



## Sustainable food consumption behavior in Indonesia: An approach theory of planned behavior

Ahmad Nuh, Mohamad Rizan, Karuniana Dianta A. Sebayang, Suparno & Muhammad Misbakul Munir  
Universitas Negeri Jakarta

\*Correspondence: E-mail: [ahmad\\_9917922032@mhs.unj.ac.id](mailto:ahmad_9917922032@mhs.unj.ac.id)

### ABSTRACT

The study aims to identify key attributes that can promote sustainable consumption within the Indonesian food industry and examine the relationships among these attributes to encourage sustainable food consumption behavior. An online survey was conducted, involving a sample size of 244 individuals. The collected data was analyzed using SmartPLS and Partial-least squares structural equation modeling (PLS-SEM). The results indicate that perceived benefits of sustainability have an impact on individuals' attitudes towards sustainable food consumption behavior. Furthermore, the three variables of TPB, namely attitude towards behavior, subjective norms, and perceived behavior control, positively influence consumers' intention to purchase sustainable food. Among these variables, perceived behavior control exerts the strongest influence on consumers' intention, followed by attitude towards behavior, while subjective norms have the weakest effect.

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### ARTICLE INFO

#### Article History:

Submitted/Received 30 March 2023

First Revised 1 April 2023

Accepted 13 April 2023

First Available online 1 May 2023

Publication Date 01 May 2023

#### Keyword:

Sustainable purchase intention;  
sustainable behavior; TPB

## 1. INTRODUCTION

Sustainable food consumption behavior is an important issue in Indonesia, where food production and consumption have a strong impact on the environment. Foods that are produced, processed, distributed, and disposed of in ways that contribute to thriving local economies, protect the environment, and promote social justice are considered sustainable. (Wezel et al., 2020). Sustainable food is characterized by its safety and health benefits, as it is produced without harmful pesticides, chemicals, unnecessary antibiotics, or growth promoters. It encompasses food systems that not only provide nutritious meals but also establish sustainable environmental, economic, and social frameworks. The consumption of sustainable food plays a significant role in influencing both the environment and the economy, as it employs production methods that safeguard the environment, public health, human societies, and animal welfare (Bana et al., 2022; Marinova & Bogueva, 2022; Menchaca, 2021).

Gaining insight into the determinants of sustainable food consumption behavior is essential for promoting sustainable food consumption behavior among different generational groups in Indonesia. The Theory of Planned Behavior (TPB) provides a valuable framework for comprehending sustainable behavior and intention, and it can be applied to sustainable food consumption behavior. Utilizing this approach can aid in the identification of influential factors, including attitudes, subjective norms, and perceived behavioral control (PBC) over sustainable food consumption behavior. Consequently, this study will examine sustainable food consumption behavior across different generational groups in Indonesia, employing the Theory of Planned Behavior as its framework.

The research aims to propose a set of attributes to enhance sustainable consumption in the Indonesian food industry and assess the interrelationships among the attributes to promote sustainable food consumption behavior. Promoting sustainable food consumption behavior in many countries, including Indonesia, faces several challenges. A major obstacle lies in persuading individuals to adopt environmentally sustainable food consumption patterns, which is further complicated by the fact that food consumption contributes to nearly one-third of households' overall environmental footprint (Holotová et al., 2021; Vermeir et al., 2020).

Another challenge is the lack of awareness and understanding of sustainable food consumption behavior among consumers (Tseng et al., 2021a). Consumers might lack awareness regarding the environmental consequences of their food choices or face limited availability of sustainable food alternatives. Additionally, the food industry may not prioritize sustainability in its production and marketing practices. The lack of government policies and regulations to promote sustainable food consumption behavior is also a challenge (Rozaki, 2021). These challenges highlight the need for interventions and policies aimed at promoting sustainable food consumption behavior in Indonesia.

These interventions and policies should address the lack of awareness and understanding of sustainable food consumption behavior among consumers, promote sustainable food options, and encourage the food industry to prioritize sustainability in their production and marketing practices. The novelty of this study is the focus on sustainable food consumption behavior among generational groups in Indonesia using the approach of the Theory of Planned Behavior. Although previous studies have examined sustainable food consumption

behavior in Indonesia, the focus of this discussion is to investigate the determinants of sustainable food consumption behavior in various generational groups within the country, employing the TPB framework.

This approach can facilitate the identification of influential factors in sustainable food consumption behavior and guide the creation of impactful interventions and policies that promote sustainable food consumption among diverse generational groups in Indonesia. The research also aims to propose a set of attributes to enhance sustainable consumption in the Indonesian food industry and assess the interrelationships among the attributes to promote sustainable food consumption behavior.

