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# Consumer Attitudes and Purchase Intentions Toward Eco-Friendly Agricultural and Food Packaging: A Case Study in Chungnam Province, South Korea

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## ABSTRACT

This study aims to the factors influencing consumer intention to purchase eco-friendly, small-packaged agricultural products using the Theory of Planned Behavior (TPB). With increasing demand for sustainable consumption, eco-friendly food packaging has become a critical focus within the circular economy. This study was conducted in Seoul, South Korea, a key marketplace for consumer trends, and surveyed 200 respondents to examine key TPB components—attitude, subjective norms, and perceived behavioral control—along with additional factors shaping sustainable purchasing behavior. The findings indicate that perceived behavioral control is the predictor of purchase intention ($\beta = 0.510$, $p < 0.001$), followed by attitude ($\beta = 0.236$, $p < 0.05$) and subjective norms ($\beta = 0.199$, $p < 0.05$). Moreover, the results suggest that while social influences play a role, individuals who perceive fewer barriers and have a stronger personal attitude toward sustainability are more likely to adopt eco-friendly purchasing behaviors. These results highlight the importance of consumer autonomy and confidence in making eco-friendly choices, suggesting that increasing accessibility and affordability of sustainable packaging can drive adoption. Despite social influences, urban consumers prioritize personal values and perceived control over purchasing behavior. The study might contribute to sustainability literature by offering insights into eco-conscious consumer behavior and implications for marketing strategies that promote sustainable agricultural products. Future research should explore cross-cultural comparisons and additional psychological determinants to enhance the understanding of sustainable consumption patterns.

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# 1. Introduction

The shift towards sustainable consumption patterns has become increasingly critical in light of environmental degradation, resource depletion, and the growing demand for eco-friendly products. Among various sectors, food packaging has emerged as a significant focus area, particularly within the framework of the circular economy. The circular economy emphasizes minimizing waste, maximizing resource efficiency, and promoting sustainable product lifecycles, all of which are vital for addressing global environmental challenges[1, 2]. Food packaging, especially single-use plastics, poses a substantial environmental threat due to its contribution to global plastic waste and pollution[3].

The concept of sustainable food packaging is closely linked to consumer behavior, particularly their willingness to adopt eco-friendly practices. Recent studies highlight the increasing consumer demand for environmentally responsible packaging options, as consumers become more aware of their ecological footprint[3, 4]. The Theory of Planned Behavior (TPB) has been widely used to understand consumer intentions in adopting sustainable behaviors, including purchasing sustainable food products[5]. The TPB framework examines how attitudes, subjective norms, and perceived behavioral control influence behavioral intentions. In the context of sustainable food and packaging, these constructs are crucial for predicting consumer choices[5].

In addition to the traditional components of TPB, other factors, such as consumer knowledge, trust, and health consciousness, have been identified as significant predictors of sustainable consumption[1, 6]. Knowledge about sustainability issues empowers consumers to make informed choices, while trust in producers and certification labels influences their confidence in the sustainability claims of products[1]. Furthermore, health consciousness plays a pivotal role in sustainable food consumption, as consumers increasingly associate eco-friendly products with personal well-being[5].

Varah et al. (2021) examined young consumers' intentions toward purchasing green products in India using an extended TPB model[7]. The study incorporated willingness to pay a premium and environmental concern as additional variables to the traditional TPB constructs. Lim and An (2021) examined Korean consumers' intentions to purchase wellbeing food, provided perceived behavioral control had the strongest influence on purchase intention, followed by attitude and subjective norms[8]. Carfora et al. (2021) examined consumers' intentions to purchase natural food using an integrated theoretical model that combines the TPB[9]. This showed pro-environmental beliefs and awareness of consequences influenced attitudes toward purchasing natural food. Sun (2020) proposes a re-extended TPB specifically for ethical consumer intention formation[10]. This addressed ethical consumer purchase intentions compared to the original TPB or previous modifications. Ahmed et al. (2021) examined young consumers' intentions to purchase organic food in China using an extended TPB model[11]. The factors, including attitude, subjective norms, perceived behavioral control, and environmental concerns, significantly influenced purchase intentions for organic food. Environmental concerns had the strongest effect on purchase intentions, followed by subjective norms, perceived behavioral control, and attitude. The study provided insights for understanding and promoting organic food consumption among young consumers in China, highlighting the importance of environmental factors in shaping purchase intentions. Jakubowska et al. (2024) examined Generation Z's intentions to purchase sustainable food using an extended TPB model[12]. The study provided insights for promoting sustainable food consumption among young consumers in Poland, highlighting the importance of attitudes and knowledge in shaping purchase intentions.

