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# DETERMINANTS OF WASTEFUL FOOD CONSUMPTION BEHAVIORS OF YOUNG CONSUMERS IN HO CHI MINH CITY

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**ABSTRACT**

Food waste is a serious global issue with multidimensional economic, environmental, and social consequences. In major urban centers such as Ho Chi Minh City, this behavior is increasingly prevalent, particularly among young consumers (aged 18-35), causing significant resource losses and affecting sustainable development. The study utilizes an exploratory sequential mixed-methods approach, including a qualitative phase through focus group discussions with experts and young consumers, followed by a quantitative phase with data collected from an online survey of 338 young people living and working in Ho Chi Minh City. Research results indicate that factors such as personal values have a positive impact on the attitude towards avoiding food waste. The results indicate a clear behavioral path: attitude, subjective norm, perceived behavioral control, and affect all significantly shape the intention to waste food. This intention, together with habit, then positively influences the actual food waste behavior. Notably, habit plays a prominent role in shaping actual behavior. These findings not only contribute to expanding the understanding of behavioral theoretical models but also provide an important empirical basis for designing communication programs, educational policies, and behavioral interventions aimed at raising awareness, changing habits, and promoting more responsible food consumption among the young urban community.

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## 1. Introduction

Food waste is a serious global issue getting more attention because of its huge impact on both the economy and the environment. The United Nations Environment Programme according to United Nations Environment Programme (UNEP, 2024) reports that over 1.05 billion tons of food are wasted worldwide each year - that's roughly 20% of all the food produced. At the same time, around 800 million people still go hungry. This highlights a major contradiction and makes it clear that something needs to be done, especially in households, where food waste is most common according to Scherhaufer et al. (2018). In places like Ho Chi Minh City, where rapid urban growth and shifting lifestyles are on the rise, the problem is even worse, especially among younger consumers. In Vietnam, it's estimated that each person wastes about 25 to 35 kg of food annually, with rice, noodles, and meat being the most thrown out by Food and Agriculture Organization of the United Nations (FAO, 2019). The younger generation, especially those aged 18 to 35, are responsible for a large share of this waste. Impulse buying, poor meal planning, and the easy access to convenience foods are big contributors to this problem according to Visschers et al. (2016). Plus, the rise of online food delivery services and busy urban lives often lead to buying more food than needed, which ultimately goes to waste according to Aydin and Yildirim (2020). To tackle this issue, we need to understand the psychology and social factors behind food waste. Research shows that people who see food waste as morally wrong are more likely to change their habits and waste less according to Visschers et al. (2016). Things like attitudes toward sustainability, knowledge about food preservation, and personal shopping habits all play a role in how food is consumed, Scherhaufer et al. (2018). In Ho Chi Minh City, where technology and modern living influence young consumers' buying habits, it's important to look at how these factors shape their food waste behavior. The fast pace of life, convenience of food delivery apps, and a culture of overconsumption make it easy to buy too much food, which then ends up being wasted.

The environmental impact of food waste is huge. The FAO (2019) reports that food production and waste contribute to about 8% of global greenhouse gas emissions. On top of that, resources like water, land, and energy are wasted when food is thrown away. Every kilogram of wasted food represents not just financial loss but also damage to our environment, worsening climate change and depleting essential resources. While awareness of the issue is growing, there's still limited research on what specifically drives food waste behaviors among young consumers in urban areas like Ho Chi Minh City. Studies have shown that consumer attitudes, social pressures, and how people perceive food waste influence their choices, Aydin and Yildirim (2020). Other factors, like income, education, and lifestyle, also play a big part in how people buy, prepare, and consume food, Scherhaufer et al. (2018). But the role of technology and City living in shaping food waste habits is still something we don't fully understand.

This research aims to address that gap by exploring what factors drive food waste among young urban consumers. By focusing on this influential group, the study will provide actionable insights for policymakers, businesses, and sustainability advocates. The goal is to offer practical recommendations that can help reduce food waste, supporting global efforts to promote more responsible consumption in a rapidly changing world by FAO (2019).

## 2. Literature review

### *2.1. Theoretical framework*

*Theory of Triple Bottom Line – TBL*, proposed by Elkington in 1994, focuses on three key

areas of sustainability: economic, social, and environmental factors. When applied to food waste, this theory stresses the need to address the environmental effects of food waste, such as carbon emissions and the depletion of resources, while also considering the economic losses and social implications tied to food waste. For younger consumers, the TBL theory suggests that their views on sustainability and the environment can impact their food-related choices. Those who prioritize sustainability and environmental conservation are more likely to adopt habits that minimize food waste, based on the idea that their attitudes toward social and environmental responsibility influence their consumption patterns.