## 2. METHODS

An online survey was conducted from March 2023 to April 2023 among Indonesian consumers. The questionnaire was distributed throughout Indonesia's capital city, Jakarta, and surrounding cities (Bekasi, Bogor, and Tangerang). The measurement of indicators and questionnaire items was carried out by adopting previous research items. The variable for perceived sustainable benefits uses six items (Brown, 2016; Forsythe et al., 2006; Francis et al., 2004; Mohamed Badr Eldin Aboul-Ela, 2014).

The measurement items of TPB include attitude toward behavior as a variable uses three items, subjective norms, four items, and PBC, three items. This measurement of variables was adopted from several previous studies (Ajzen, 2002; Fishbein & Ajzen, 1977; Francis et al., 2004; Jalilvand & Samiei, 2012). As for the variable sustainable intention using four items and sustainability behavior using two items (Davari et al., 2017; Dorce et al., 2021; Tu et al., 2021). All items in the questionnaire were measured using a six-point rating scale, ranging from 1 (strongly disagree) to 6 (strongly agree).

A total of 244 answers were obtained from respondents, including several university students representing Gen Z. Other questionnaires were distributed through chat application platforms and social media to target respondents from Gen X and Gen Y. The data obtained was then analyzed using SmartPLS to test the reliability and validity and then test the hypothesis. Previously, a common-method bias test was carried out using SPSS 25.

## 3. RESULTS AND DISCUSSION

Descriptive statistics for demographics: a total of 244 samples were collected from Jakarta, the capital of Indonesia, and cities around Jakarta (Bogor, Depok, Bekasi, and Tangerang), consisting of 121 men and 123 women. In addition, 66,4 percent of the sample represents Gen Z, and 17,7 percent represents Gen Y/ Millennials, and Gen X as many as 14,3 percent, or 35 people. In this study, we took three generations of the x, y, and z generational groups to test as variable control roles. Based on the sample, there were 84 married respondents and 158 single respondents. The details are as describe in table 1 follows:

**Table 1. Descriptive Statistics**

Demographic information	n	%
Gender		
Male	121	49,6
Female	123	50,4

Generational group		
Baby boomers	4	1,6
Gen X	35	14,3
Gen Y	43	17,7
Gen Z	162	66,4
Educational level		
Not graduated from high school	1	0,4
high school	56	22,9
Diploma's degree	13	5,3
Bachelor's degree	148	60,7
Master's degree	22	9
Doctoral degree	4	1,7
Job		
Jobless	136	55,8
Employed	76	31,1
Entrepreneur	30	12,3
Retired	2	0,8
Marital status		
Single	158	64,8
Married	84	34,4
Divorced	1	0,4
Widow	1	0,4

To assess the reliability and validity of an indicator test on discriminant validity results, several conditions must be met. Firstly, the variable's index value must be less than 0.80, which indicates that the variable is not highly correlated with other variables in the study (Farrell & Rudd, 2009). Secondly, the average variance extracted rate must be at least 0.5, which indicates that the variable explains at least 50% of the variance in the construct it is measuring. Thirdly, the test must have high reliability, which means that it produces consistent results over time and across different samples (Chetwynd, 2022). Fourthly, the test must have high validity, which means that it measures what it is intended to measure and produces accurate results<sup>2</sup>. Finally, researchers should be aware of construct-irrelevant variance that might influence scores on a measure and reduce discriminant validity (Hubley, 2014).

All construct items had factor loading greater than 0.5, indicating that all items can be used in the study. The findings indicate that the CR (composite reliability) values, ranging from 0.862 to 0.937, exceeded the recommended threshold of 0.6, indicating satisfactory reliability. The Cronbach values for the constructs ranged from 0.760 to 0.893, meeting the recommended threshold of 0.7. Convergent validity of the structural variables was assessed using AVE (average variance extracted). The results of the study as show in Table 2 suggest that the model is reliable and demonstrates convergent validity.

**Table 2. Construct reliability and validity**

	( $\alpha$ )	CR	AVE
Attitude	0.760	0.862	0.677
Behavior	0.867	0.937	0.882

Intention	0.872	0.912	0.724
PBC	0.875	0.923	0.800
PSB	0.874	0.895	0.589
Subjective Norm	0.893	0.926	0.758

Path coefficients are used to estimate the magnitude of the effect of one variable on another variable in a structural equation model (Memon et al., 2021; Purwanto & Sudargini, 2021). They are the inferential engine behind structural equation modeling and linear regression. The bootstrapping results on path coefficients show a P value of less than 0.05, which indicates a direct influence of perceived sustainability on attitude, attitude on intention, intention on behavior, PBC on behavior and intention, and subjective norms on intention. All influences are positive, as shown in the original sample value (O) in Table 3.