There has been a growing emphasis on sustainable consumption, particularly concerning eco-friendly food packaging in recent years. Studies have applied the TPB to understand consumer intentions in this domain. For instance, research has demonstrated that subjective norms and perceived behavioral control significantly influence consumers' purchase intentions toward eco-friendly food packaging products[13]. Additionally, consumer perceptions of food packaging play a crucial role in their purchasing decisions. Factors such as visual appeal, information transparency, convenience, and environmental sustainability of packaging materials are pivotal in shaping consumer behavior. Furthermore, the

transition to circular food packaging systems presents both challenges and opportunities[14]. Consumer behavior is a critical factor in the successful implementation of circular economy strategies in the food packaging sector. Understanding consumer acceptance and participation is essential for developing effective circular packaging solutions. The studies highlight the multifaceted nature of consumer behavior concerning eco-friendly food packaging and underscore the importance of integrating psychological theories like TPB to comprehend and predict purchasing intentions.

Thus, this study aims to explore the behavioral intentions of consumers, particularly in relation to small-packaged agricultural products, using the TPB model along with extended factors such as knowledge and health consciousness. By examining the motivations behind sustainable purchasing decisions, this research could contribute to the understanding of the drivers of eco-conscious behavior. The findings are expected to provide valuable insights for marketers and policymakers looking to promote sustainable consumption through targeted campaigns and eco-friendly product offerings.

# 2. Study area and Methods

## 2.1. Study Area

Seoul, the capital and largest city of South Korea, is a densely populated urban area with a population exceeding 9.5 million residents. As the country's central economic and cultural hub, Seoul not only drives consumption patterns nationwide but also serves as a major market for agricultural products produced in other regions of South Korea. Its high population density and significant demand for food make it a critical area for the distribution and consumption of domestically grown agricultural goods. As the political, economic, and cultural center of the country, Seoul plays a crucial role in shaping national trends and policies, particularly in sustainability, environmental governance, and food consumption patterns. Geographically situated on the Han River and close to the demilitarized zone (DMZ), Seoul holds significant geopolitical importance as a major hub in the Northeast Asian region. Seoul, as a key hub for agricultural and food product consumption in South Korea, serves as an important region for identifying consumer behaviors, particularly in the adoption of eco-friendly practices such as sustainable packaging choices. The city plays a significant role as a major consumer of agricultural products from other regions, emphasizing the need for sustainable approaches to packaging and distribution to meet the growing demand for environmentally conscious consumption. The consumers are increasingly aware of the environmental impacts of their food choices, positioning Seoul as a highly relevant location for examining sustainable consumer practices, particularly in the context of food packaging. Furthermore, in recent years, the demand for organic, locally sourced, and eco-friendly packaged agricultural products in South Korea has risen significantly, driven by increasing consumer awareness of ecological impacts and health benefits. Agricultural product consumption has been further influenced by a strong emphasis on food safety, quality, and sustainability. In this context, promoting sustainable food consumption patterns, including the adoption of eco-friendly small packaging for agricultural products, aligns with the broader sustainability goals of cities such as Seoul.

## 2.2. Methodology

This study surveyed 200 city residents of Seoul in South Korea. Data collection was conducted through an online survey in March 2024. The sample was selected using a random sampling method. The survey was designed to capture key variables from the Theory of Planned Behavior (TPB) and extended constructs such as knowledge and health consciousness. It included questions on attitudes, subjective norms, perceived behavioral control, and other factors influencing consumer behavior related to eco-friendly food packaging and agricultural products. Respondents were also asked about their attitudes toward purchasing eco-friendly agricultural products and packaging. Respondents under their 20s were excluded as they are not considered primary purchasers of agricultural products due to a lack of economic independence, limited purchasing authority, and insufficient interest or experience.

