SEMARAK ILMU PUBLISHING

Semarak International Journal of Entrepreneurship, Economics and Business Development

Journal homepage:
https://semarakilmu.my/index.php/sijeebd/
ISSN: 3083-8053

Exploring Factors Influencing Single-Use Plastic Reduction among Small Medium Enterprise (SMEs)

Nur Qistina Dayini Mohd Musli[1], Zakiah Syamra' Suhaimi[1,*], Chutikarn Suppatvech[2]

[1] Jabatan Pengurusan Logistik dan Pentadbiran Perniagaan, Fakulti Pengajian dan Pengurusan Pertahanan, Aras 3, Bangunan Bestari, Universiti Pertahanan Nasional Malaysia, Kem Perdana Sungai Besi, 57000 Kuala Lumpur, Malaysia
[2] Faculty of Industrial Technology, Valaya Alongkorn Rajabhat University under the Royal Patronage 1 Moo 20, Phaholyothin Road, Khlong Luang, Pathum Thani, Thailand

ARTICLE INFO

Article history:
Received 25 November 2025
Received in revised form 31 January 2026
Accepted 3 February 2026
Available online 5 February 2026

Keywords:
SMEs; resource availability; single-use plastic reduction; behavioral intention

ABSTRACT

It is estimated that 11 million metric tons of plastic are dumped into the ocean every year, with this figure projected to triple by 2040. Recognising this issue, the Malaysian government has initiated a roadmap towards zero single-use plastics 2018 – 2030 to encourage the industry to transition to eco-friendly products. While larger enterprises are benefitted with abundance resources, small and medium enterprises (SMEs) often are at a competitive disadvantage in terms of human, financial and technical capital. Therefore, drawing from integrated theoretical perspectives, this research explores factors influencing single-use plastic reduction among retail SMEs. A survey questionnaire was employed to collect data from 384 SMEs in Malaysia. Findings showed that resource availability was the most significant determinant in reducing single-use plastics, followed by institutional pressures and personal norms. Resolving resource constraints and improving regulatory frameworks are crucial to achieving sustainable plastic reduction among SMEs. Tailored interventions which consider industry-specific targets and resource limits are critical to the success of future initiatives aimed at reducing plastic waste.

1. Introduction

Environmental sustainability has become a crucial global priority due to worsening environmental damage, resource depletion, and climate change. For small and medium-sized businesses (SMEs), environmental sustainability concerns conducting business activities in ways that reduce negative environmental impacts while maintaining operational effectiveness [1]. Durrani *et al*., [2] further explained that such practices include reducing energy consumption, minimizing waste, using renewable energy sources, and lowering carbon emissions.

In 2015, the United Nations introduced the Sustainable Development Goals (SDGs) to guide global efforts towards a more equitable and environmentally sustainable future. Several goals,

* *Corresponding author.*
E-mail address: zakiah@upnm.edu.my

particularly SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 14 (Life Below Water) emphasise the urgent need to reduce plastic waste and mitigate its harmful effects on the environment.

SMEs, especially those in the retail packaging and food and beverage (F&B) sectors, often rely heavily on single-use plastic packaging. White and Lockyer [3] define single-use plastics as materials that are used for one time before being disposed. They are commonly used at the point of sale to package and deliver products to customers as mentioned by Heidbreder *et al*., [4]. According to Xanthos and Walker [5], single-use plastic packaging includes shopping bags, drinking straws, food containers, cutlery and plastic bottles. However, the widespread use of single-use plastic packaging contributes significantly to exacerbating plastic pollution.

While large organizations have increasingly explored eco-friendly packaging alternatives, SMEs often face considerable challenges in adopting green innovation due to limited financial resources and a lack of technical expertise [6]. Insufficient information and high initial implementation costs further hinder SMEs from integrating into sustainable practices in their operations [7]. As a result, many SMEs continue to depend on single-use plastics, despite their significant environmental consequences.

Achieving sustainability objectives, therefore, requires greater attention to environmental priorities across all business sectors. The level of environmental concern among individuals and organisations in Malaysia reflects the severity of the country's environmental challenges. Sustainability initiatives should not only be limited to large corporations but also require commitment from SMEs. In this regard, Hassan *et al*., [8] emphasized that SMEs must incorporate sustainable practices into their operations to ensure a more sustainable future for coming generations.