**Table 3. Path Coefficients.**

	(O)	P Values
Attitude → Intention	0.276	0.000
Intention → Behavior	0.549	0.000
PBC → Behavior	0.285	0.000
PBC → Intention	0.369	0.000
PSB → Attitude	0.389	0.000
Subjective Norm → Intention	0.189	0.024

The findings indicate that all proposed hypotheses regarding direct effects were confirmed. This is attributed to the significant path coefficients aligning with the predicted direction. The examination of specific indirect effects revealed that attitude positively influences behavior (0.152) through intention (P = 0.002). PSB indirectly affects intention mediated by attitude (P = 0.008). Additionally, PBC directly impacts behavior and is indirectly mediated by intention.

The specific indirect effects test shows that the Attitude variable has a positive effect (0.152) on behavior through intention (P value 0.002). PSB has an indirect effect on intention mediated by attitude (P Value 0.008). Meanwhile as seen in Table 4, PBC has a direct effect on behavior and indirectly mediated by intention.

**Table 4. Specific indirect effect.**

	(O)	P Values
Attitude → Intention → Behavior	0.152	0.002
PSB → Attitude → Intention → Behavior	0.059	0.008
PBC → Intention → Behavior	0.203	0.000
Subjective Norm → Intention → Behavior	0.104	0.032
PSB → Attitude → Intention	0.107	0.003

TPB is a well-established theoretical framework widely applied in various domains, such as sustainable food consumption and energy-saving behaviors (Shen et al., 2022; Suntornsan et al., 2022). Research has demonstrated that factors like social norms, perceived value, perceived consumer effectiveness, and attitude significantly influence the intention to engage in sustainable food consumption (Alam et al., 2020). Similarly, the TPB constructs, including attitude, subjective norms, and perceived behavioral control, have been found to have a substantial impact on energy-saving behaviors (Suntornsan et al., 2022). These findings

suggest that the TPB is a useful framework for understanding sustainable behavior and intention.

The study revealed that PSB play a significant role in shaping consumer behavior and intention. Research indicates that the perceived health benefits and PSB have an impact on consumer purchase intention and behavior towards organic products (Dorce et al., 2021). These findings emphasize the significance of taking into account the perceived benefits associated with sustainable behavior when promoting sustainable consumption.

The research on sustainability behavior and sustainable intentions that are affected by the TPB and PSB has provided valuable insights into the factors that influence sustainable behavior. The results indicate that TPB provides a valuable framework for comprehending sustainable behavior and intention. Furthermore, the findings underscore the critical role of PSB in fostering sustainable consumption. These insights can guide the creation of effective interventions and policies that aim to promote sustainable behavior and mitigate the adverse environmental consequences of human activities.

#### Implications for theory

The implications of the study's findings for promoting sustainable behavior are significant. The research has shown that TPB is a useful framework for understanding sustainable behavior and intention (Shen et al., 2022; Sheoran & Kumar, 2022a). The TPB can help identify the factors that influence sustainable behavior, such as attitudes, subjective norms, and PBC. These factors can be targeted in interventions and policies aimed at promoting sustainable behavior.

The findings of the study can inform the development of effective interventions and policies aimed at promoting sustainable behavior. For example, interventions can be designed to target the factors that influence sustainable behavior, such as attitudes, subjective norms, and PBC. These interventions can be tailored to specific contexts and populations to increase their effectiveness. Policies can also be developed to promote sustainable behavior, such as incentives for sustainable consumption and regulations on unsustainable practices.

In conclusion, the study's outcomes hold significant implications for the promotion of sustainable behavior. The findings underscore the value of TPB as a valuable framework for comprehending sustainable behavior and intention. Additionally, the results highlight the pivotal role of PSB in shaping consumer behavior. Interventions and policies aimed at promoting sustainable behavior should consider these factors to increase their effectiveness.

#### Implications for practice

One implication for practice is the development of interventions and policies that target the factors that influence sustainable behavior. For example, interventions can be designed to increase knowledge and awareness of sustainable behavior, promote positive attitudes towards sustainable behavior, and encourage social norms that support sustainable behavior. Policies can also be developed to promote sustainable behavior, such as incentives for sustainable consumption and regulations on unsustainable practices.

Another implication for practice is the need to consider the PSB of sustainable behavior. The research has found that PSB play a crucial role in influencing consumer behavior and intention (Bauer et al., 2018). Therefore, interventions and policies aimed at promoting sustainable behavior should also consider the perceived benefits of sustainable behavior, such as environmental and health benefits.

