

## INVESTIGATING OWNER-MANAGER'S INTENTION TO ADOPT ENVIRONMENTAL MANAGEMENT PRACTICES AMONG FOOD PROCESSING SMEs IN MALAYSIA

Malisah Latip<sup>1,2</sup>  
Ismawati Sharkawi<sup>2</sup>  
Juwaidah Sharifuddin<sup>1</sup>  
Zainalabidin Mohamed<sup>1</sup>

<sup>1</sup>Department of Agribusiness & Bioresource Economics, Faculty of Agriculture, Universiti Putra Malaysia (UPM), Serdang, Selangor (malisahlatip@gmail.com; juwaidah@upm.edu.my; zainal.mohamed@gmail.com)

<sup>2</sup>Department of Social Science, Faculty of Agriculture & Food Sciences, Universiti Putra Malaysia Bintulu Campus, Bintulu, Sarawak (ismawati.sharkawi@gmail.com)

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**Abstract:** *The environmental degradation is a global issue and at the current rate of economic and industrial development, the world might not be able to sustain the biodiversity and ecosystem in the future. From the business setting, interest on the environmental subjects started to grow when pressure from the public and environmental awareness groups elevated the specific requirements for companies. The theory of planned behavior (TPB) regards that individual's behavior is determined by the intention of performing a certain behavior. Accordingly, the individual intention is determined by three factors associated to anticipated outcome of the behavior, namely; (i) the attitude toward the behavior (ii) the perceived subjective norms and (iii) the perceived behavioral control over the action. Thus, the aim of this article is to establish the impact of these three factors towards the intention to adopt environmental management practices (EMPs). The data were collected via email-based survey, which was sent to 1473 owners-manager of food SMEs in Malaysia, and 367 usable samples were analyzed. Structural equation modelling (SEM) analysis was performed to analyze the causal effects of attitude, subjective norms and perceived behavioral control on the intention to adopt EMPs. The results of SEM revealed that two variables were found to be statistically significant, namely, perceived behavioral control ( $\beta = 0.597, p < 0.001$ ) and attitude ( $\beta = 0.255, p < 0.001$ ), whereas, subjective norm ( $\beta = 0.006, p = 0.888$ ) appeared to be insignificant. As can be seen from the findings, perceived behavioral control become the strongest predictor on intention to adopt EMPs, which reflected that entrepreneurs that have strong behavioral control will have more intention to adopt EMPs. On the other note, subjective norm was perceived as unimportant factor in determining the EMPs intention among the food manufacturing entrepreneurs in Malaysia.*

**Keywords:** *Environmental Management Practices, Food Manufacturing, Intention, Structural Equation Modelling, Theory of Planned Behavior*

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## **Introduction**

The role of small and medium enterprises (SMEs) in Malaysian economy is undoubtedly essential, as evidenced by SMEs GDP contribution, which increased steadily from 32.2% in 2010 to 37.1% in 2017. According to Economic Census 2016, there were 907,065 SMEs operated in Malaysia. In terms of percentage share of SMEs in the manufacturing sector, manufacturers of food products represent the largest number of establishments with 7,876 SMEs. By looking at this number, the possible negative impacts of SMEs business operations to the environment is undeniable. However, a lot of SMEs across the globe are lack of knowledge with regards to environmental management and at the same time do not understand the idea of environmental management. Consequently, it is relatively hard for SMEs to identify a strong relationship between environmental management system and the benefits that they will gain by implementing such system (Weerasiri and Zhengang, 2012).

Despite the essential contribution of food industry to the Malaysian economy, the development of food industry lead to serious environmental impacts, for example greenhouse gas emission, climate change, solid waste generation, which are subject to the quantity of resources used, waste generated and transport used in the processing system. As a result of rising human and industrial impacts on the environment, environmental issues have turned out to be more serious and wide-ranging. Every single stage in the food chain, from farm to fork is characterized by waste, by-products and air emissions, which may harm the environment. Based on analysis of manufacturing sectors, 23.7% of total sources of water pollution in Malaysia was caused by food and beverage sector in the year 2000. In other note, a study conducted by MARDI revealed an alarming statistic, in which stated that 15,000 tonnes of food are wasted every day. Moreover, food contributed between 31% and 45% of the 36,000 tonnes of garbage generated by Malaysian each year. All these food wastes then going through the treatment procedure and transported to treatment plants in which will require more fuel for transportation. The process of producing, packaging and transporting food wastes involve embedded energy costs which equals to at least 15 million tonnes of carbon dioxide each year.