Based on the Theory of Planned Behavior (TPB), this study presents the following hypotheses related to consumer intention to purchase eco-friendly agricultural products with sustainable packaging.

**H1.** *Personal attitude (ATT) positively influences consumers' intention to purchase eco-friendly agricultural products in*

*Seoul.*

**H2.** *Subjective norms (SN) positively influence consumers' intention to purchase eco-friendly agricultural products.*

**H3.** *Perceived behavioral control (PBC) positively influences consumers' intention to purchase eco-friendly agricultural products.*

**H4.** *Consumer knowledge (KNOW) positively influences consumers' intention to purchase eco-friendly agricultural products.*

**H5.** *Trust (TRUST) positively influences consumers' intention to purchase eco-friendly agricultural products.*

**H6.** *Health consciousness (HC) positively influences consumers' intention to purchase eco-friendly agricultural products.*

These hypotheses are grounded in previous research, which suggests that these factors from the TPB and extended constructs such as consumer knowledge and health consciousness are critical determinants of sustainable purchasing behaviors.

**Table 1** shows the constructs and survey items used in this study to assess respondents' attitudes, subjective norms, perceived behavioral control, and behavioral intentions regarding small-packaged agricultural products. The Personal Attitude (ATT) construct aims to measure the respondents' feelings and overall evaluation of purchasing small-packaged agricultural products. The first item asks respondents whether they find buying such products enjoyable. The second item explores whether careful consideration leads them to choose small-packaged agricultural products.

**Table 1.** Constructs and survey items.

| Construct | Survey Item |
|---|---|
| ATT | 1. Buying small-packaged agricultural products is enjoyable for me.<br>2. If I carefully consider, I tend to choose small-packaged agricultural products. |
| SN | 3. Purchasing small-packaged agricultural products positively impacts the environment.<br>4. Buying small-packaged agricultural products motivates me to practice eco-friendly behavior.<br>5. Carefully considering and choosing small-packaged agricultural products is beneficial to me. |
| PBC | 6. If I want to, I can purchase eco-friendly products.<br>7. I have the time to purchase eco-friendly small-packaged products.<br>8. I have the financial resources to purchase eco-friendly small-packaged products.<br>9. I have acquaintances who can purchase eco-friendly small-packaged products.<br>10. Even if regular packaging is available, I intentionally choose eco-friendly small-packaged products. |
| BI | 11. I plan to buy eco-friendly small-packaged agricultural products in the future.<br>12. I will continue to purchase the eco-friendly small-packaged agricultural products I have chosen. |

The Subjective Norms (SN) construct focuses on the influence of social pressures and environmental considerations on respondents' purchasing decisions. Respondents are asked whether they believe that purchasing small-packaged agricultural products positively impacts the environment, and whether buying these products motivates them to engage in eco-friendly behaviors. The final item within this construct gauges whether respondents perceive personal benefits in carefully selecting small-packaged agricultural products.

The Perceived Behavioral Control (PBC) construct evaluates the respondents' perceived ease or difficulty in performing the desired behavior, considering factors such as available time, financial resources, and the influence of acquaintances. Specifically, respondents are asked whether they believe they can purchase eco-friendly products if they wish to do so, whether they have sufficient time and financial resources to make these purchases, and whether their acquaintances are also capable of buying such products. Lastly, respondents are asked whether they would intentionally choose eco-friendly small-packaged products, even if regular packaging is available.

Finally, the Behavioral Intention (BI) construct measures respondents' future purchasing intentions regarding eco-friendly small-packaged agricultural products. Respon-

dents are asked whether they plan to buy such products in the future and whether they intend to continue purchasing the eco-friendly small-packaged products they have already chosen.

The survey data were analyzed using SPSS and STATA. Descriptive statistics were employed to summarize the demographic characteristics of the respondents, while regression and correlation analyses were used to explore the relationships between TPB constructs and consumer intentions to adopt sustainable practices.

