FACTORS INFLUENCING GREEN PROCUREMENT ADOPTION IN FOOD AND BEVERAGE SME

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Abstract: This research focuses on identifying factors influencing Malaysian food and beverage SMEs in adopting green procurement in business operations. Green procurement is a tool to protect the current environment for the next generation by minimizing waste. A quantitative approach is used in this research while food and beverage SMEs in Kuala Lumpur was the focus area. Four independent variables have been identified in this study namely customer awareness, cost, competition and regulations. This research demonstrates that adoption of green procurement does indeed net positive benefits to organizations and contributes to overall sustainability of the environment and economy. Nevertheless, organizations are sceptical in implementing green procurement on a larger scale due to factors such as lack of awareness and lack of cost benefit analysis. As such, strategically developing green procurement by realizing the full extent of benefits in green procurement requires proper planning and support from authorities and management likewise.

Keywords: Green procurement, food and beverage, SMEs, Malaysia, Packaging

INTRODUCTION:

Circular economic system needs to be introduced as the world loses its capacity to sustain in the empirical economic and demographic trends as is in the linear economic system (Sariatli, 2017). It is a system that keeps the added value in a product for as long as possible and eliminates waste. In other words, when the life of a product ends, resources were kept within the economy and can be used productively again and again and hence create further value (European Commission, 2014). Nonetheless, the awareness and trend towards circular economy by government is still on a minimal level even though it implies a more manageable waste, recyclable resources, profitable organizations and more sustainable environment (Sariatli, 2017).

![Figure 1.1: The percentage of Plastic Market in Malaysia in 2018](source)

Source: Mordor Intelligence, 2018.

Figure 1.1: The percentage of Plastic Market in Malaysia in 2018
Among the ASEAN countries, Malaysia is the largest exporter of plastic products (Mordor Intelligence, 2018). In 2017, the revenue of Malaysia plastic market was estimated to grow with an expected Compound Annual Growth Rate (CAGR) of 5.27% over 2018-2023. Among all other applications, packaging is the leading application of the plastic market as shown in Figure 1.1. Increasing demand of plastic worldwide shows green procurement adoption is needed to reduce the harm of plastic to the social and environment.

A report from Grand View Research (2018) illustrates that the industry of green packaging products is blooming swiftly as shown in Figure 1.2. In 2016, the green packaging market size worldwide was estimated to reach a CAGR of 5.7% on 2024. The booming of this market indicates that manufacturers should adopt green procurement to cater for the demand of customer and global change.

Table 1.1: Number of Establishments and Percentage Share to Total Establishments of SMEs and Large Firms

|        | EC 2011 - published (Reference Year 2010) | EC 2011 - revised (Reference Year 2010) | EC 2016 (Reference Year 2015) |
|--------|------------------------------------------|----------------------------------------|-------------------------------|
|        | SMEs | Large Firms | Total | SMEs | Large Firms | Total | SMEs | Large Firms | Total |
| No. of establishment | 645,136 | 17,803 | 662,939 | 638,790 | 9,470 | 648,260 | 907,065 | 13,559 | 920,624 |
| % share to total establishment | 97.3 | 2.7 | 100.0 | 98.5 | 1.5 | 100.0 | 98.5 | 1.5 | 100.0 |

Source: Department of Statistics Malaysia
http://www.smecorp.gov.my/images/SMEAR/latest/2/Census%20English_FINAL.pdf

Effective 2013, SMEs are redefined as firms with permanent workers below 200 or annual sales turnover of no greater than RM50 million for manufacturing sector (SME Corp. Malaysia, 2019). The census in Table 1.1 showed that there are 907,065 SMEs establishments in Malaysia which represent 98.5% of the total.

Malaysia has been rated as the eighth worst country worldwide for the production of plastic waste (Zakri, 2018). However, most of the plastics wastes are not compostable. Landfilling becomes the first option to cater for this plastic waste (Madushanka and Ragel, 2016). Even though many problems arise due to the open-air landfills, 85 percent of these landfills have reached their maximum capacity and have to shut down in the next few years (Clean Malaysia Team, 2015). When land is not sufficient to dump the waste, this
waste ends up in oceans thus risking the marine life (Transparency Market Research, 2014). Furthermore, there is a lack of public awareness and environmental education among Malaysian. Malaysian’s poor understanding of resource conservation and recycling results in building up of the solid waste. In fact, Malaysian only recycled 5 percent of the total average daily waste produced by them (Clean Malaysia Team, 2015).