*Theory of Value - Attitude - Behavior – VAB*, proposed by Homer and Kahle in 1988, posits that an individual's values shape their attitudes, which ultimately influence their actions. Regarding food waste, young consumers' environmental values are expected to impact their attitudes toward food waste, which in turn guide their consumption behaviors. When young consumers place importance on sustainability, their attitudes are more likely to reflect sustainable food consumption practices. A positive attitude towards food conservation and sustainability is linked to a lower tendency to engage in food-wasting behaviors. According to the VAB theory, stronger environmental values lead to more sustainable behaviors, meaning individuals with stronger environmental values are less likely to waste food.

*Wood and Neal's Model of Habitual Behavior.* Wood and Neal's Model of Habitual Behavior (2009) suggests that behaviors often become ingrained through repetition, external triggers, and a lack of conscious thought. This model is applicable to food waste, as young consumers may form habitual food-buying patterns that result in over-purchasing and, eventually, food waste. Influences like advertising and marketing play a significant role in shaping these habits, especially in urban areas such as Ho Chi Minh City, where food choices are often driven by convenience, fast food culture, and social trends. Impulsive buying or unplanned food purchases, as part of these habitual behaviors, contribute to higher levels of food waste among young consumers. The hypothesis underlying this model is that food waste behaviors are shaped by automatic patterns, occurring without intentional planning, which leads to wasteful consumption.

*Theory of Interpersonal Behavior – TIB*, developed by Triandis in 1977, suggests that individual behavior is strongly influenced by social norms, peer pressure, and interpersonal relationships. When it comes to food waste, young consumers are often affected by their social circles, including family, friends, and peers, who may either encourage or discourage wasteful food consumption. In Ho Chi Minh City, where food culture and social gatherings are an essential part of daily life, social interactions and cultural norms are likely to shape food waste behaviors. The influence of social norms and peers will play a significant role in determining the food waste habits of young consumers in this context, highlighting the importance of social relationships and cultural expectations in driving consumption behaviors.

*Theory of Planned Behavior – TPB,* proposed by Ajzen in 1991, suggests that attitudes, subjective norms and perceived behavioral control are essential factors in determining behavioral intentions, which, in turn, influence actual behavior. In the case of food waste, TPB suggests that young consumers' views on food waste, societal expectations, and their sense of control over food purchasing and disposal will shape their intention to reduce food waste. This theory is particularly effective in predicting behaviors when individuals feel a lack of control

or face external challenges, such as the impact of food marketing or insufficient knowledge on food preservation. Young consumers' attitudes towards food waste, social norms, and their perceived ability to control food purchases and waste are strong indicators of their food waste behaviors, with attitudes and perceived control being key factors influencing food consumption and waste.

The above-mentioned theories offer a solid foundation for understanding the various factors affecting food waste behaviors among young consumers in Ho Chi Minh City. By combining the TBL, VAB, Wood and Neal's Model of Habitual Behavior, TIB, and TPB, this study seeks to examine how values, social influences, habitual behaviors, and environmental attitudes shape food consumption and waste. The hypotheses derived from these frameworks will steer the data collection and analysis, offering valuable insights into the key drivers of wasteful food consumption and supporting initiatives aimed at reducing food waste in urban settings.

### *2.2. Hypothesis development*

*Personal Values (PV).* Personal values, as defined by Homer and Kahle (1988), are the beliefs that guide behavior and decisions, influencing actions like food waste. The Value–Attitude–Behavior (VAB) model suggests that personal values directly shape attitudes, which in turn impact behaviors. Economic values, such as cost sensitivity, encourage responsible shopping and food waste reduction (Li et al., 2024). Additionally, human values, including empathy and adherence to social norms, promote positive behaviors toward food waste reduction (Mondéjar-Jiménez et al., 2016). Environmental values, focused on climate change and sustainability, also foster negative attitudes toward food waste (Tsai et al., 2020). Based on these theoretical insights and empirical findings, the authors propose the following hypothesis:

*Hypothesis H1a:* Economic values are positively associated with attitude.