The findings from research on sustainable behavior and TPB carry significant practical implications. To effectively promote sustainable behavior, interventions and policies should focus on the influential factors, take into account the PSB and be customized to specific contexts and target populations. By considering these implications, it is possible to develop interventions and policies that effectively encourage sustainable behavior and mitigate the adverse environmental impact of human activities.

#### Limitations and future recommendations

TPB assumes that individuals are rational decision-makers who have complete information and are able to make decisions based on their attitudes, subjective norms, and PBC (Elhoushy & Lanzini, 2021). However, in reality, individuals may not have complete information or may not be able to make decisions based solely on their attitudes, subjective norms, and PBC. Other factors, such as emotions, habits, and external constraints, may also influence sustainable behavior.

Another limitation is that the TPB does not account for the complexity of sustainable behavior. Sustainable behavior is a multidimensional construct that involves various factors, such as environmental, social, and economic factors (Sheoran & Kumar, 2022). The TPB may not fully capture the complexity of sustainable behavior and may oversimplify the factors that influence sustainable behavior. TPB may not be applicable to all contexts and populations. The TPB was developed in Western cultures and may not be applicable to other cultures or populations (Si et al., 2019).

The TPB may need to be adapted or modified to account for cultural differences and other contextual factors. While the TPB is a useful framework for understanding sustainable behavior, it has some limitations when it comes to sustainable behavior. The TPB assumes that individuals are rational decision-makers and may oversimplify the factors that influence sustainable behavior. The TPB may also not be applicable to all contexts and populations. Therefore, researchers and practitioners should consider these limitations when using the TPB to understand and promote sustainable behavior. Besides, this research is limited to sustainable food products.

Diverse outcomes can arise when examining different units of analysis within the consumer context in Indonesia. In light of the existing research on sustainable behavior and TPB, several suggestions emerge for future investigations. One proposal involves delving deeper into the determinants of sustainable behavior, encompassing aspects such as emotions, habits, and external constraints. While the TPB offers a valuable framework for comprehending sustainable behavior and intention, it may oversimplify the array of factors influencing such behavior. Hence, future research should take into account additional factors that could potentially shape sustainable behavior.

#### 4. CONCLUSION



The research on sustainable behavior and TPB has provided valuable insights into the factors that influence sustainable behavior and intention. These TPB factors can be targeted in interventions and policies aimed at promoting sustainable behavior. This article has offered a detailed, quantitative examination of how consumers interpret consumption patterns related to environmental sustainability. Historically, psychological research has primarily concentrated on examining theoretical models of planned behavior. Consequently, the methodologies employed in these studies tend to influence participants' thoughts and considerations towards specific types of behavior, such as organic food consumption. However, when translating these findings to real-world scenarios, a discrepancy emerges between individuals' intentions to engage in certain behaviors and their actual adoption of such behaviors, particularly in the context of sustainable food choices.

We argue that the lack of emphasis placed on certain behaviors in individuals' daily decision-making contributes to this disparity. Consequently, our study offers a distinctive perspective by allowing participants to freely react and consider various aspects of their behavior. This finding alone holds significant implications for the development of interventions aimed at promoting sustainable behaviors among the general population. As mentioned earlier, addressing climate change is an urgent global priority, and it is crucial to engage the public in a way that fosters substantial behavioral changes. Our study introduces innovative and creative ideas in this field.

There are several current initiatives in Indonesia to promote sustainable food consumption. One endeavor involves creating a collection of characteristics to improve sustainable consumption within the Indonesian food industry (Tseng et al., 2021b). The objective of this initiative is to encourage sustainable practices in both food production and consumption within the industry. Another initiative entails the enforcement of Law no. 18, which mandates a transition towards a healthier, more diverse, and sustainable diet (Agnes, 2021). This initiative aims to promote sustainable food consumption practices among the general population.

The Sustainable Consumption and Production (SCP) program is another initiative aimed at promoting sustainable food consumption practices in Indonesia (Mewa et al., 2022). The SCP program strives to manage the patterns of food production and consumption in a manner that ensures the sustainability of the ecosystem, particularly with regard to natural resources. Additionally, the Indonesian government has developed a holistic and integrated approach to the food system to overcome malnutrition and promote an inclusive economic system through sustainable investment. Finally, the Food Smart Cities initiative aims to incentivize sustainable and healthy diets through policies and new partnerships (Afrianto et al., 2021; Mediatrix & Prasetyo, 2022). These initiatives highlight the commitment of the Indonesian government and other stakeholders to promoting sustainable food consumption practices in Indonesia.

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