As such, this research will focus on factors affecting the implementation of green procurement from the F&B manufacturers’ perspective. By identifying such factors, policy makers and the business organizations will be well equipped in enhancing business strategies and aligning national agendas toward a more sustainable environment that will further reiterate a positive approach toward achieving developed country mentality.

**Conceptual Framework**

![Proposed Conceptual Framework](image)

**Green Procurement and its Adoption**

According to Lozano and Witjes (2016), circular economy focuses on converting waste into resources while linking consumption and production activities. Consequently, waste can be minimized while value of products, materials and resources can be maintained (Deus, et al., 2017). Green procurement is one way to practice circular economy and it is adopted by most multinational corporations (MNCs) as compare to SMEs because MNCs have strong financial resources to implement the required procedures, equipments and facilities (Dimosthenis, et al., 2014).

Developing country like Malaysia depends on manufacturing sector to boost the country development. The shift of Malaysia to manufacturing industry has caused the increase in pollution and waste (Aznin, et al., 2017). Therefore, as the backbone of industrial development in Malaysia, SMEs should adopt green procurement since it brings strong impact to the economy, industry, and environment (Haslinda and Muruga, 2015).

**Customer Awareness**

According to Gbadeyan and Omolekan (2015), a person who avoids consuming products that will bring negative impact to the environment during all stages of the life cycle of the particular product is called a ‘green consumer’. In fact, Niemann, Kotze and Adamo (2016) mentioned that the most significant driver for
green initiatives of organization is the demand for green products and services by the customer. Awareness among customers raises and they require company to adopt green procurement (Dellis, 2016). Hence, food and beverage industry must change their business operation and strategy to cater for the demand of customer accordingly.

On the other hand, health consciousness is another main factor towards green purchasing intention among Malaysian consumers (Syaidatina and Norazah, 2013).

**Cost**

Malaysia is lacking of green technologies and needs to import from other countries (OECD, 2012). High capital investment and staff training costs need to be bear by companies when implementing green procurement (Langat and Daniel, 2015).

Apart from that, environmental friendly raw material often cost more than normal materials (Reddy, 2016). Thus, cost factor needs to be looked into deeply for the profit and sustainability of business if the particular industry prefers to adopt green procurement. Else, capital constraint will bring the company to failure.

**Competition**

Porter (1985 cited in Crassous and Gassmann, 2011) suggested that many organizations are starting to achieve sustainable competitive advantage. Hence, food and beverage SMEs which adopt green procurement could create competitive advantage by differentiating themselves with other competitors who still adopt normal procurement that brings effect to the environment and healthy of public.

Furthermore, green procurement leads to efficiency in the supply chain management and also logistics activities. Products with green packaging tend to be packaged in more lightweight sustainable materials which can then reduce transportation costs (Roberge, 2018). Also, materials used in green packaging are made from materials that are healthy in all probable end-of-life scenarios (Robertson, 2009). Hence, quality of products could be enhanced.

**Regulations**

Malaysia government has enacted policy and law in environmental management (Noranida and Khairulmaini, 2014). Non-compliances of regulations enacted by government could increase the threats on penalties and fines. In fact, according to Amad and Wolfgang (2019), adoption of sustainability practices such as green procurement by SMEs and increment in sustainability-related awareness are influenced by legislation.

In addition, Reddy (2016) mentioned that governments encourage organizations to adopt green by having an incentive in the form of tax-cut. Besides, tax authorities will charge higher taxes to manufacturers who use unrecyclable materials whether fully or partly in packaging the products.

**Institutional theory**

Green procurement drivers such as customer awareness, cost, competition and regulations serve as the normative, mimetic and coercive forces to stimulate the green procurement adoption in this theory.

Coercive pressure occurs when governments, legal bodies and relative documentation set the specific legal standard and regulations that organizations must act in compliance with (Johnston, 2013).

Normative pressure occurs when suppliers and customers define the appropriate ways in which to act (Johnston, 2013). Cost and customer awareness act as normative pressure because reducing cost and
satisfying customer demand are the common practice in any company.

As suggested by Johnston (2013), mimetic pressure occurs when organizations face an uncertain or unclear situation, they try to mimic other similar organizations within their industry. In this case, competition acts as mimetic force since organizations will perceive that they lose their competitive advantage if they fail to adopt green procurement like other competitors.