Despite increasing awareness about plastic pollution, existing literature predominantly focuses on consumer behaviour, with limited empirical attention given to SMEs, particularly in developing economies such as Malaysia. This gap is significant, as SMEs constitute a substantial portion of Malaysia's economic landscape, yet they continue to face financial constraints, inadequate knowledge, and restricted access to sustainable alternatives. Addressing this gap is essential to understanding the behavioral factors that shape SMEs' intention to reduce single-use plastics and to support Malaysia's national sustainability commitments. Hence, this study adopts integrated theoretical approaches, specifically the institutional theory, resource-based view (RBV) and norm activation to address the following research question:

"What are the contributing factors influencing behavioral intention to reduce single-use plastic among SMEs?"

1.1 Institutional Pressures

Institutional pressures are external influences that compel companies to align with the rules, standards, and expectations established by their institutional environment [9]. These pressures arise from the need for organizations to comply with government regulations, industry norms, and societal demands. According to DiMaggio and Powell, [10], institutional pressures can be categorised into coercive, normative, and mimetic pressures, each influencing organizational behaviour in different ways. Coercive pressures occur when companies are required to adopt specific practices due to legal obligations or regulatory mandates [11]. It is highlighted that coercive forces emerge when stakeholders exert influence through laws, regulations, sanctions, and potential penalties [12]. Such pressures are particularly relevant for SMEs in Malaysia, where governmental policies increasingly emphasise reducing single-use plastics.

Normative pressure arises from professional norms, shared values, and social expectations within the organizational environment, which pressures encourage organizations to adopt new standards, behaviors, or sustainability practices [12,13]. Meanwhile, mimetic pressure emerges when organizations face uncertainty and choose to imitate the actions of competitors or industry leaders. Liang *et al*., [12] explained that such pressures develop as firms respond to internal and external stimuli that signal the need to adopt similar practices to maintain competitiveness. Overall, these external forces collectively shape SMEs' readiness and ability to reduce their environmental impact, particularly in managing and minimising single-use plastic waste. The following hypothesis is proposed.

H1: There is a significant relationship between institutional pressures and behavioral intention in single-use plastic reduction.

1.2 Personal Norms

Schwartz [13] defines personal norms as expectations from oneself based on internalized ideals. Personal norms show dedication to internalize values and serve as sentiments of personal obligation to participate in specific behaviors. When personal norms are activated, they exert an effect on behavior. Harland *et al*., [14] stated that activation happens once a person becomes conscious of the implications of their activities on the well-being of other people and accepts some responsibility for these impacts. As these conditions occur, the personal norm is triggered, resulting in a sense of personal responsibility that influences conduct. Personal norms may have a considerable influence on SMEs' processes and decisions, including the adoption of initiatives to decrease single-use plastics. SME owners and employees who understand the significance of sustainability are more inclined to favor environmentally friendly options in their operations.

Additionally, personal norms are closely tied to an individual's moral identity, as those who consider themselves environmentally aware are more likely take part in behaviors that reflect these values, even when confronted with challenges [15]. In the context of SMEs, this means that owners and employees with strong personal norms may prefer eco-friendly alternatives, such as biodegradable packaging or recycling practices, over less expensive plastic-based options. Hence, the following hypothesis is proposed.

H2: There is a significant relationship between personal norms and behavioral intention in single-use plastic reduction.

1.3 Resource Availability

Resources are the tangible and intangible assets that an organization applies to design and execute strategies to attain its objectives. According to Barney [16], a business's resources include every asset, ability, organizational procedure, firm-specific characteristic, data, and expertise that the firm owns and controls, allowing it to devise and implement strategies targeted at increasing efficiency and effectiveness. For SMEs, these resources include not just money but also personnel, technology, and organizational expertise, all of which are essential for implementing sustainable practices such as minimizing single-use plastics. The availability and effective handling of these assets have a direct influence on an SME's capability to invest in environmentally friendly alternatives and carry out sustainability activities.

