Analysis of Factors Influencing Consumer Behavior on Plant-Based Foods Products through Theory of Planned Behavior and Green Marketing Approach

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Abstract

Plant-based foods in Indonesia have become a concern in recent years. This study explores the factors that influence consumer intentions and behavior towards plant-based food products in Indonesia by conducting an empirical study on Green Rebel, one of the brand and manufacturer of plant-based foods in Indonesia. The conceptual model used in this study uses the standard theory of planned behavior model. This study adds the green marketing variable as a new variable in addition to the relationship between attitudes, subjective norms, and perceptions of behavioral control, intentions and behavior so that there is a novelty in this study. Behavioral intention is expected to mediate the relationship with actual behavior. This research was conducted on consumers of plant-based foods from Green Rebel with a total of 173 research subjects. Data analysis was performed using the partial least square quation model (PLS-SEM) method and analyzed using Smart PLS 4.0 software. The results of the study show that attitudes positively influence behavioral intentions, as well as subjective norms, perceived behavioral control, and green marketing. The results also show that intention mediates the relationship between attitudes, subjective norms, behavior control, and green marketing with actual behavior. Green marketing directly has an influence on behavior without the need to be mediated by intention.

I. Introduction

The threat of global warming is getting worse every year. Emissions originating from agricultural activities such as farming, have long been known to be the largest contributor to emissions and cause air pollution and create a greenhouse effect (Rojas-Downing et al., 2017). According to The World Bank Group (2018), annual carbon dioxide emissions worldwide increased from 22.15 Gt (gigatonnes) or the equivalent of 22.15 billion metric tons in 1990 to 36.14 Gt in 2014. Methane gas emissions increased from 6.67 Gt to 8.01 Gt, therefore the main factors driving carbon dioxide and methane emissions are very important and urgent. Apart from the threat of global warming, currently the whole world is struggling to face the economic crisis during the Covid-19 pandemic.

The impact of the Covid-19 pandemic has made significant changes, especially to consumer behavior. Sihombing (2020) state that Covid-19 pandemic caused everyone to behave beyond normal limits as usual. Currently, consumers are aware of adopting a healthy

lifestyle and people's purchasing power for healthy products is starting to increase. The food industry is introducing meat alternatives made from non-animal protein, but with a similar appearance, taste, and smell to the consumer market (Kumar et al. 2017; Malav et al., 2015). Consumers will be able to choose from a variety of plant-based meats at reasonable prices, thereby facilitating them to adopt a healthy lifestyle and diet while also contributing to the sustainability of the planet by substituting meat products for plant-based ones.

The plant-based food market is developing very rapidly and its emergence has become a trend, with over 50 start-ups currently operating in the plant-based food market (Good Food Institute, 2019). The market for this product is currently valued at $14 billion (Theurer et al. 2019) and Barclays estimates that globally the market will grow to $140 billion in the next decade, which represents 10% of the world's $1.4 trillion meat industry (Theurer et al, 2019). Since the Covid-19 pandemic in 2019, the development of plant-based foods in Indonesia has been increasing. In September 2020, Burgreen released plant-based foods that resemble plant-based foods from Beyond Meat. Quoted from www.techinasia.com in April 2022 "An Indonesian alternative protein startup, has raised US$7 million in a pre-series a round from a clutch of investors including Unovis and Better Bite Ventures". A new rival, Off Foods, who recently partnered with Lemonilo, followed Green Rebel's commercial development. The rise of rivals and the occurrence of investor interest in plant-based businesses show that the Indonesian market for plant-based foods has enormous potential. Research on plant-based foods has been used as a case study, especially in big countries such as the United States and European countries. However, research related to plant-based foods in Indonesia is still limited, especially from a marketing perspective. Green marketing is also an important part and role in the marketing strategy to market its products. The concept of green marketing is known for not only meeting consumer needs, but also paying attention to future environmental impacts that are feared to affect future revenue and sustainability.