*Hypothesis H1b:* Humanistic values are positively associated with attitude.

*Hypothesis H1c:*Environmental values are positively associated with attitude.

*Attitude (ATT).* Attitudes are crucial in predicting behavior, as demonstrated in the Value–Attitude–Behavior (VAB) model (Homer & Kahle, 1988), linking values to actions. According to Ajzen's (1991) Theory of Planned Behavior (TPB), attitudes, along with subjective norms and perceived control, shape behavioral intention. Negative attitudes reduce the intention to waste food. Recent research by Pandey et al. (2023) underscores that attitude is a key predictor of food waste reduction. Tsai et al. (2020) found that negative attitudes in China led to a reduction in food-wasting behavior, while Jabeen et al. (2023) noted that positive emotions, such as satisfaction from discarding food, hinder efforts to minimize waste. Li et al. (2024) also confirmed that negative attitudes toward food waste in Shanghai led to a significant decrease in food wastage. Based on these findings, the study proposes the following hypothesis:

*Hypothesis H2:* Attitude exhibits a negative relationship with food-wasting intention.

*Subjective Norms (SN).* Subjective norm, according to Ajzen's (1991) Theory of Planned Behavior (TPB), refers to perceived social pressure and plays a key role in shaping behavioral intentions. Along with attitude and perceived behavioral control, subjective norm influences behavioral intention. When individuals perceive disapproval from others regarding food waste, they are more likely to align with social expectations. Aktas et al. (2018) found that societal pressure to avoid food waste strengthens the intention to reduce it. Barone et al. (2019) and Mawar & Adiati

(2024) also confirmed that subjective norms negatively influence food-wasting intentions. These findings highlight the significant role of social influences in encouraging food waste reduction. Based on these studies, the following hypothesis is proposed:

*Hypothesis H3:* Subjective norms are negatively associated with the intention to waste food.

*Perceived Behavioral Control (PBC).* In the framework of the Theory of Planned Behavior (TPB), Perceived Behavioral Control (PBC) reflects the extent to which an individual believes they can easily perform or refrain from performing a specific behavior (Ajzen, 1991). PBC is often assumed to have a direct positive effect on behavioral intention: when individuals feel they have high control, the intention to perform that behavior increases. Experimental studies have highlighted the complexity of PBC's role, particularly in the context of consumer behavior. Notably, Mucha and Oravecz (2025), in a study on food waste behavior among Generations X and Y in Hungary, provided clear evidence of PBC's effect. The results showed that higher PBC negatively impacted the intention to reduce food waste. It is, therefore, proposed that:

*Hypothesis H4:* Perceived behavioral control is negatively associated with the intention to waste food.

*Affect (AFF).* In the Theory of Interpersonal Behavior (TIB), Triandis (1977) emphasized the role of emotions in shaping behavioral intention, noting that emotions can either motivate or hinder actions. Russell et al. (2017) highlighted that negative emotions, particularly guilt, influence the intention to reduce food waste, but paradoxically, high negative emotions were linked to more waste, possibly due to entrenched habits or environmental factors. Jabeen et al. (2023) applied TIB to examine emotions in food waste behavior, showing that negative emotions (e.g., guilt) promoted anti-food waste attitudes, while positive emotions (e.g., satisfaction from over-purchasing) weakened those attitudes, leading to increased waste. Negative emotions like guilt or regret reduced future food waste intentions. Based on these findings, the study proposes the following hypothesis:

*Hypothesis H5:* Affect is positively associated with the intention to waste food.

*Habit (HAB).* Habits significantly influence food consumption behaviors, often driving actions that contribute to food waste. Triandis (1977) suggested that behaviors are shaped by non-cognitive factors, such as habits, which become automatic over time. Wood and Neal (2009) highlighted how repeated behaviors, like over-purchasing or meal neglect, become ingrained and less responsive to rational decision-making. Recent studies, such as Visschers et al. (2016), confirm that despite positive intentions, habitual actions often persist, resulting in food waste. Russell et al. (2017) further found that food waste behavior is often driven by ingrained habits, rather than conscious choice. Social expectations, like preparing excessive amounts of food, exacerbate this issue. Based on this, the authors propose the following hypothesis:

*Hypothesis H6:* Habit is positively associated with food waste behavior.