Financial resources are especially crucial in the context of single-use plastic reduction because they enable SMEs to invest in sustainable packaging, recycling programs, and alternative technologies [17]. Pratiwi *et al.,* [18] discovered that human capital, particularly experienced people with

environmental management skills, is critical for discovering and implementing green solutions. Furthermore, the availability of technical infrastructure and organizational expertise improves SMEs' ability to reduce their dependency on plastics while minimizing environmental impact [19-20]. As a result, SMEs that want to improve their sustainability efforts and contribute to reducing single-use plastics must ensure the availability and effective management of these resources. The following hypothesis is proposed.

H3: There is a significant relationship between resource availability and behavioral intention in single-use plastics reduction.

Figure 1 illustrates the conceptual framework of this study, derived from prior literature, which examines the interplay between institutional pressures, personal norms, and resource availability in shaping SMEs' behavioral intentions to reduce single-use plastics.

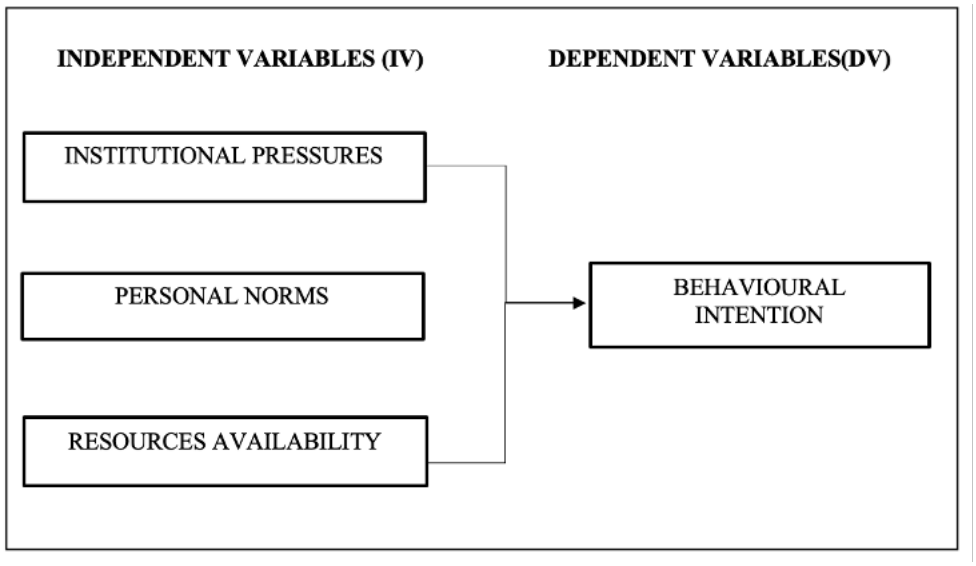

Fig. 1. Conceptual framework

2. Methodology

The proposed hypotheses in the previous section were tested by collecting and analysing responses to a survey questionnaire. The self-constructed questionnaire had five sections. Section A was primarily concerned with demographic data, including age, gender, and management level. Institutional pressures, personal norms, resource availability, and behavioral intention in single-use plastic reduction were assessed in Sections B, C, D, and E, respectively. Items in sections B, C, D, and E were adapted from prior studies, as summarized in Table 1. In answering the questionnaire, respondents were asked to indicate the extent to which they agree or disagree with the statements on a five-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Table 1
Questionnaire items

Variables	Number of Item	References
Institutional Pressures	7	[21]
Personal Norms	7	[22-23]
Resources Availability	7	[24]
Behavioral Intention	8	[25-26]

Purposive sampling was used to collect data from SMEs throughout Peninsular Malaysia, facilitating a more thorough analysis of the influence of varying market contexts and local factors on SMEs' sustainability strategies. Business owners and staff engaged in day-to-day business operations, and those aged 20 years and older were selected in this study. This wide range of participants helped to capture information from both the strategic and operational levels of SMEs. As a result, 397 responses were received, as illustrated in Table 2.