Therefore, this research will focus on problems that exist from a marketing perspective, more precisely related to aspects of consumer behavior, identifying the factors that form the basis for choosing the consumption of plant-based foods in Indonesia. Behavior is based on intention, which comes from an experience, use and desire for a product or service. That is, when talking about behavior, the emphasis is on any factors that can influence it. Consumers who have intentions will have an impact on behavior. Previous research applied TRA (theory of reason action) by h (1991). In this research, the development and adoption of the theory of reason action and the theory of planned behavior by Ajzen (1991) were carried out. There are three factors that influence behavioral intentions, namely attitudes, subjective norms and perceived behavioral control. Green Marketing can significantly influence behavior in certain consumer segments (Gahlot Sarkar, Sarkar & Yadav, 2019). Demographic, socio-cultural and psychographic differences can affect the results of previous research because previous research was conducted abroad. Our findings could offer several guidelines for plant-based marketers to develop their marketing messages appropriately.

II Review of Literature

Theory of Planned Behavior was envolved from Theory of Reasoned Action and has been widely used to study behavioral intention and actual behavior (Ajzen, 1991; Mousel & Tang, 2016; Wang et al., 2016; Sun et al., 2017; Scalco et al., 2017 Shi et al., 2017). This formulation assumes that behavioral intention (BI) is a variable that is very strongly predicted to influence actual behavior (B) and therefore the relationship between the two is very strong, so it can be said to be almost the same.
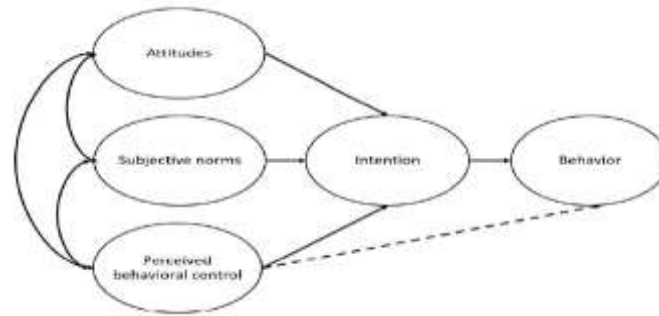
Figure 1. Theory of Planned Behavior by Ajzen & Fishbein (1980)

These three elements have a direct impact not only on behavioral intention but also on each other. This approach is also widely used for subjects related to consumer behavior towards organic food, healthy products or referred to as green products. According to earlier studies, attitudes, as opposed to subjective norms and perceived behavioral control, are the two factors that have the greatest impact on intentions when it comes to the purchase and consumption of organic food, among other behaviors, in the theory of planned behavior approach (Scalco et al., 2017) . When attitudes, subjective norms, and perceived behavioral control (PBC) are combined, this model makes it possible to predict behavioral intentions that are highly correlated with actual behavior (Ajzen, 2002).

2.1 Attitude

Attitude can also be interpreted when someone can make an assessment of something that will be profitable and unfavorable for them (Hasan & Suciarto, 2020; Mousel & Tang, 2016). Someone will tend to take certain actions if they have a positive attitude (Dangi, Narula & Gupta, 2020). Other research also shows that consumers who increase positive reactions to environmentally friendly products, the stronger their intention to buy, therefore consumers who have a positive attitude towards environmentally friendly products will be more willing to buy these products (Goçer & Sevil Oflaç, 2017). Thus, we propose the following hypotheses:

Hypotheses (H₁): *Attitude has a positive influence on intention on plant-based foods from Green Rebel.*

2.2 Subjective Norm

Subjective norms refer to "beliefs when most people approve or disapprove of behavior" (Photcharoen, Chung & Sann, 2020; Wong & Aini, 2017; Conner, 2020). Normative beliefs in the form of subjective norms show that the social environment also plays a role in purchasing plant-based foods (Kopplin & Rausch, 2022). Individual perceptions of personal control over what to buy and the influence of those closest to them significantly influence the intention to buy organic meat (Wong & Aini, 2017). Thus, we propose the following hypotheses:

