extension and advisory services

Agency		MARDI	MARA	DOA	FAMA	SME Corp	MATRADE	AGROBANK	SIRIM	OTHER
Recipients	n	57	33	64	50	25	10	17	28	24
	%	55.3	32.0	62.2	48.5	24.3	9.7	16.5	27.2	23.3
Non-recipients	n	46	70	39	53	78	93	86	75	79
	%	44.7	68.0	37.8	51.5	75.7	90.3	83.5	72.8	76.7
Total		103 (100)	103 (100)	103 (100)	103 (100)	103 (100)	103 (100)	103 (100)	103 (100)	103 (100)

Appendix 7. Type of extension and advisory services received

Type of extension and advisory services received		Technical	Marketing	Business and management	Grant
Yes	N	88	52	63	75
	%	85.4	50.5	61.2	72.8
No	N	15	51	40	28
	%	14.6	49.5	38.8	27.2
Total		103 (100)	103 (100)	103 (100)	103 (100)