Understanding Consumer Behavior Toward Surplus Food in Online Platforms: A Study on Price, Environmental, and Psychological Factors

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Abstract: This study investigates how attitude, price consciousness, and environmental concern influence consumers' purchase intentions toward surplus food via online platforms. Grounded in the Theory of Planned Behavior (TPB), the study aims to understand psychological and contextual factors that shape sustainable consumer behavior. The research is motivated by the growing food waste issue in Indonesia, which causes social, economic, and environmental problems. In response, national strategies (e.g., Bappenas) encourage food redistribution platforms and circular economy models to reduce food loss and waste (FLW). A quantitative method using Partial Least Squares Structural Equation Modeling (PLS-SEM) was applied to data from respondents aged 17 and above residing in Greater Jakarta (Jabodetabek) who have never purchased surplus food online. The findings show that attitude and price consciousness significantly influence purchase intention, while environmental concern does not. These results emphasize the relevance of TPB in explaining surplus food purchase intentions, highlighting the stronger role of internal evaluations and economic considerations compared to environmental awareness. The study contributes to sustainable consumption literature and offers insights for platform developers and policymakers promoting circular food practices.

Keywords: Surplus Food, Theory of Planned Behavior, Attitude, Price Consciousness, Environmental Concern, Purchase Intention, Online Platform.

1. INTRODUCTION

Food waste is a critical global issue that coexists paradoxically with hunger and food insecurity, which affects over 10% of the global population (Mulyo et al., 2022; Tian et al., 2024; Yu et al., 2024). In 2022 alone, 1.05 billion tons of food were wasted 19% at the consumer level while 13% was lost before reaching retailers (Tian et al., 2024). Beyond ethical concerns, this inefficiency contributes to environmental degradation, including 8–10% of global greenhouse gas emissions, mainly methane from landfills (Susilo et al., 2021). Economically, it leads to over USD 1 trillion in losses annually (UNEP, 2024), while a 1% reduction in food waste could reduce poverty by 0.87% (Pandey et al., 2023).

In Indonesia, food loss and waste (FLW) reached 23–48 million tons annually from 2000 to 2019—equivalent to 115–184 kg per capita and 4–5% of national GDP (Bappenas, 2021). A significant share comes from the consumption stage households, food services, and retail largely due to behavioral and systemic inefficiencies. One overlooked source is surplus food: edible items unsold due to cosmetic flaws, damaged packaging, or nearing expiry (Iriani et al., 2024; Lin, 2021; Berri & Toma, 2023).

Structural and behavioral factors exacerbate this. Misunderstanding food labels particularly confusing "expiry date" and "best before" leads to premature disposal. In Indonesia, most consumers treat all labels as "kedaluwarsa," even though the law distinguishes between expiry (for medicines) and best-before dates (for packaged foods) (Bappenas, 2021). Likewise, aesthetic standards cause the rejection of edible but imperfect produce. In traditional markets, items like chili or cabbage may be incinerated simply for minor cosmetic defects. Distrust toward unfamiliar brands, near-expiry products, contributes to surplus waste (Bappenas, 2021).

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To address this, the Indonesian government introduced the *National Strategy for Reducing Food Loss and Waste*, with five pillars: strengthening food logistics, improving food literacy, redistributing surplus food, fostering circular economy practices, and launching local pilot projects (Bappenas, 2021). In parallel, private-sector initiatives such as the Surplus App and GrabMart offer surplus food at discounted prices, combining affordability and sustainability (Vo-Thanh et al., 2021; Yu et al., 2024).

Consumer purchase intention toward surplus food is influenced not only by price and quality but also by environmental motivations (de Visser-Amundson et al., 2023). In this context, understanding behavioral drivers becomes essential. This study adopts the Theory of Planned Behavior (TPB) to examine how attitude, environmental concern, and price consciousness influence the purchase intention of surplus food through online platforms. The research focuses on individuals aged 17 and above in the Greater Jakarta area (Jabodetabek), a region with high internet penetration, tech-savvy consumers, and broad access to digital food platforms. As Indonesia's urban and economic hub, Jabodetabek provides a relevant setting for studying digitally mediated sustainable consumption. A survey of 210 respondents was conducted to generate empirical insights into behavioral intentions toward surplus food in the context of the growing digital economy.