Hypotheses (H₂): *Subjective norm has a positive influence on intentions on plant-based foods from Green Rebel.*

2.3 Perceived Behavioral Control

Perceived behavioral control (PBC) is a perception regarding beliefs about the presence or absence of factors that can support and hinder individuals from carrying out a behavior (Scalco *et al.*, 2017; Sreen, Purbey & Sadarangani, 2018). PBC also positively and significantly increases buying behavior through perceived communication (Sultan et al.,

2020). There is a significant relationship between perceived behavioral control and the intention to use environmentally friendly products (Paul et al., 2015; Geetika et.al., 2017).

Hypotheses (H3): *Perceived behavioral control has a positive influence on intentions in plant-based foods from Green Rebel.*

2.4 Green Marketing

Green marketing stimulates green consuming behavior which encourages consumers to buy environmentally friendly products thereby reducing pollution. Encouraging consumers to contribute to the future of the planet by buying environmentally friendly products is now a strategy to increase brand recognition and trust which then stimulates purchase intentions for green products (Lai & Cheng, 2016; Lin et al., 2017; Suki et al., 2016). The majority made consumers aware and made consumers move and want to try products even though consumers were conservative before. (Siddique & Hossain, 2018). Other studies explain that consumers with a tendency to have a green consumption orientation will be positively influenced by green marketing and have an impact on their behavior to make purchases responsibly because they feel it will help in respecting the environment (Paco, Shiel & Alves, 2019).

Hypotheses (H4): *Green marketing has a positive effect on intention on plant-based foods from Green Rebel.*

Hypotheses (H5): *Green marketing directly has a positive influence on behavior in plant-based foods from Green Rebel.*

2.5 Behavior

Behavior is a specific act or action that comes from the results of the individual's own evaluation (Ajzen & Schimidt, 2020). Behavioral intention is an indicator of the extent to which people are willing to perform certain behaviors (Ajzen, 1991). Behavior can also be interpreted as a reaction to something and then becomes a habit because there is a value that is believed (Shin et al., 2018). Consumption behavior intention towards green products can have a significant effect on actual behavior, but cannot be combined (Nguyen, Nguyen & Hoang, 2019).

Hypotheses (H6): *Intention has a positive influence on actual behavior in plant-based foods from Green Rebel.*
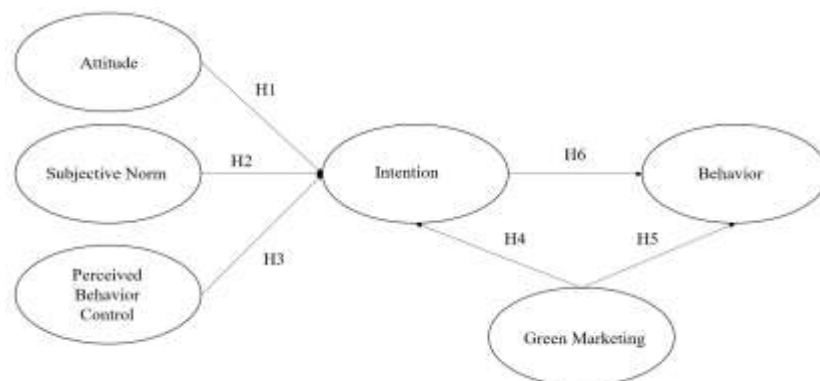
Therefore, our research model is as follows figure 2.

Figure 2. *Research Model*

III. Research Method

This study is quantitative. As independent variables (independent variables), the research objects include attitudes, subjective norms, perceived behavioral control, and green marketing. Meanwhile, the dependent variable in the study is customer behavior. A mediating variable, namely behavioral intention, is also used in this study. Data was gathered by sending surveys through Google forms online. Snowball sampling was used in this study. There were 173 respondents who met the criteria out of a total of 215 who participated. Using a Likert scale of 1-7, the research questions were adapted and adopted from previous research (strongly disagree - strongly aged). The PLS-SEM (partial least square structural equation modeling) method is used in data processing (Hair et al., 2019). Smart PLS 4.0 is used in data processing tools.