*Intention to Waste Food (INT).* Based on Ajzen's (1991) Theory of Planned Behavior, the best predictor of behavior is behavioral intention, which influences future actions. Recent studies, such as Stancu et al. (2016) and Huang & Tseng (2020), highlight that the intention to avoid food waste strongly correlates with actual behavior, especially in household consumption. This intention is shaped by positive attitudes and social norms, which motivate individuals to reduce food waste. Akhter et al. (2024) further supports the link between intention

and behavior, suggesting that individuals who intend to reduce food waste are more likely to engage in waste-reducing actions. The authors propose the following hypothesis:

*Hypothesis H7:* Intention to waste food is positively associated with food waste behavior.

The proposed associations are presented in Figure 1 *(see Appendix 1 and Appendix 2 online)*.

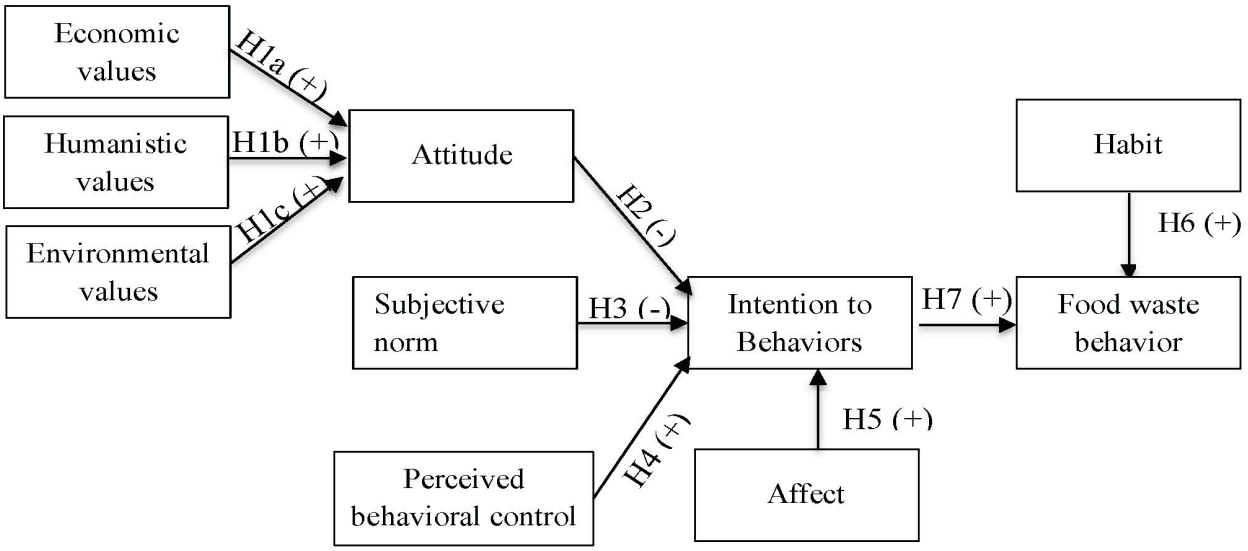


**Figure 1.** Proposed Conceptual Framework

## 3. Methodology

### *3.1. Data collection*

Data for the research model were collected through a structured questionnaire. Initially, a pilot study was conducted with 62 participants to assess the clarity and completion time of the questionnaire. The final questionnaire included nine constructs: economic values (5 items), humanistic values (5 items), environmental values (5 items), attitude (5 items), subjective norm (5 items), perceived behavioral control (5 items), affect (4 items), habit (5 items), and intention to waste food (5 items). All items were measured using a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), and were adapted from validated scales in previous studies, with minor wording adjustments to fit the context of food waste behavior. Adjustments to the questionnaire were made based on participant feedback from the pilot test, and the instrument was reviewed and revised by three academic experts to ensure content validity *(see Appendix 3 online)*. The official survey was conducted in Ho Chi Minh City, targeting residents aged 18 to 49, particularly those between 18 and 35 years old, as this group represents a dynamic lifestyle and has a significant influence on modern consumption trends.

This study employed an online survey via Google Forms to collect data from June to September 2024. The sample was selected using a convenience sampling method, a form of non-probability sampling. To determine the sample size, the author applied the formula from Hair et al. (1998), which requires the sample size to be five times the number of observed variables in the scale. The authors conducted research using a questionnaire with 49 observed variables. So, the minimum sample size is $49 \times 5 = 245$ samples.