1.1 Problem Formulation

1. Does attitude influence purchase intention toward surplus food on online platforms?
2. Does environmental concern influence purchase intention toward surplus food on online platforms?
3. Does price consciousness influence purchase intention toward surplus food on online platforms?

2. LITERATURE REVIEW

2.1 Theory of Planned Behavior (TPB)

As highlighted in the introduction, surplus food waste at the consumer level is often rooted in behavioral factors ranging from misconceptions about food labeling to distrust of near-expiry or aesthetically imperfect products. To better understand what drives or inhibits surplus food purchases, this study adopts the Theory of Planned Behavior (TPB), a well-established framework for predicting human behavior (Ajzen, 1991). TPB identifies three core predictors of behavioral intention: attitude toward the behavior, perceived social pressure (subjective norms), and perceived behavioral control each of which has been widely applied in food-related and sustainability research (Wong et al., 2018).

In the context of surplus food sold through digital platforms, these TPB constructs help explain how individuals assess and respond to sustainable consumption choices. A positive attitude toward surplus food, social support for reducing food waste, and confidence in navigating digital purchase channels can significantly shape one's intention to buy. Therefore, this study examines how attitude, environmental concern, and price consciousness influence purchase intention offering behavioral insights relevant to Indonesia's tech-savvy Jabodetabek consumers, who represent a key demographic for shaping sustainable digital economies.

2.2 Sustainable Development Goals (SDGs) and Food Waste

This study supports two key Sustainable Development Goals (SDGs) set by the United Nations: SDG 12 Responsible Consumption and Production and SDG 13 Climate Action**.** SDG 12 encourages reducing food loss and waste along the supply chain, with Target 12.3 aiming to halve food waste at the retail and consumer level by 2030 (Boiteau & Pingali, 2023). Promoting surplus food consumption through digital platforms directly supports this target.

Additionally, SDG 13 stresses the urgent need to combat climate change. Food waste decomposing in landfills produces methane, a potent greenhouse gas contributing to global warming (Susilo et al., 2021). Redirecting surplus food for consumption reduces such emissions and helps conserve the resources embedded in food production (Casson et al., 2024).

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2.3 Purchase Behavioral Intention

Purchase intention is a consumer's willingness to buy a product based on evaluation of available information, price, and personal preference (Kotler & Keller, 2016; Coderoni & Perito, 2020). In the context of surplus food, it reflects the intention to purchase near-expiry or suboptimal products as a form of sustainable behavior (Hua et al., 2023).

2.4 Attitude

Attitude significantly influences consumer purchasing behavior, as it reflects personal evaluations positive or negative toward a product (Chamoli et al., 2023; Jonathan & Tjokrosaputro, 2022). In the case of surplus food, a favorable attitude can increase consumers' willingness to purchase such products, as they view them as acceptable and worthwhile options (Tufail et al., 2022; Prakash et al., 2023).

H1: Attitude positively and significantly influences purchase behavioral intention.

2.5 Environmental Concern

Environmental concern is the awareness and willingness of individuals to address environmental issues (Jonathan & Tjokrosaputro, 2022; Onurlubaş, 2019). As pollution rises, environmentally conscious consumers are more likely to support sustainable choices, such as buying surplus food to reduce waste and its environmental impact (Deliberador et al., 2024).
H2: Environmental Concern positively and significantly influences purchase behavioral intention.

2.6 Price Consciousness

Price consciousness is the tendency to prioritize low prices when buying products (Tufail et al., 2022). Consumers with high price consciousness often prefer surplus food because it's sold at a lower price, offering more value for their money (Ahmad Sugiran et al., 2022).

H3: Price Consciousness positively and significantly influences purchase behavioral intention.