# 3. Results

**Table 2** presents the descriptive statistics of the survey respondents. The sample includes 103 male participants, which represents 51.5% of the total sample, and 97 female participants, accounting for 48.5%. The respondents are also categorized into five age groups, excluding those under 20, as they are not key consumers or decision-makers for agricultural product purchases. Those aged 20–29 comprise 17% of the sample, with 34 individuals, while 18% are in the 30–39 age group, consisting of 36 individuals. The 40–49 age group includes 42 respondents, making up 21%, and the 50–59 age group has 41 respondents, or 20.5%. The largest age group is those over 60, accounting for 23.5% of the sample with 47 respondents.

In terms of education, a small proportion, 7%, or 14 individuals, have completed only primary school, while 36% (72 respondents) have finished high school. The majority of respondents, 54.5%, or 109 individuals, hold a university degree, and a smaller percentage, 2.5%, or 5 respondents, have completed graduate-level education. The income distribution of the respondents is spread across six income categories. The largest group, 36%, or 72 individuals, earn between 21–30 million KRW annually. About 2.5%, or 5 respondents, earn less than 10 million KRW, while 22.5%, or 45 respondents, earn between 10–20 million KRW. Another 23%, or 46 respondents, fall in the 31–40 million KRW income level, and 10.5%, or 21 individuals, report earnings between 41–50 million KRW. The highest income group, earning over 51 million KRW, comprises 5.5%, or 11 respondents.

**Table 2.** Descriptive statistics of respondents.

| Variable | Category | Number (N) | Percentage (%) |
|---|---|---|---|
| Gender | Male | 103 | 51.5 |
| | Female | 97 | 48.5 |
| Age (years) | 20–29 | 34 | 17.0 |
| | 30–39 | 36 | 18.0 |
| | 40–49 | 42 | 21.0 |
| | 50–59 | 41 | 20.5 |
| | > 60 | 47 | 23.5 |
| Education | Primary school | 14 | 7.0 |
| | High school | 72 | 36.0 |
| | University | 109 | 54.5 |
| | Graduate school university | 5 | 2.5 |
| Income [a] (million KRW*) | < 10 | 5 | 2.5 |
| | 10–20 | 45 | 22.5 |
| | 21–30 | 72 | 36.0 |
| | 31–40 | 46 | 23.0 |
| | 41–50 | 21 | 10.5 |
| | > 51 | 11 | 5.5 |

Note: * As of November 2024, the average exchange rate was approximately 1 USD = 1,400 KRW.

**Table 3** presents the results of the reliability and validity analysis of the key constructs, including Personal Attitude (ATT), Subjective Norms (SN), Perceived Behavioral Control (PBC), and Behavioral Intention (BI). Each construct's items, means, standard deviations (SD), factor loadings, Cronbach's Alpha, Composite Reliability (CR), and Av-

erage Variance Extracted (AVE) are analyzed to confirm the internal consistency and validity of the measurement model. For Personal Attitude (ATT), The ATT construct comprises two items, both showing strong factor loadings (0.847 and 0.839). The Cronbach's alpha for ATT is 0.819, indicating good internal consistency. The CR and AVE values, 0.8 and 0.7, respectively, confirm the construct's reliability and validity. The Subjective Norms (SN) construct, The SN construct consists of three items, with factor loadings ranging from 0.799 to 0.810. The Cronbach's alpha of 0.895 suggests high internal consistency. The CR value is 0.8, and the AVE is 0.6, indicating adequate reliability and convergent validity. The Perceived Behavioral Control (PBC) construct, PBC includes three items with factor loadings between 0.737 and 0.873. The Cronbach's alpha for PBC is 0.868, reflecting strong internal reliability. The CR value of 0.8 and AVE of 0.6 support the construct's validity. Finally, the Behavioral Intention (BI) is measured using three items, with factor loadings between 0.776 and 0.809. The Cronbach's alpha for this construct is 0.924, the highest among all constructs, signifying excellent internal consistency. The CR and AVE values, 0.8 and 0.6, respectively, further confirm the construct's reliability and validity.