### *3.2. Data analysis*

The data were processed and analyzed following the two-step approach proposed by Anderson and Gerbing (1988), which includes the assessment of the measurement model and the evaluation of the structural model. First, Confirmatory Factor Analysis (CFA) was conducted to examine the overall model fit and to assess convergent and discriminant validity of the measurement scales. Subsequently, the structural model was tested to evaluate the hypothesized relationships among the latent constructs. The analysis was performed using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach via SmartPLS version 3.0, ensuring analytical flexibility and suitability for the characteristics of the research sample.

## 4. Results

### *4.1. Data diagnosis (Demographic description of respondents)*

A total of 338 respondents participated in the survey, all of whom currently reside in Ho Chi Minh City (100%), aligning with the research objective to explore food waste behaviors in a large urban area where consumption habits and living standards are diverse, ensuring that the sample is representative of the context *(see Appendix 4 online)*.

### *4.2. Validity and reliability analysis*

To assess the reliability and convergent validity of the latent constructs in the PLS-SEM model, indicators such as Cronbach's Alpha, rho_A, Composite Reliability (CR), and Average Variance Extracted (AVE) are commonly employed. The analysis results show that all latent constructs meet the required thresholds, with Cronbach's Alpha ranging from 0.807 to 0.861, rho_A from 0.810 to 0.863, and Composite Reliability from 0.874 to 0.900, indicating high reliability of the measurement scales. Furthermore, the AVE values for all constructs exceed 0.6, surpassing the minimum threshold of 0.5, demonstrating that the observed variables adequately reflect the latent constructs. Therefore, it can be concluded that the measurement scales in the model meet the criteria for reliability and convergent validity, providing a solid foundation for further analysis. Further, all observed variables have loadings greater than 0.7, ranging from 0.739 to 0.832, which indicates that the observed variables effectively reflect the latent constructs they measure, ensuring the reliability of the measurement model. Therefore, no observed variables need to be removed at this stage, and they can be used to test composite reliability (CR), average variance extracted (AVE), and discriminant validity in the next steps of the model analysis.

For discriminant validity, previous studies often employed the Fornell-Larcker criterion to assess the distinction between constructs. However, Henseler et al. (2015) demonstrated through simulation studies that discriminant validity is more effectively measured using the Heterotrait-Monotrait (HTMT) ratio, which they developed. Therefore, this study uses the HTMT index to evaluate the discriminant validity between the constructs. The HTMT threshold for pairs of constructs to achieve discriminant validity is set at 0.85 (<= 0.85), Kline (2015) *(see Appendix 5 online)*. These results further validate the measurement model, paving the way for the subsequent testing of the structural model.

Appendix 6 *(see Appendix 6 online)* presents the model fit indices for PLS-SEM as proposed by Hair et al. (2016). According to Hulland and Bentler (1999), a model with an SRMR value below 0.08 is considered to fit the empirical data well. The PLS results indicate that the model fits the data adequately. Specifically, the SRMR values for the saturated model

(0.044) and the estimated model (0.067) are both below the threshold of 0.08, indicating acceptable model fit. The d_ULS values are 2.329 and 5.426, reflecting low discrepancy, and the model demonstrates a relatively good fit. Similarly, the d_G values are 0.799 and 0.867, indicating minimal overall deviation. The chi-square values for the two models are 1525.688 and 1604.776, respectively, which are relatively high but should be assessed in the context of the sample size and model complexity. The NFI values are 0.827 and 0.815, which are above the threshold of 0.80 but still fall short of the 0.90 threshold for a good fit. Overall, the model demonstrates a good fit with the data, but further adjustments are recommended to improve the fit, particularly in enhancing NFI value.

Based on the results presented in Appendix 7 *(see Appendix 7 online)* , the $R^2$ values for the variables are as follows: FWB = 0.371, ATT = 0.390, and INT = 0.387, with the corresponding adjusted $R^2$ values of 0.367, 0.384, and 0.380. These values indicate that the independent variables in the model can explain approximately 36.7% to 38.4% of the variance in the dependent variables. This level of explanatory power is considered moderate to good, which is typical for consumer behavior and sociological studies, where behaviors are often influenced by numerous hard-to-quantify factors. Therefore, the structural model demonstrates a reasonably good fit to explain the relationships between the variables.