Table 2
Respondents' demographics

	Demographics	Frequency	Percent
Gender	Male	204	51.4
	Female	193	48.6
Age	20 - 24	51	12.8
	25 – 29	157	39.5
	30 - 34	124	31.2
	35 – 39	31	7.8
	Over 40	34	8.6
Management level	Owner	96	24.2
	Staff	301	75.7

3. Results

3.1 Descriptive Analysis

Table 3 shows the skewness values range from -1.776 to -1.976, which were all within the acceptable normality range (between -2 and 2), indicating that the data were not severely skewed. However, the kurtosis values for all variables ranged from 2.862 to 3.602, which were slightly higher than 3, indicating that the data were leptokurtic, with a higher peak and more extreme outliers than a normal distribution [27].

Table 3
Skewness and kurtosis

Variables	**Skewness**	**Kurtosis**
Institutional Pressures (X_1)	-1.776	2.862
Personal Norms (X_2)	-1.896	3.258
Resource Availability (X_3)	-1.870	3.174
Behavioral Intention (Y)	-1.976	3.602

Analysis of the descriptive statistics (see Table 4) indicates that SMEs' perceptions of institutional pressures range from moderate to high, with a mean of 3.87, a median of 4.00, and a standard deviation of 0.771. Strong personal norms related to sustainability, with respondents showing a high sense of accountability toward reducing single-use plastics (M = 3.88; Md = 4.00). Attitudes toward sustainability display moderate variability (SD = 0.809), suggesting differences in how strongly individuals felt about sustainability issues. Resource availability was also relatively high (M = 3.86; Md = 4.00), indicating that most respondents believed they possessed adequate human, technological, and financial resources to support sustainable practices. However, the moderate standard deviation (SD = 0.809) implies that some respondents still experienced constraints or limitations in available resources. Behavioral intention to reduce single-use plastics was notably strong (M = 3.92; Md = 4.12), with the higher median reflecting a greater proportion of respondents demonstrating strong commitment to sustainability initiatives. The moderate variability (SD = 0.784) suggests that while intentions were generally positive, the strength of commitment varied among individuals.

Table 4
Mean, median and standard deviation results

Variables	Mean	Median	Std. Deviation
Institutional Pressures (X_1)	3.87	4.00	0.771
Personal Norms (X_2)	3.88	4.00	0.809
Resource Availability (X_3)	3.86	4.00	0.809
Behavioral Intention (Y)	3.92	4.12	0.784

3.2 Correlation

Table 5 shows the results for correlation, indicating that all three independent variables, institutional pressures, personal norms, and resource availability, had strong and positive relationships with behavioral intention to reduce single-use plastics. Specifically, institutional pressures showed a strong positive correlation with behavioral intention ($r = 0.907$, $p < 0.01$), supporting the argument by Pearson [28] that coefficients above 0.70 indicate a strong association. This suggests that when SMEs experience higher levels of governmental, societal, or stakeholder pressures, they display stronger intentions to engage in sustainable practices, ensuring that their business operations are sustainably compliant [29]. This is consistent with findings by Heugens and Lander [30], who emphasised that coercive and normative pressures encourage firms to adopt environmentally responsible behaviours.

Similarly, personal norms also exhibit a strong positive correlation with behavioral intention ($r = 0.929$, $p < 0.01$). According to Pearson [28], this value signifies a very strong association, indicating that individuals with higher moral obligations and environmental responsibility were more inclined to reduce their use of single-use plastics. This aligns with the findings of Schwartz, [13], who argued that personal moral norms significantly influenced pro-environmental behaviour. The strong role of personal norms in the Malaysian context may also be due to the collectivist culture. In such a context, a failure for not adopting sustainable practices could lead to reputational costs within the family or community networks [31]. The results highlight that SME decision-makers who prioritise sustainability values are more proactive in supporting plastic-reduction initiatives, further underscoring the importance of internal motivations in shaping sustainable business practices.

Resource availability demonstrated the strongest correlation with behavioral intention ($r = 0.931$, $p < 0.01$), indicating an extremely strong positive relationship. In contrast to Choudhary *et al.*, [29], this study found that SMEs with greater access to financial resources, technology, knowledge, and a

skilled workforce were most capable of implementing single-use plastic reduction strategies. This supports the Resource-Based View (RBV) proposed by Barney [16], which asserts that organisations with sufficient internal resources are better positioned to adopt and sustain environmental management practices. However, Freiha *et al.,* [31] argued that in the early stage of formation intention, an abundance of resources may unintentionally diminish the perceived need for self-driven capability. This tension underscores the significance of contextual nuances in understanding how resources shape the behavioral intention.