**RESEARCH DESIGN:**

*Sampling Design*

The population of food and beverage SMEs in Klang Valley is 2500. A total of 80 food and beverage SMEs in Kuala Lumpur is the target population in this study. Company managers and top level managements will be the target respondents while the sample size is set at 40. Questionnaires were distributed to respondents in Kuala Lumpur through email. Homogenous purposive sampling is used since the selected respondents can provide insightful information for this research problem and they can better answer the research questions. As such, the research will answer the significance of hypotheses developed for the purpose of identifying factors affecting the implementation of green procurement by F&B manufacturers in Kuala Lumpur. The hypotheses are stated below for further clarity:

**Hypotheses of Study**

**Hypothesis 1**

H₀: There is no significance between customer awareness and green procurement adoption.

H₁: There is significance between customer awareness and green procurement adoption.

**Hypothesis 2**

H₀: There is no significance between cost and green procurement adoption.

H₂: There is significance between cost and green procurement adoption.

**Hypothesis 3**

H₀: There is no significance between competition and green procurement adoption.

H₃: There is significance between competition and green procurement adoption.

**Hypothesis 4**

H₀: There is no significance between regulations and green procurement adoption.

H₄: There is significance between regulations and green procurement adoption.

**Data analysis**

SPSS Statistic software was used to perform the data analysis and to analyze the data gathered from questionnaires. Descriptive analysis, inferential analysis and content analysis are performed in this research. Descriptive analysis was used to summarize the demographic profile of respondents and organize the data in informative way. Inferential analysis consists of Pearson’s correlation coefficient and logistic regression model where Pearson's correlation coefficient measured the linear correlation between the four independent variables and the dependent variable while a logistic regression analysis illustrates the association between a
dependent variable and a set of independent variables. Content analysis is used to convert and summarise the quantitative data.

**FINDINGS AND DISCUSSION:**

*Table 4.1: Pearson’s correlation analysis*

|       | CA       | COST     | COMP     | REG     | GPP     |
|-------|----------|----------|----------|---------|---------|
| CA    | Pearson Correlation 1 | -.135 | .617** | .052 | -.635** |
|       | Sig. (2-tailed) .406 | .000 | .750 | .000 |         |
| N     | 40       | 40       | 40       | 40       | 40      |
| COST  | Pearson Correlation -.135 | 1 | -.312 | -.046 | .208 |
|       | Sig. (2-tailed) .406 | .050 | .778 | .197 |         |
| N     | 40       | 40       | 40       | 40       | 40      |
| COMP  | Pearson Correlation .617** | -.312 | 1 | -.008 | -.432** |
|       | Sig. (2-tailed) .000 | .050 | .960 | .005 |         |
| N     | 40       | 40       | 40       | 40       | 40      |
| REG   | Pearson Correlation .052 | -.046 | -.008 | 1 | .155 |
|       | Sig. (2-tailed) .750 | .778 | .960 | .341 |         |
| N     | 40       | 40       | 40       | 40       | 40      |
| GPP   | Pearson Correlation -.635** | .208 | -.432** | .155 | 1 |
|       | Sig. (2-tailed) .000 | .197 | .005 | .341 |         |
| N     | 40       | 40       | 40       | 40       | 40      |
H₁ and H₃ are accepted which means that customer awareness and competition has a significant but negative relationship with green procurement adoption since the P-value (0.000 and 0.005) are below the significance level respectively. This means that by adopting green procurement in food and beverage industry, only the customer awareness and competition will increase.

H₂ and H₄ are rejected which means that cost and regulations has positive but no significant relationship with green procurement adoption since the P-value (0.197 and 0.341) are greater than the significance level respectively. This means that cost and regulations contribute to green procurement adoption but do not influence much in the industry.

### Table 4.2: Model Summary

| Step | -2 Log likelihood | Cox & Snell R Square | Nagelkerke R Square |
|------|-------------------|----------------------|---------------------|
| 1    | 23.259a           | .343                 | .542                |

Table 4.2 shows that the independent variables (customer awareness, cost, competition and regulations) have strong relationship of 54.2% with the dependent variables (green procurement practice).