### *4.3. Hypothesis testing*

The study by Chin et al. (1996) underscored that, in addition to assessing the significance and direction of the relationships between independent and dependent variables, evaluating the magnitude of these effects is crucial for informing resource allocation decisions. Furthermore, to facilitate the generalizability of the research findings to a wider population, the model's reliability should be reassessed using the Bootstrap method with 5,000 resamples at a 95% confidence interval, Hair et al. (2017).

The analysis results were obtained through statistical significance testing with a p-value threshold of $< 0.05$, ensuring that all relationships within the model are statistically significant. As shown in Table 1 all research hypotheses were supported, as the p-values for each relationship were less than 0.05, and the corresponding t-values exceeded the critical value of 1.96. These findings indicate that the path coefficients (β) are both reliable and meaningful in explaining food waste behavior.

The hypothesis testing using structural equation modeling (SEM), as illustrated in Figure 6, further confirms that all hypotheses from H1a to H6 were supported, with all p-values below 0.05, indicating statistically significant relationships within the model.

The results in Table 1 show that hypothesis H1a, which posits that economic value (EV) influences attitude (ATT), was supported, with a path coefficient of 0.245 (t-value = 5.009, p-value = 0.000), suggesting that economic value has a positive impact on attitudes toward reducing food waste. Similarly, Hypothesis H1b, addressing the effect of human value (HV) on attitude, was supported, with a coefficient of 0.234 (t-value = 4.641, p-value = 0.000), indicating that human values promote positive attitudes toward food waste reduction. Hypothesis H1c, which assesses the effect of environmental value (ENV) on attitude, was also confirmed, with a coefficient of 0.278 (t-value = 5.650, p-value = 0.000), showing that environmental awareness strongly influences attitudes toward reducing food waste.

**Table 1.** Results of hypothesis testing

| Hypothesis | Path | Original Sample (O) | Sample Mean (M) | Standard Deviation (SATTEV) | t-value | P Values | Results |
|---|---|---|---|---|---|---|---|
| H1a | EV →ATT | 0.245 | 0.243 | 0.049 | 5.009 | 0.000 | Supported |
| H1b | HV → ATT | 0.245 | 0.243 | 0.049 | 5.009 | 0.000 | Supported |
| H1c | ENV → ATT | 0.278 | 0.280 | 0.049 | 5.650 | 0.000 | Supported |
| H2 | ATT → INT | -0.132 | -0.128 | 0.044 | 2.979 | 0.003 | Supported |
| H3 | SN → INT | -0.224 | -0.224 | 0.050 | 4.468 | 0.000 | Supported |
| H4 | PBC → INT | 0.181 | 0.185 | 0.046 | 3.902 | 0.000 | Supported |
| H5 | AFF → INT | 0.248 | 0.248 | 0.045 | 5.516 | 0.000 | Supported |
| H6 | HAB → FWB | 0.392 | 0.396 | 0.049 | 7.995 | 0.000 | Supported |
| H7 | INT → FWB | 0.310 | 0.308 | 0.052 | 5.970 | 0.000 | Supported |

***Note:*** *PV = Personal Values, ATT = Attitude, SN = Subjective Norms, PBC = Perceived Behavioral Control, AFF = Affect, HAB = Habit, INT = Intention to Waste Food, FWB = Behavior to Waste.*

For Hypothesis H2, attitude (ATT) was found to have a negative impact on intention to waste food (INT), with a coefficient of –0.132 (t-value = 2.979, p-value = 0.003), indicating that more positive attitudes reduce the intention to waste. Hypothesis H3 examined the role of subjective norm (SN), which negatively affected food waste intention (β = –0.224, t-value = 4.468, p-value = 0.000), supporting the view that social expectations help mitigate wasteful intentions. Hypothesis H4 regarding the effect of perceived behavioral control (PBC) on intention was also supported, with a coefficient of 0.181 (t-value = 3.902, p-value = 0.000), implying that lower perceived control is associated with higher waste intention.

Hypothesis H5, which tested the impact of affect (AFF) on food waste intention, was confirmed, with a coefficient of 0.248 (t-value = 5.516, p-value = 0.000), suggesting that negative emotions (e.g., not feeling guilty about wasting) increase the intention to waste food. Hypothesis H6, addressing the effect of habit (HAB) on actual food waste behavior (FWB), was strongly supported with the highest coefficient of 0.392 (t-value = 7.995, p-value = 0.000), indicating that poor habits (such as over-purchasing) significantly influence food waste behavior.