**Table 3.** Factor loadings and reliability of survey constructs.

| Construct | Items | Mean (SD) | Factor Loadings | Cronbach's Alpha | CR | AVE |
|---|---|---|---|---|---|---|
| ATT | 1 | 3.5 (0.8) | 0.847 | 0.819 | 0.8 | 0.7 |
| | 2 | 3.6 (0.8) | 0.839 | | | |
| SN | 3 | 3.9 (0.8) | 0.799 | 0.895 | 0.8 | 0.6 |
| | 4 | 3.8 (0.8) | 0.810 | | | |
| | 5 | 3.7 (0.8) | 0.805 | | | |
| PBC | 6 | 3.6 (0.9) | 0.737 | 0.868 | 0.8 | 0.6 |
| | 7 | 3.6 (0.9) | 0.778 | | | |
| | 8 | 3.7 (0.8) | 0.873 | | | |
| BI | 9 | 3.9 (0.8) | 0.798 | 0.924 | 0.8 | 0.6 |
| | 10 | 3.9 (0.8) | 0.809 | | | |
| | 11 | 3.7 (0.8) | 0.776 | | | |

**Table 4** presents the discriminant validity of the constructs Personal Attitude (ATT), Subjective Norms (SN), Perceived Behavioral Control (PBC), and Behavioral Intention (BI). The values represent the square roots of the Average Variance Extracted (AVE) for each construct. The results show the relationships among the key constructs in the study. ATT and SN show a moderate positive correlation of 0.47, indicating that individuals with a favorable ATT are more likely to perceive SN supporting such behavior. This suggests that a positive perception of sustainability is often accompanied by the belief that important others approve of such actions. The correlation between SN and PBC is 0.42, implying that individuals who experience stronger SN may also feel a greater sense of PBC over their ability to make sustainable purchasing decisions. This finding highlights the role of external encouragement in enhancing consumers' confidence in making eco-friendly choices. A relatively strong correlation is observed between PBC and BI, which is 0.49, reinforcing the idea that individuals who perceive greater PBC are more likely to develop a strong BI toward purchasing eco-friendly products. This aligns with the Theory of Planned Behavior (TPB), which posits that PBC plays a key role in shaping BI. The correlation between SN and BI is 0.36, suggesting that SN contribute to BI, though they are not the strongest predictor. This finding suggests that while SN play a role in encouraging sustainable consumption, other factors, such as PBC, may have a greater impact on actual decision-making. Lastly, ATT and BI show the weakest correlation, with a value of 0.25, indicating that while ATT influences BI, its direct impact is relatively lower compared to PBC and SN.

**Table 4.** Discriminant validity of the constructs.

| | ATT | SN | PBC | BI |
|---|---|---|---|---|
| ATT | 0.71* | | | |
| SN | 0.47 | 0.65* | | |
| PBC | 0.36 | 0.42 | 0.64* | |
| BI | 0.25 | 0.36 | 0.49 | 0.63* |

**Table 5** summarizes the results of the hypothesis testing, showing the hypothesized effects of ATT, SN, and PBC on BI. Among these predictors, PBC demonstrated the strongest influence on Behavioral Intention ($\beta = 0.510$, $p < 0.001$). This suggests that individuals who feel a greater sense of control over their purchasing decisions—such as ease of access, affordability, or personal confidence in making sustainable choices—are significantly more likely to intend to buy eco-friendly products. The highly significant relationship ($p < 0.001$) emphasizes the importance of perceived control in shaping consumer behavior. ATT had a significant positive effect on BI ($\beta = 0.236$, $p < 0.05$), indicating that consumers with favorable perceptions of eco-friendly, small-packaged products are more likely to develop purchase intentions. Similarly, SN were found to have a significant effect on BI ($\beta = 0.199$, $p < 0.05$). This implies that social influences, such as the expectations of family, friends, or societal norms, encourage consumers to adopt sustainable purchasing behaviors. In summary, all three hypotheses (H1, H2, and H3) are supported by the result, indicating that personal attitude, subjective norms, and perceived behavioral control all significantly contribute to predicting consumers' behavioral intentions toward purchasing eco-friendly small-packaged agricultural products.