### Table 4.3: Variables in equation

| Variables in the Equation | B     | S.E. | Wald  | df  | Sig.  | Exp(B) | 95% C.I.for EXP(B) |
|---------------------------|-------|------|-------|-----|-------|--------|-------------------|
|                           |       |      |       |     |       |        | Lower            | Upper            |
| Step 1*                   |       |      |       |     |       |        |                  |                  |
| CA                        | -1.181| .504 | 5.478 | 1   | .019  | .307   | .114             | .825             |
| COST                      | .824  | .826 | .995  | 1   | .319  | 2.279  | .452             | 11.501           |
| COMP                      | -.165 | 1.394| .014  | 1   | .906  | .848   | .055             | 13.025           |
| REG                       | .535  | .510 | 1.100 | 1   | .294  | 1.707  | .628             | 4.637            |
| Constant                  | .654  | 5.094| .016  | 1   | .898  | 1.923  |                  |                  |

From Table 4.3, customer awareness (p=0.019) added significantly to the model. Cost (p=0.319), competition (p=0.906) and regulation (p=0.294) did not add significantly to the model. Exp (B) value shows that a unit increase in customer awareness will cause 0.307 times increase in food and beverage industry willing to practice green procurement.

**RECOMMENDATION:**

**Practical Implications**

Based on the feedback collected from selected respondents, one of their green procurement strategies is by using environmental friendly ink and recyclable carton in product packaging. Another suggestion on implementation of green procurement strategies is SMEs could communicate the intention of going green with their respective suppliers to form collaboration with them. Besides, employees of the companies need to be educated on the benefits and idea of green procurement so that they can perform better in the procurement activities and awareness on green practice could be built within the industry.

Government may introduce more regulations in future to protect the environment and encourage companies to go green since green practice is now the trend in the world. Therefore, companies can reduce the chance of getting penalties by implementing green procurement before government introduces stricter rules.
The customer trend will shift towards green procurement sooner or later. To meet the customer demand is always the common practice in every business. When more customers demand for green packaging in products, companies have to move towards green to cater customer demand.

The application of green technology may be costly in initial phase, but, it reduces cost in the long run. Companies are suggested to view cost reduction in a broader picture. This is because recyclable green materials could be recycled by using the green technology implemented in the companies itself. Hence, cost is reduced in the long run.

The food and beverage SMEs suggest that they are using environmental friendly ink and recyclable carton in packaging their products. They also claimed that quality of the products will improve by using these green packaging materials. Hence, it is obvious that green procurement and implementation create competitive advantage to food and beverage SMEs and those companies who have not practiced green procurement should follow the trend.

**Theoretical Implications**

Regulations introduced by the government act as the coercive force in food and beverage SMEs. Based on the findings, regulations are positively correlated to green procurement adoption. Hence, when regulations implemented by government increase, green procurement adoption by SMEs will also increase. However, the results indicate that there is no significance between regulations and green procurement adoption. This shows that regulations enforced by government is not strict enough to threaten SMEs in practicing green procurement.

On the other hand, customer awareness and cost factor act as the normative force in food and beverage SMEs. Based on the findings, customer awareness is significance but negatively correlated to green procurement adoption which means after implementation of green procurement in SMEs, only the awareness among customers will raise. Apart from that, cost is insignificance but positively correlated to green procurement adoption which means investment in green procurement is costly and SMEs perceived that it is not necessary for them to invest in green.

Moreover, competition within the industry act as the mimetic force in food and beverage SMEs. Competition is significance but negatively correlated to green procurement adoption based on the results generated from SPSS software. Hence, it is said that competition within the industry contributes to green procurement adoption but it increases only after SMEs start to implement green procurement.

**CONCLUSION:**

The study aimed at identifying the factors influencing green procurement adoption in food and beverage SMEs. The problem of waste arising from packaging is a major issue in Malaysia. Hence, green procurement adoption is important in Malaysia. However, most of the SMEs in Malaysia are not practicing green procurement based on the findings. Although all the 4 independent variables are contributing factors to these phenomena, customer awareness and competition show negative significance relationship with DV while cost and regulations show positive insignificance relationship with DV. In future, researchers could look into social procurement which covers a broader view on procurement and is an emerging area of interest. Apart from that, other stakeholders such as suppliers, customers and relevant authorities should be included as respondents to answer the questionnaire as they are part of the important players in the industry. Green procurement is a relevant process that is vital for organizations. As such, embracing the concept and alternating business strategies to cope with such demands and dynamics is a virtue that businesses should focus.
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