In response to this issue, the implementation of environmental management practices (EMPs) as an instrument for an organization to administer the effects of its business activities on the environment should be emphasized. EMPs provide an organized strategy to plan and implement environment protection measures. In Malaysian context, most of the SMEs have yet given adequate attention to the issue of adverse environmental impact caused by SMEs daily operation (Yacob *et al.*, 2013). This can be seen from the low number of adoptions of formal environmental certification by SMEs in Malaysia (Salim and Padfield, 2017). For instance, the adoption of ISO 14001 certification in Malaysia show a slowly increasing trend from 1,281 in 2009 to 2,325 organizations in 2016 (ISO Survey, 2017). Whereas, in the context of SMEs, only 638 SMEs are certified with international environmental certification, and 507 of them are from manufacturing sub-sector (Economic Census, 2016).

The intention to implement EMPs possibly comes from the owner-manager's personal factors to conserve the environment. The owner-manager is the main decision maker in small business, which make their characteristics are essential in determining the attitude of the business

toward innovation. This is due to the fact that, the owner-manager's qualities are the factor that portraying the overall style of the business management. Moreover, the rate of changes in small business are subject to the abilities and willingness of the business owner.

In agreement with the significant role played by the owner-manager in SMEs, there is an avenue for further studies on factors affecting the intention to adopt EMPs amongst food processing SMEs in Malaysia. This article will discuss the underlying factors that led to owner-manager's intentions to adopt EMPs, by considering their perspectives, which will provide further insight into their decision-making process, thereby helping us better understand their behaviors, which essential for the development of sustainable development strategies.

### **Objective of the Study**

The aim of this paper is to investigate the influence of attitude, subjective norm and perceived behavioral control on the intention of food manufacturing SMEs owner-manager to implement EMPs in their organizations.

### **Literature Review**

The adverse impact of business activities on the environment has shown increasing concern in worldwide economies. There also has been growing pressure for SMEs owner-managers to make improvement in the activities and practices related to environmental management (Gerrans and Hutchinson, 2000). The business community facing tougher environmental standards and furthermore put pressure on business organizations to make improvement in their environmental practices. As compared to larger firms, small enterprises have significantly different behavioral characteristics with regard to environmental management. Small business has informal organizational structures, are owner-managed, and therefore, personal choices and attitudes can significantly influence socially responsible behavior among SMEs (Moore *et al.*, 2009). Battisti and Perry (2011) noted that the environmental attitude of owner-managers can become an enabling factor, however Cassells and Lewis (2011) stated that the attitude can also be a barrier to environmentally friendly activities.

SMEs business operations are somewhat dissimilar compared to large business. They also encounter different challenges when adopting EMPs (Brammer *et al.* 2012). In general, SMEs put more focus on daily business operations and be apt to respond to critical incidence situation. Therefore, long-term intangible benefits of implementing environmental management will view as unimportant. According to Gadenne *et al.* (2009), SMEs owner-managers believed that they have minimal impact on the environment. They assumed that the environmental subjects are global in nature, and thus surpassing their capability to resolve. Besides lack of financial resources, SMEs also fail to recognize the economic benefits of environmental management and therefore hinder their intention to invest in environmentally friendly activities (Revell and Blackburn, 2007).

### ***Theory of Planned Behavior (TPB)***

The theory of planned behavior (TPB) regards that individual's behavior is influenced by the intention of performing a certain behavior. Prior researches have utilized TPB model to clarify the behavior at an individual-level. But, according to Unsworth *et al.* (2012), TPB can be modified and applied to firm-level contexts, confirming earlier researches that claimed firm-level

outcomes are influenced by individual-level actions (Unsworth *et al.*, 2009). TPB encompasses three concepts namely, attitudes, subjective norms and perceived behavioral control. In view of these concepts, top managements of an organization for instance the owners, managers, or senior managers are directed by their attitudes (i.e. attitude toward EMPs in the context of current study), subjective norms (i.e. importance of stakeholder's opinion) and perceived behavioral control (i.e. the extent to which owner-manager perceive that they can control their behavior toward EMPs).

A plethora of studies have employed three main factors in TPB, namely, (i) attitude; (ii) subjective norm and; (iii) perceived behavioral control, to examine the intention of SMEs owner-manager to adopt environmentally-related practices. For example, in environmental practices intention (Yacob *et al.*, 2013), environmental management programs intention (Cordano *et al.*, 2010), environmental management system intention (Struwig and Lillah, 2017), cleaner technologies (Montalvo, 2003; Zhang, Yang and Bi, 2013), green practices intention (Rezai *et al.*, 2016, Chou *et al.*, (2012), and intention to undertake environmental measures (Sanchez-Medina *et al.* 2014). Majority of these studies agreed that the constructs in TPB have influential impact in determining the owner-manager's intention to adopt environmental or green practices. Therefore, in the context of present study, TPB is employed to model the owner-manager's intention to adopt EMPs, which in turn will have some impact on the firm-level outcomes.