**Table 5.** Estimates of Structural model.

| Hypothesis | Hypothesized Effects | Standardized Regression Weight |
|---|---|---|
| H1 | BI ← ATT | 0.236** |
| H2 | BI ← SN | 0.199** |
| H3 | BI ← PBC | 0.510*** |

** $p < 0.05$, *** $p < 0.001$.

# 4. Discussion

The results are in line with previous research that utilized the Theory of Planned Behavior (TPB) to explore consumer intentions regarding sustainable consumption, particularly in the context of eco-friendly packaging. Personal Attitude (H1) was found to have a significant effect on behavioral intention ($\beta = 0.236$, $p < 0.05$). This supports prior research indicating that personal attitudes toward sustainability are crucial for predicting eco-friendly consumption behaviors [15]. Similarly, a study by Si et al. (2019) emphasized that positive attitudes are essential for driving sustainable behavior, particularly in contexts like food packaging [16]. Furthermore, Tewari et al. (2022) found that environmental prosocial attitudes positively influence green consumption values, which in turn enhance openness to green communication and ultimately impact buying behavior [17]. Scheller et al. (2024) found that positive attitudes toward low-carbon technologies significantly influenced homeowners' intentions to adopt such technologies, highlighting the importance of personal attitudes in environmental decision-making [18]. However, the effect size observed in this study is relatively modest compared to other findings. This discrepancy may be attributed to the value-action gap, where individuals' positive attitudes toward environmental issues do not always translate into corresponding behaviors.

Perceived Behavioral Control (H3) was the strongest predictor of behavioral intention in this study ($\beta = 0.51$, $p < 0.001$ ). This is consistent with other research indicating that consumers' perceived ease or difficulty in making sustainable purchases strongly predicts their actual buying behaviors [19]. The significance of PBC in this study is in line with the previous research implying perceived control to be a major determinant in predicting sustainable consumption behavior in developing markets [20]. Previous study found that PBC positively influences green purchase intention, suggesting

that when consumers feel confident in their ability to purchase green products, their intention to do so increases [21]. Similarly, existing research by Kotyza et al. (2024) demonstrated that PBC, along with environmental concern, significantly predicts pro-environmental intentions across multiple countries [22]. This indicated the importance of individuals' perceived control over engaging in eco-friendly behaviors. Ruangkanjanases et al. (2020) found that consumers' attitudes and perceived behavioral control strongly and sustainably impact purchase intentions for green products through individual and social benefits and self-competence, convenience, and environmental literacy, respectively [23].

On the other hand, Subjective Norms (H2) were found to have a weaker influence on behavioral intention ($\beta = 0.199$, $p < 0.05$). This contrasts with studies indicating that subjective norms can have a stronger impact in different cultural contexts, particularly in collectivist societies where social influence plays a more significant role [24]. In the case of Seoul citizens, individual values may take precedence over social pressures, reducing the relative impact of subjective norms compared to other factors. A study examining organ donation intentions between Americans and Koreans found that subjective norms were more influential in the collectivist Korean culture compared to the individualistic American culture. This suggests that in collectivist societies, individuals are more likely to be influenced by the expectations and behaviors of others when forming their intentions [25]. While the existing literature supports the significant roles of attitude and perceived control, the relative weakness of subjective norms highlights a potential cultural specificity in consumer behavior. Existing Study implied that while subjective norms may be strong in some regions, in highly urbanized areas like Seoul, individual knowledge and attitudes towards sustainability may overshadow social pressures [26, 27]. Recent research has emphasized consumer behavior toward sustainability, with a particular focus on eco-friendly packaging and food consumption patterns [28]. Previous research has explored the role of environmental attitudes, values, personal norms, and perceived responsibility in sustainable consumption. The findings highlight how these psychological and moral factors influence consumer choices toward environmentally friendly behaviors. Furthermore, individuals who perceive a greater personal responsibility for environmental issues are more likely to engage in green consumption [29, 30]. This study might give the understanding of consumer behavior by highlighting that personal values and perceived control are more critical than social influences when it comes to eco-friendly purchases.