Finally, intention to waste food (INT) was found to have a positive and significant impact on actual food waste behavior (FWB), with a coefficient of 0.310 toward food waste reduction. Stronger intentions are directly associated with increased food waste behavior.

Overall, these results confirm the theoretical model's validity in explaining food waste behavior among consumers, providing a solid foundation for future policy recommendations aimed at minimizing food waste.

The results in Appendix 9 *(see Appendix 9 online)* show that SN ($f^2$ = 0.051) and AFF ($f^2$ = 0.064) have a small effect on INT. Similarly, factors such as HV ($f^2$ = 0.059), EV ($f^2$ = 0.062), and ENV ($f^2$ = 0.081) also exhibit a small influence on ATT. Additionally, PBC ($f^2$ = 0.033) and ATT ($f^2$ = 0.017) have a minor effect on INT. Notably, HAB has a moderate impact on FWB ($f^2$ = 0.183) and a small effect on INT ($f^2$ = 0.114). This indicates that young people's food waste behaviors are not solely the result of a conscious decision-making process,

but also primarily stem from habits such as unplanned shopping or not paying attention to food expiration dates. Therefore, it can be concluded that the model not only ensures overall fit (through $R^2$) but also highlights the specific contribution of each independent variable through the $f^2$ index, enhancing transparency and accuracy in analyzing the factors influencing consumer behavior.

### *4.4. Discussion of main results*

This study investigated the factors influencing food waste behavior among young adults in Ho Chi Minh City. Findings confirmed the robust explanatory power of the proposed theoretical model – an integration of constructs from VAB, TBL, TPB, TIB, and habit models – as all hypotheses (H1–H7) were statistically supported ($p < 0.05$).

*Firstly,* personal values (H1) serve as a foundational determinant of attitudes towards food waste avoidance, with all three dimensions showing significant positive effects (EV: $\beta = 0.245$; HV: $\beta = 0.234$; ENV: $\beta = 0.278$; $p < 0.001$). Among them, environmental values exerted the strongest influence, reflecting increasing ecological awareness among young consumers in Ho Chi Minh City. While economic values drive cost-conscious food purchasing, consistent with findings from Coşkun and Özbük (2020), and Jia et al. (2022), the influence of human values highlights a culturally ingrained sense of social responsibility. This latter point aligns with East Asian collectivist norms and marks a notable divergence from Western findings (e.g., Habib et al., 2023).

*Secondly,* attitude (H2) showed a significant negative effect on food waste intention ($\beta = -0.132$), indicating that individuals with stronger pro-conservation beliefs tend to have lower intention to waste food. However, the effect size was very low ($f^2 = 0.017$), suggesting that attitude, while statistically significant, has limited explanatory power in the model. This weak contribution implies that favorable attitudes alone are insufficient to meaningfully predict behavioral intention. One possible explanation is that food waste decisions are often made under time pressure, habit, or convenience, which may override deliberate attitudinal reasoning. Additionally, attitude may play an indirect role – its influence mediated by internalized norms, emotions like guilt, or identity-related motivations. It may also be context-dependent, gaining or losing strength depending on cultural or situational conditions. The result underscores that attitude should not be treated as a dominant factor, but rather as part of a broader psychological mechanism behind food waste behavior.

*Thirdly,* subjective norm (H3), representing perceived social pressure, negatively influenced food waste intention. This effect was notably pronounced and direct within the Vietnamese context, highlighting the significant role of community and familial expectations, potentially differing from Western settings where individual goals might hold greater precedence (Mawar & Adiati, 2024; Barone et al., 2019; Aktas et al., 2018).

*Fourthly,* a counterintuitive finding emerged concerning perceived behavioral control (H4), which demonstrated a positive influence on food waste intention, with a coefficient of 0.181. That is, when individuals perceived the disposal of surplus food as easy and unhindered, their intention to waste paradoxically increased. This finding resonates with research from Qatar (Aktas et al., 2018) but contrasts with studies from Hungary (Mucha & Oravecz, 2025) where perceived behavioral control signified perceived management capability. This discrepancy underscores how socio-cultural context shapes the operational meaning of perceived behavioral control.

*Fifthly,* positive emotions (H5) were also found to exert a significant positive effect on

the intention to waste food, with a coefficient of 0.248. Experiencing positive affect, such as happiness or satisfaction, appeared to mitigate guilt, thereby psychologically facilitating food wastage. This contrasts with findings where negative emotions typically foster intentions to reduce waste (Jabeen et al., 2023), suggesting that positive affect does not universally promote pro-environmental behavior.