## **Research Framework**

The TPB by Ajzen (1991) shapes the theoretical research framework of this study, as this theory provides a solid structural framework that permits the investigation of the impact of attitude, subjective norm and perceived behavioral control have on EMPs adoption intention. Appertaining to the TPB model, the present article suggests that owner-manager attitude toward environmental subjects have possibility to give some impact on the intention to adopt EMPs. In addition, the expectation by stakeholders (subjective norm) may influences the owner-manager perceptions with regard to their decision of EMPs adoption. Besides that, when owner-manager observe that they have the right resources, their self-control over the EMPs adoption will be increased. Figure 1 illustrates the proposed research model that was used for the current study.

### ***Intention to Adopt EMPs***

The central focus of TPB is the individuals' intention to take part in certain behavior. This variable refers to the degree to which owner-manager agree that they have intention to adopt EMPs in their business activities. The individual intention is determined by three factors associated to desired outcome of the behavior, namely; (i) the attitude toward the behavior (ii) the perceived subjective norms and (iii) the perceived behavioral control over the action.

### ***Attitudes***

The attitudes of top management are a vital element in adoption of organizational practices and organizational policies (Rynes and Rosen, 1995). The TPB postulates that favorable attitudes or positive beliefs towards a behavior and its outcomes will result in an improvement in that behavior. Prior studies specify that beliefs with regard to the association between humans and the environment would build up individual awareness, which then turns into pro-environmental behavior (Ibtissem, 2010; Dunlap *et al.*, 2000; Stern, 2000). Cordano *et al.* (2010) reported that the more positive the manager's attitude toward the benefit of environmental programs, the

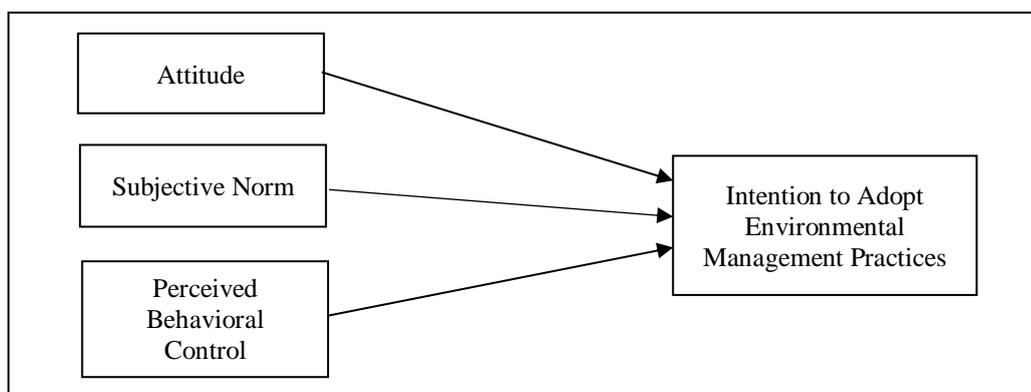
higher their intention to implement it. The finding by Sanchez-Medina *et al.* (2014) was consistent with Cordano *et al.* (2010), in which emphasized the positive influence of attitude toward intention to undertake environmental measures. Consequently, it is possible that if the SMEs owner-manager are aware of the firm's environmental impact and have an environmental worldview, there will be a high possibility that the owner-manager will adopt EMPs in their daily business operations.

### ***Subjective Norms***

Ajzen (1991) defined subjective norms as the social influences that affecting a person's intention whether to perform or not to perform a particular behavior. Subjective norms expose the beliefs of owner-manager with respect to how they would be observed by their stakeholders if they carry out a certain behavior. Research conducted by Cordano *et al.* (2010) recognized a positively significant impact of subjective norm in predicting the intention of wineries in USA to adopt an environmental program. In contrary, Chou *et al.* (2012) found that subjective norm was inconsequential in determining the hotel manager's intention to adopt green practices in Taiwan. In the perspective of current study, subjective norms are regarded as the perception of owner-manager whether their family, friends, and also their main stakeholders expecting them to adopt EMPs or not.