IV. Discussion

The respondents included in this study, as shown in Table 1, were dominated by females (63,58%), and majority background were employees and followed by entrepreneurs. Approximately 80% of respondents were under the age of 40. This may indicate the millennial generation, which is health-conscious and on the lookout for nutritious foods.

Table 1. Demographic Characteristics of the Sample

Category	Frequency	Percentage
Gender		
Male	63	36,42 %
Female	110	63,58 %
Age		
< 17	4	2,31 %
17-21	9	5,20 %
22-30	78	45,08 %
31-40	52	30,05 %
> 40	30	17,36 %
Occupation		
Student	17	9,82 %
Private Sector Employee	100	57.80 %
Government Employee	9	5,20 %
State-owned Employee	9	5,20 %
Entrepreneur	30	17,34 %
Etc.	8	4.64 %

Table 2 present the final result of indicators reliability, convergent reliability, and internal consistency. Items AT1, SN1, SN2, PBC1, GM1 dan GM3 were removed from the model because of high cross-loadings. A composite reliability score between 0.60 and 0.70 is considered "reliable for exploratory research," values between 0.7 and 0.90 range from

"satisfactory to good" (Hair et al., 2019). In table 2, all variables have a satisfactory composite reliability value of more than 0.7. The validity test consists of convergent validity and discriminant validity. The validity test observes differences in observed scales, and makes it clear what differences are being measured. The metric used to evaluate the convergent validity of the constructs is the average variance extracted (AVE) for all items in each construction (Hair et al., 2019). An acceptable AVE value is 0.50 or more indicating that the construct explains at least 50 percent of the item variance (Hair et al., 2019). In table 2, all variables have a satisfactory have a satisfactory AVE value of more than 0,5.

Table 2. Indicator's reliability, convergent reliability, and internal consistency

Variabel	Indicator	Composite Reliability		AVE		Outer Loading	
		Result		Result		Result	
Attitude	AT2	0,899	Reliable	0,640	Valid	0,808	Valid
	AT3					0,817	Valid
	AT4					0,790	Valid
	AT5					0,777	Valid
	AT6					0,809	Valid
Subjective norm	SN3	0,831	Reliable	0,647	Valid	0,767	Valid
	SN4					0,836	Valid
	SN5					0,800	Valid
	SN6					0,813	Valid
Perceived Behavior Control	PBC2	0,891	Reliable	0,579	Valid	0,774	Valid
	PBC3					0,784	Valid
	PBC4					0,758	Valid
	PBC5					0,761	Valid
	PBC6					0,725	Valid
Green marketing	GM2	0,895	Reliable	0,671	Valid	0,802	Valid
	GM4					0,890	Valid
	GM5					0,735	Valid
	GM6					0,842	Valid
Intention	BI1	0,873	Reliable	0,586	Valid	0,758	Valid
	BI2					0,773	Valid
	BI3					0,797	Valid
	BI4					0,715	Valid
	BI5					0,775	Valid
	BI6					0,722	Valid
Behaviour	B1	0,880	Reliable	0,551	Valid	0,733	Valid
	B2					0,757	Valid
	B3					0,754	Valid
	B4					0,724	Valid

Table 2 shows that the outer loading indicators indicate that all indicators are valid because all outer loading values are higher than 0.7. Furthermore, the measurement carried out is a measurement of discriminant validity using the Fornell-Larcker criteria and the heterotrait-monotrait ratio (HTMT).