# 5. Conclusions

This study identified the factors influencing consumers' behavioral intentions to purchase eco-friendly small-packaged agricultural products, applying the Theory of Planned Behavior (TPB) as a theoretical framework. The results provide significant insights into the role of personal attitude, subjective norms, and perceived behavioral control in shaping consumers' intentions. As predicted, personal attitude were found to have a significant positive effect on behavioral intentions, emphasizing findings from previous studies which highlight the importance of consumers' positive perceptions toward eco-friendly packaging. This suggests that fostering favorable attitudes through awareness campaigns and education can effectively encourage eco-conscious purchasing behavior. Perceived Behavioral Control (PBC) emerged as a strong predictor of intentions in this study, aligning with prior research suggesting that when consumers feel they have control over their purchasing decisions, they are more likely to follow through on their intentions. This might indicate the necessity of providing eco-friendly packaging options that are accessible, affordable, and convenient for consumers. Subjective Norms exhibited a relatively weaker effect on purchase intentions compared to attitudes and PBC. This may reflect the unique cultural context of Seoul, where individual values might overshadow social pressures in driving sustainable purchasing behaviors. This finding is in contrast with studies implying that subjective norms play a more dominant role in shaping consumer behavior. This study highlights the significant factors influencing consumer intentions toward eco-friendly packaging.

The results provide insights for fostering positive behavioral changes, emphasizing the importance of education and awareness campaigns to enhance consumer attitudes. To enhance consumer intention to purchase eco-friendly agricultural products with sustainable packaging, several measures may be proposed. First, increasing consumer awareness through targeted marketing and educational campaigns could highlight the environmental and health benefits of such

products. Additionally, government support in the form of subsidies or incentives for producers adopting sustainable packaging practices might further encourage adoption. Improving access to affordable and convenient eco-friendly options and implementing supportive policies can strengthen perceived behavioral control, further motivating sustainable choices. These efforts collectively contribute to shaping a more environmentally responsible consumer base, addressing global sustainability challenges while encouraging a shift toward eco-conscious consumption behaviors. Lastly, engaging younger consumers through educational programs and social media initiatives may foster long-term sustainable purchasing habits. These efforts collectively aim to positively influence consumer perceptions and promote the adoption of eco-friendly agricultural products with sustainable packaging.

This study has several limitations. First, despite employing random sampling in Seoul, this study is limited by its small sample size, due to financial constraints. This limitation may affect the generalizability of the findings to the broader population of the region. Additionally, the data were collected using an online survey, which inherently excludes individuals without internet access or those less familiar with digital tools, potentially introducing selection bias and limiting the representativeness of the sample. Second, this study may be subject to social desirability bias, where respondents provide answers they perceive as socially acceptable rather than their true behaviors or attitudes. This bias could influence the validity of the findings. Third, the research is cross-sectional, capturing consumer behavior and attitudes at a single point in time. As consumer behavior and environmental awareness may evolve, longitudinal studies are necessary to understand these changes over time and provide more robust conclusions. Fourth, while this study employed the Theory of Planned Behavior (TPB) and extended constructs such as knowledge and health consciousness, other potentially influential factors were not considered. For example, economic conditions, government policies, or cultural norms may also significantly impact consumer intentions and behaviors but were not included in this study.

Future studies should include larger, nationally representative samples to improve the generalizability of the findings and should conduct comparative analyses across both developing and developed countries in different hemispheres to validate the applicability of the results. Moreover, future research should explore these dynamics further, particularly through cross-cultural comparisons, to better understand how geographic, economic, and cultural factors influence the strength of TPB constructs in shaping sustainable consumer behavior. Next research could build on these findings by examining additional factors such as consumer knowledge and trust, which have been shown to influence sustainable behavior in other contexts. Additionally, cross-cultural comparisons would be valuable in further understanding the varying impacts of subjective norms on consumer behavior across different regions. Further studies would need to provide the effectiveness of various behavioral interventions, such as nudges, incentives, and informational prompts, in encouraging sustainable consumer choices. In addition, identifying and addressing the psychological, economic, and structural barriers that deter consumers from adopting sustainable behaviors is essential for promoting sustainable consumption. Future research should explore strategies that integrate psychological, economic, and structural approaches to create environments that promote sustainable consumer behaviors. This study might enhance the understanding of consumer behavior by emphasizing that personal values and perceived control play a more significant role than social influences in eco-friendly purchasing decisions.

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## Institutional Review Board Statement

This study was approved by the Ethics Committee of the Chungnam Institute, South Korea, in accordance with the Chungnam institute's guidelines and regulations.

## Informed Consent Statement

Informed consent was obtained from all subjects involved in the study.

## Data Availability Statement

Data are available on reasonable request.

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## Conflicts of Interest

The authors declare no conflict of interest.

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