### ***Perceived Behavioral Control***

Perceived behavioral control is described as the degree to which organizations have complete control over their adoption behavior. Perceived behavioral control mirrors the previous experiences and expected obstacles and barriers to carrying out a particular behavior (Ajzen, 1991). Basically, perceived behavioral control can be view as an individual's perception of his or her control over the resources needed to execute the specific behavior (Kim and Chung, 2011). A study conducted by Sanchez-Medina *et al.* (2014) revealed that perceived behavioral control has positive influences on the SME owners' intention to implement environmental measures. In a similar vein, Rezai *et al.* (2016) specified that perceived behavioral control has a substantial impact on the intention to adopt green practices amongst herbal-based entrepreneurs in Malaysia. In essence, the stronger the owner-manager's self-control, the greater the likelihood that he or she will adopt EMPs. In the present study, perceived behavioral control is regarded as the SMEs owner-manager beliefs of how well they can control factors that may facilitate or constrain the actions and the resources needed to adopt EMPs.



**Figure 1: A Proposed Theoretical Model for Intention of EMPs Adoption**

## Research Methodology

This section involves the discussion of data collection and sampling techniques. It also goes into detail about the measurement of constructs and description of data analysis procedures.

### *Measurements*

In this study, three constructs namely; attitudes, subjective norms and perceived behavioral control were measured. These three constructs were measured with multiple items, using a seven-point Likert scale, which ranging from 1 (strongly disagree) to 7 (strongly agree). In order to ensure acceptable reliability, each construct was measured with a minimum of three items.

### *Sampling and Data Collection*

An email-based survey was used to collect primary data from 1473 SME owners-managers by a structured questionnaire. The samples were selected from directory of SME Corporation Malaysia Berhad. Of the 1473 samples, 385 companies completed the questionnaires. Eighteen questionnaires were excluded due to the incomplete information leaving 367 questionnaires to be analyzed in the study.

### *Data Analysis and Results*

The current study used IBM SPSS version 23 and AMOS Graphics version 23 to analyze the data. The descriptive statistics of the sample was analyzed by using means in SPSS. Other than that, structural equation modelling (SEM) using AMOS Graphics was used to examine the latent variables within their causal structure. The findings of the statistical analysis are presented in the subsequent sections.

### *Descriptive Statistics*

Table 1 show the results of descriptive analysis for demographic profile of the SMEs owner-manager, in which indicated that, of the 367 respondents, 58% of the owners-manager were male and 42% were female. Owners-manager ranged in age from 30 to 63 years and majority of them belongs to 40 to 49 years old category (44.1%). Most of the owners-manager had higher education level which were bachelor degree holder (36.2%), and 29.2% were diploma holder.

**Table 1: Demographic Profile of Owner-Manager**

<b>Characteristics</b>	<b>Number</b>	<b>Percentage</b>
<b><u>GENDER</u></b>		
Male	213	58.0
Female	154	42.0
<b><u>AGE</u></b>		
30-39	92	25.1
40-49	162	44.1
50-59	102	27.8
60 and older	11	3.0

<b><u>RACE</u></b>		
Malay	104	28.3
Chinese	140	38.1
Indians	44	12.0
Bumiputra Sabah	29	7.9
Bumiputra Sarawak	50	13.6
<b><u>EDUCATION LEVEL</u></b>		
Primary School	15	4.1
Secondary School	56	15.3
Diploma	107	29.2
Bachelor Degree	133	36.2
Master/PhD Degree	8	2.2
Others	48	13.1

On the other hand, Table 2 illustrates the descriptive statistic for company's profile, in which depicted that 71.7% of SMEs were categorized as small-sized enterprises and 28.3% were medium-sized enterprises, and more than half of the companies were private limited company (52.9%). Majority were established between year 2001 until 2010 (55.9%). In addition, 65.9% of the SMEs indicated their annual sales revenue were ranged between MYR300,000 to MYR15 million, 22.9% reported that their revenues were greater than MYR15 million, and 11.7% of SMEs obtained revenue less than MYR300,000.

**Table 2: Company's Profile**

<b>Characteristics</b>	<b>Number</b>	<b>Percentage</b>
<b><u>TYPES OF ENTERPRISE</u></b>		
Sole Proprietorship	51	13.9
Partnership	112	30.5
Private Limited Company	194	52.9
Limited Company	10	2.7
<b><u>YEAR OF ESTABLISHMENT</u></b>		
< 1980	10	2.7
1980 - 1990	28	7.6
1991 - 2000	94	25.6
2001 - 2010	205	55.9
≥ 2011	30	8.2
<b><u>ANNUAL REVENUES (in MYR)</u></b>		
Below 300K	43	11.7
300K < 15 million	242	65.9
15 million ≤ 50 million	84	22.9
<b><u>SIZE OF ENTERPRISE</u></b>		
Small (5 ≤ 75 employees)	263	71.7
Medium (75 ≤ 200 employees)	104	28.3