Table 3. Discriminant Validity Fornell-Larcker

	Attitude	Behavior	Green marketing	Intention	Perceived behavior control	Subjective norm
Attitude	0,800					
Behavior	0,672	0,742				
Green marketing	0,682	0,691	0,819			
Intention	0,771	0,696	0,740	0,766		
Perceived behavior control	0,701	0,627	0,669	0,717	0,761	
Subjective norm	0,634	0,614	0,626	0,711	0,629	0,804

According to Fornell and Larcker in Hair et al. (2019), the square root of the AVE value for each construct must be higher than the correlation value between constructs in a model. Table 3 shows that the AVE square root value of the attitude variable with the attitude itself is 0.800. This makes the AVE square root value of the attitude variable towards itself greater than the other variables. This also applies to the subjective norm AVE square root value of 0.804, perceived behavioral control of 0.761, green marketing of 0.819, intention of 0.766 and behavior of 0.742.

Table 4. Discriminant Validity Heterotrait-Monotrait Ratio

	Attitude	Behavior	Green marketing	Intention	Perceived behavior control	Subjective norm
Attitude						
Behavior	0,824					
Green marketing	0,802	0,872				
Intention	0,894	0,856	0,869			
Perceived behavior control	0,838	0,801	0,808	0,854		
Subjective norm	0,752	0,784	0,750	0,845	0,765	

Henseler et al. (2015) proposed a threshold value above or below 0.90 for structural models with conceptually very similar constructs. On the other hand, if the measurement value is higher than 0.9 then it shows a high correlation and is not valid. Based on table 4.18,

all indicators show a ratio below 0.9, namely the indicator variable is stated to be valid and these variables are not correlated with each other.

Table 5. Hypothesis Testing Results

Path	Standardized Path Coefficient	t-statistics	p-values	Result
H$_1$: Attitude → Intention	0,332	4,247	0,000	Supported
H$_2$: Subjective norm → Intention	0,237	3,831	0,000	Supported
H$_3$: PBC → Intention	0,164	2,607	0,005	Supported
H$_4$: Green marketing → Intention	0,256	3,645	0,000	Supported
H$_5$: Green marketing-→ Behavior	0,389	5,580	0,000	Supported
H$_6$: Intention → Behavior	0,408	4,651	0,0000	Supported

Based on table 5, when viewed from the path coefficient, all hypotheses have a positive but weak relationship because the values tend to be close to -1. Assessing the significance of the path coefficient can be seen from the t-value (critical ratio) obtained from the bootstrapping process (resampling method) and the p-value. In this study using a significance level of 5% and using the one-tail hypothesis. The expected t-values are 1.65 (significance level = 10%), 1.96 (significance level = 5%) and 2.58 (significance level = 1%). Meanwhile, the significant level is $\alpha = 0.05$ so that if the p-value (sig) ≤ 0.05, it means that the chance of error obtained is still within the specified tolerance so that it can be said to be significant, otherwise if the p-value (sig) > 0 .05, it means that the chance of error that is obtained exceeds the established tolerance limit so that it can be said to be insignificant (Hair, et al., 2017). Based on table 5 it can be seen that the results of testing the hypothesis seen from the t-values and p-values, all hypotheses exceed 1.65 and 0.05 as required so that it can be said that all hypotheses are accepted. The results in Table 5 show the mediation effects.

H1 is supported, which means that the fact that attitudes impact intentions is not surprising, since similar research in Sweden leveraging TPB (theory of planned behavior) on plant-based meat and dairy replacements showed similar results (Mousel & Tang, 2016). Other research that used TPB and found the same findings confirmed the concept (Kopplin & Rausch, 2022). As H2 is supported, it indicates that subjective norms reflecting the influence of those around them correlate rather significantly with the desire to buy organic meat. It may be inferred that family, friends, and partners are the primary influencers (Wong & Aini, 2017). The findings of this study are consistent with other studies in which subjective norms had a major impact on the intention to purchase plant-based meat and dairy replacements in Sweden (Mousel & Tang, 2016).