*Sixthly,* habit (H6) emerged as the most potent predictor of actual food waste behavior, exhibiting the largest path coefficient. This underscores the critical role of behavioral inertia and highlights the necessity for interventions focused on disrupting established wasteful routines and cultivating beneficial ones, such as meal planning (Russell et al., 2017)

*Finally,* the hypothesized positive relationship between intention (H7) and actual behavior received empirical support, with intention to waste food (INT) having a positive and significant impact on actual food waste behavior (FWB), reinforcing a core tenet of TPB. However, consistent with previous research (Visschers et al., 2016), the relative influence of intention might be overshadowed by factors like habit or perceived behavioral control, indicating the need for multifaceted intervention strategies.

In summary, the integrated theoretical model proved effective in explaining food waste behavior among young adults in Ho Chi Minh City. The research provides valuable academic contributions and yields significant practical implications for designing policies and intervention programs aimed at promoting sustainable consumption and mitigating resource waste.

## 5. Conclusion and implications

The study has significantly contributed to understanding food waste behavior among young people in Ho Chi Minh City by applying key theoretical frameworks (TPB, TIB, VAB, TBL) and utilizing data from a survey with 338 valid responses. The results from the Structural Equation Modeling (SEM) indicate that all nine hypotheses (9/9) are supported at a 1% significance level. This affirms the critical roles of (1) economic value, (2) human value, (3) environmental value, (4) attitude, (5) subjective norm, (6) perceived behavioral control, (7) affect, and (8) habit in shaping both the intention and actual behavior related to food waste. Notably, consumption habits emerged as the most influential factor influencing actual behavior. Consumption habits were identified as the most influential factor on actual behavior, highlighting the role of repeated behaviors in determining consumption patterns.

Furthermore, the study also highlights the important role of personal values (economic, human, and environmental) in shaping attitudes and intentions toward reducing food waste. Negative emotions, particularly guilt and shame, were identified as powerful motivators for reducing waste. This opens new avenues for designing communication strategies that focus on emotions, suggesting that changing these habits could help promote more sustainable food consumption, fostering a sense of responsibility and action among consumers.

This study applies TPB, TIB, VAB, and TBL theories to explore the factors influencing food waste behavior among young people in Ho Chi Minh City. These findings offer key implications:

The study highlights that food waste behavior is influenced not only by conscious factors like attitude and norms but also by irrational factors such as negative emotions and habits. Communication campaigns should integrate economic, social, and environmental values to create persuasive messages and evoke strong emotional responses, especially targeting guilt and shame to deter food waste.

Repetitive consumption patterns among young people suggest the need for mobile apps that remind users to check inventories, suggest meal plans, or offer portion sizes tailored to their needs. Environmental factors, such as family and community, play a significant role in shaping food waste behavior.

Awareness campaigns in communal settings like dormitories or student clubs can create positive social norms and encourage collective responsibility. The study also calls for collaboration between government and businesses to integrate anti-food-waste measures into the e-commerce and food delivery sectors, such as labeling products with "best consumed before..." dates and providing storage guidelines.

This study highlights the significant influence of personal values-economic, social, and environmental-on food waste attitudes and intentions, emphasizing that food waste behavior is shaped by both rational and nonrational factors, such as emotions and habits. Habit is found to be a dominant factor in food waste behavior, suggesting that communication strategies should target all three value sets to engage young consumers effectively. Negative emotions like guilt and shame can drive behavioral change, particularly among younger groups responsive to emotional content. The study also emphasizes the importance of consumption habits and tools like mobile apps to help reduce waste. Environmental and social influences, such as family and community, shape food waste norms. Awareness campaigns in communal spaces like dormitories can foster positive social norms. Finally, collaborative efforts between government and private sectors, such as labeling and storage guidelines, are crucial in reducing food waste, particularly with the rise of e-commerce and online food delivery.

Despite its theoretical and practical contribution, this study is limited by its focus on individual factors and overlooks broader influences like public policy. The online survey in Ho Chi Minh City may not represent diverse regions, and the fixed time frame excludes external events. The quantitative methods restrict deeper insights available through qualitative research. Future studies should, therefore, expand the framework, incorporate societal influences, and adopt interdisciplinary approaches for more effective solutions.

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