### Structural Equation Modelling Analysis

Perceived behavioral control ( $\beta = 0.597, p < 0.001$ ) turned out to be the most influential factor in affecting intention. SMEs owner's self-control has a significant positive effect on intention to adopt EMPs, which signify that, the more the owner-manager perceived they can control the resources to adopt EMPs, the more likely they will implement it. In the similar vein, SMEs owner's attitude ( $\beta = 0.255, p < 0.001$ ) also has a significant positive effect on intention to adopt EMPs. On the other hand, subjective norm ( $\beta = 0.006, p = 0.888$ ) emerged to be not statistically significant. The results of the standardized regression weight for each construct is shown in Table 3.

**Table 3: The Standardized Regression Weight**

Path		Path	$\beta$	$p$
Intention	<----	Attitude	0.255	***
Intention	<----	Subjective Norm	0.006	0.888
Intention	<----	Perceived Behavioral Control	0.597	***

### Discussions

Results of SEM analysis proved the significant influence of owners-managers perceived behavioral control on intention to adopt EMPs. Montalvo (2003) noted that among the factors affecting adoption of clean technology, the greater technological capabilities owns by an enterprise serve as the most influential factor, compared to strong positive attitudes and high social pressures. Consistent with current study findings, the impact of perceived behavioral control is much more prominent than are attitudes toward EMPs intention. For food manufacturing SMEs, implementing EMPs results in a combination of perceived control over the resources (e.g. technological, financial and employees' competencies) and different level of obstacles, thus affecting the success and the completion of EMPs adoption. The findings of the present study also in line with earlier studies by Sanchez-Medina *et al.* (2014) and Rezai *et al.* (2016), who both found significant positive relationship between perceived behavioral control and intention. These further reflecting that, the stronger owner-manager's self-control over the resources associated with EMPs, the greater their intention to adopt such practices.

Moreover, the research done by Cordano *et al.* (2010) and Sanchez-Medina *et al.* (2014) provide empirical support for the significantly positive impact of owner-managers' attitude on the intention to implement environmental programs. Majority of the SMEs owner-manager in this study, observed EMPs as worthwhile, good investment, can reduce environmental impact and will become their priority in the organizational strategy, which indicated that they have favorable evaluation of implementing EMPs and lead to increase their intention to adopt EMPs in the future.

Apart from that, subjective norm appeared to be not significantly influenced the SME owner-managers' intention to adopt EMPs, which further reflecting that the opinions of referent groups such as family, friend, customer, competitor and supplier were not important in determining the EMPs intention. The result of the current study is in contrast with the previous study done by Cordano *et al.* (2010), in which highlighted that social norms concerning environmental stewardship were strongly connected to adoption of EMP mechanisms. However,

the current finding is consistent with the study by Chou *et al.* (2012) in which discovered the unimportant influence of subjective norm perceived by the owner-manager in their decision to adopt EMPs.

## Conclusions

This article suggested and empirically examined TPB framework to clarify the factors influencing intention to adopt EMPs by food processing SMEs in Malaysia. These findings offer beneficial insights into the adoption of EMPs among Malaysian food processing companies. Understanding the factors that influencing owner-managers' intention to implement EMPs in their organizations is crucial, in order to encourage their participation in adopting such practices. The TPB also appears to be a suitable framework to examine the intentions of entrepreneurs to implement EMPs in their business operations. Based on the SEM analysis, the results could assist the relevant stakeholders to improve their knowledge and understanding of the drivers of SMEs intention to adopt EMPs.

In view of the significant and positive impact of perceived behavioral control on owner-managers' intention to adopt EMPs, it would be essential to provide the suitable resources, and simplify the process of obtaining formal environmental certification to influence their behavioral intention. The government should actively promote the concept of EMPs by offering courses, consultations and training to the SMEs, so as to improve their awareness and increase the exposure towards environmental problems cause by SMEs' operational activities. These kinds of initiatives are essential to inculcate the attitude and belief that EMPs is the way to go in order to conserve environment and sustainable development. Apart from that, the government should introduce incentives such as taxation reductions for SMEs that obtained formal environmental certification and for buying eco-friendly equipment and machinery to increase their involvement in practicing environmentally friendly concept, and at the same time lighten their financial burden in adopting EMPs.

Future research should consider to include internal (i.e. employees and shareholder pressure) and external (i.e. customer pressure, government regulation) factors of an organization that possibly have some impact on the EMPs intention to adopt EMPs among the SMEs owner-manager.

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