H3 is supported, which means that there are perceptions about beliefs about factors that can support and hinder positively influencing behavioral intentions, such as consuming plant-based food products consistently if you want to be healthy, and moral obligations to the environment encourage customers to consume plant-based foods. Other study, conducted in other circumstances but with the same scope, demonstrates that behavioral control has a

favorable but moderate influence on behavior intentions to purchase organic veggies (Dorce et al., 2021). PBC has a strong favorable impact on the behavioral intention to buy organic food products, according to Ashraf, Joarder, and Ratan (2019). H4 and H5 are supported, indicating that Green Rebel's green marketing strategy is on track. Green Rebel has been promoting and highlighting the use of ecologically friendly raw and packaging materials, as well as production technologies that generate decomposed waste that can minimize pollution. According to previous study by Govender and Govender (2016), the barrier for customers who want to purchase green products is not pricing, but instead branding and distribution. Marketers must be able to communicate the value of green products so that customers will desire to purchase them. Previous research has also found that green marketing has a favorable and significant influence on behavioral intentions and actual behavior, as well as purchasing behavior of environmentally friendly products.

H6 is supported; similarly, to prior research, this study discovered that behavioral intention had a positive and significant influence on actual behavior toward organic vegetable products (Paço, Shiel, & Alves, 2019) as well as on organic product consumption in Norway and Portugal (Roseira et al., 2022). All meditation hypotheses were proven to be correct. Intention mediated the relationships between attitude, subjective norms, perceived behavioral control, green marketing, and behavior to certain effect. Meanwhile, the relationship between green marketing and behavior can have a positive influence even when behavioral intentions aren't present.

Furthermore, the R-square value is tested. R-square is used to demonstrate the relationship between the independent variables and the pattern of the dependent variable. R-square calculates the variance value, which represents the strength of the explanatory model (Shmueli & Koppius, 2011) and is also known as the sample's prediction accuracy (Rigdon, 2012). R^2 values range from 0 to 1, while higher values reflecting better explanatory power. R-square values of 0.75 are considered large, 0.50 are considered moderate, and 0.25 are considered weak (Henseler et al., 2015; Hair et al., 2019).

Table 6. *Coefficient of Determination*

Indicator	R-square (R^2)	R-square adjusted
Behavior	0,553	0,548
Intention	0,731	0,725

According to table 6, the R-square value of behavior is 0.553, indicating that attitude variables, subjective norms, perceived behavior control, green marketing, and intention can explain 55.3% of behavior, while the intention itself can explain 73.1% of the variable attitude, subjective norm, perceived behavior control, and green marketing.

V. Conclusion

The purpose of this study is to determine the key factors that influence customer decisions to consume and purchase plant-based products from Green Rebel in Indonesia. What benefits consumers will get influences their attitudes. Plant-based foods, for example, may help individuals remain healthy, support diet programs, and encourage eco-friendly activities, as can sustainability and availability. Consumers' subjective criteria for Green Rebel plant-based products are based on the perceptions or opinions of others, such as family members, partners, friends, or their own family members, who may be considered important to consumers. Positive developments in subjective norms indicate that customers' willingness to buy the product will also improve. Consumers who perceive statements negatively also have unfavorable subjective norms and are less likely to purchase the goods. Perceived

behavioral control has a favorable influence on behavioral intention (intention). This indicates that if customers' behavioral control towards plant-based diets improves, Green Rebel goods will have a favorable influence on increasing behavioral intentions. The consumer's ability to earn revenue or other factors, such as product availability in stores, influence behavioral intention to buy. If possible, consumers can buy and try it. Green marketing has the ability to influence actual behavior without relying on intention. If the communication about the plant-based product is executed well and achieves the target, consumers tend to make fast decisions or behave.

Green Rebel aggressively promotes on social media and runs campaigns that emphasize principles such as health, future sustainability, and protecting the environment and animals. Marketing activities can be carried out through social media whether by inviting the Buddhist community, such as collaborating with the Buddhist Tzu Chi charity in Indonesia, expanding healthy providers, or massive food outlets. Despite the reality that Green Rebel has only been around for a short period, it has attracted several investors and big corporations such as Starbucks for collaborations.

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