Table 5
Person correlation analysis

		X1	X2	X3	Y
Institutional Pressures (X_1)	Pearson Correlation	1	0.925**	0.900**	0.907**
	Sig. (2-tailed)		<0.001	<0.001	<0.001
	N	397	397	397	397
Personal Norms (X_2)	Pearson Correlation	0.925**	1	0.948**	0.929**
	Sig. (2-tailed)	<0.001		<0.001	<0.001
	N	397	397	397	397
Resource Availability (X_3)	Pearson Correlation	0.900**	0.948**	1	0.931**
	Sig. (2-tailed)	<0.001	<0.001		<0.001
	N	397	397	397	397
Behavioral Intention (Y)	Pearson Correlation	0.907**	0.929**	0.931**	1
	Sig. (2-tailed)	<0.001	<0.001	<0.001	
	N	397	397	397	397

** Correlation is significant at the 0.01 level (2-tailed)

3.3 Multiple Linear Regression

Table 6 presents the multiple linear regression results. The regression coefficient ($\beta = 0.421$, $p < 0.001$) indicates that resource availability was the most important factor in predicting behavioral intention. This finding is consistent with Ajzen's Theory of Planned Behaviour (TPB) [32], which holds that individuals' view of their resources and capabilities has an important impact on their intentions to engage in sustainable behaviours. The regression results revealed significant positive coefficients for personal norms ($\beta = 0.265$, $p < 0.001$) and institutional pressures ($\beta = 0.267$, $p < 0.001$), indicating that SMEs' internal values and external influences shape their intentions to reduce plastic usage. Prior research from Wongsaichia *et al.,* [33] has shown that personal responsibility and external pressures are important in driving sustainability-related behaviour.

Table 6
Coefficient analysis data

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.233	.065		3.571	<.001
	Institutional Pressures	.267	.044	.263	6.062	<.001
	Personal Norms	.265	.058	.274	4.611	<.001
	Resource Availability	.421	.050	.435	8.389	<.001

a. Dependent Variable: DV

4. Conclusions

This study's primary goal is to examine the factors influencing SMEs' behavioral intention in single-use plastic reduction through the lens of institutional theory, RBV and norm activation. This study demonstrates that resource availability is the primary enabling factor for SMEs' intention to reduce single-use plastics, significantly outweighing the influence of institutional pressure and personal norms. While traditional behavioral models often emphasize psychological drivers, this research highlights that intention formation in an organizational context is fundamentally shaped by a firm's capacity to absorb financial and operational costs.

The findings advance sustainability theory by establishing resource availability as a threshold condition for behavioral intention. By showing that SMEs operate under distinct structural constraints compared to individual consumers, this study extends existing behavioural theory to account for the contextual realism of small firms. It identifies an important boundary condition that, without sufficient resources, pro-environmental norms and commitments remain secondary to feasibility.

In addition, policymakers must move beyond general awareness and implement size-specific and sector-targeted interventions. For micro-SMEs, support should be immediate and financial, such as "green vouchers" or direct subsidies to offset the higher cost of sustainable packaging. SMEs require structural help, including tax credits for equipment upgrades and the creation of "shared procurement cooperatives" to help them access wholesale prices for eco-materials. Furthermore, interventions must address specific industry hurdles; the F&B sector would benefit from government-funded sterilization hubs for reusable containers, while the retail sector requires technical grants to redesign packaging workflows.

In summary, the transition to a plastic-free economy among SMEs is not merely a matter of shifting attitudes, but a challenge of structural empowerment. Since resource availability serves as a practical proxy for organizational readiness, future research should use longitudinal methods to track how specific financial and technological infusions facilitate the actual transition from intention to sustained practice. By addressing specific resource gaps rather than applying a "one-size-fits-all" mandate, stakeholders can create the necessary conditions for SMEs to lead in the global reduction of single-use plastics.

Acknowledgement
This research was not funded by any grant.

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