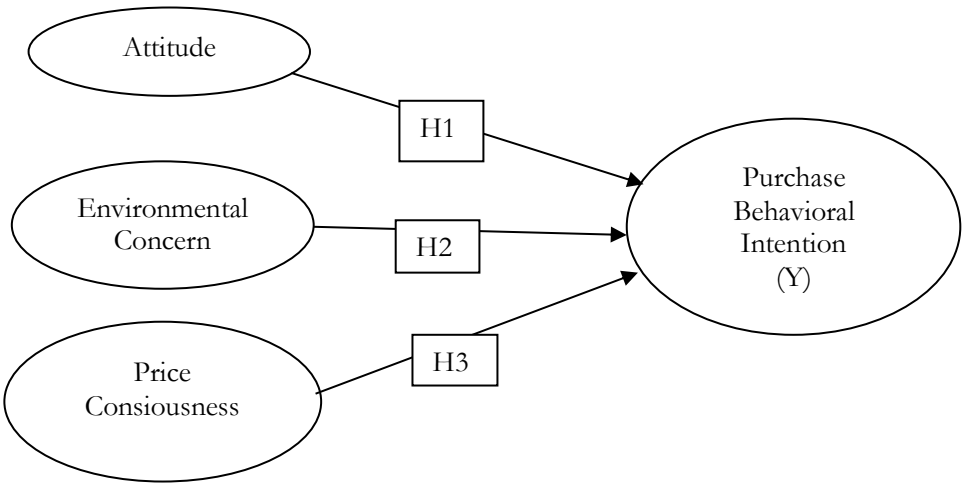

Figure 2.1 Conceptual Framework
Source: Researcher

3. Result and Discussion

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3.1 Result

The table below presents the complete results of the calculations using SmartPLS 4.0.

Tabel. 1 Hypothesis Test

Variabel	Koefisien	t-statistic	p-value	Hasil
Attitude (X1) -> Purchase Behavioral Intention (Y)	0,493	8,115	0,000	Positive significant
Environmental Concern (X2) -> Purchase Behavioral Intention (Y)	0,008	0,141	0,444	Positive non-significant
Price Consiousness (X3) -> Purchase Behavioral Intention (Y)	0,330	5,274	0,000	Positive significant

Source: Researcher

3.2 The Influence of Attitude on Purchase Behavioral Intention

The path analysis reveals that attitude (AT) has a strong, positive, and statistically significant effect on purchase intention (PI), evidenced by a path coefficient of 0.493, T-statistic of 8.115, and p-value of 0.000. This indicates that consumers with a more favorable attitude toward surplus food demonstrate a higher intention to purchase such products. Attitude in this context reflects consumers' overall evaluation of purchasing surplus food, encompassing their perceptions of its benefits and relevance.

This outcome corroborates the Theory of Planned Behavior (Ajzen, 1991), which asserts that attitude is a fundamental determinant of behavioral intention. When consumers perceive the behavior of purchasing surplus food as beneficial both personally and socially, they tend to develop a favorable attitude that significantly increases their intention to perform the behavior. This result is consistent with prior research. Tufail et al. (2022) found a positive association between attitude and purchase intention, linking it to consumers' emotional alignment and lifestyle choices. Adel et al. (2022) similarly identified attitude as central to the social-psychological mechanisms influencing decisions to purchase surplus food.

Moreover, Prakash et al. (2023) highlighted that attitude influences not only cognitive and emotional responses but also plays a decisive role in consumer decision-making. They argue that attitude is shaped by behavioral beliefs and evaluations of expected outcomes. When surplus food is perceived as beneficial economically, socially, or environmentally consumers are more likely to form a positive attitude, thereby increasing their purchase intention. Studies by Wirakurnia et al. (2022) and Qi & Ploeger (2021) further reinforce this pattern, especially in relation to eco-friendly and sustainable food choices.

The findings of this study show that attitude plays a crucial role in shaping purchase intention for surplus food. To encourage consumers to engage in reducing food waste, online platforms should focus on educating them about the environmental and economic benefits of surplus food, providing clear and transparent product information, and using social proof through reviews and endorsements. By aligning the product with consumers' values, these strategies can build a sense of responsibility and drive sustainable purchasing behavior.

3.2 The Environmental Concern on Purchase Behavioral Intention

The findings indicate that Environmental Concern (EC) has a minimal and non-significant impact on Purchase Intention (PI) for surplus food. With a path coefficient of 0.008, T-statistic of 0.141, and p-value of 0.444, the effect is statistically insignificant. This suggests that while consumers may express concern for the environment, this concern does not automatically translate into actual purchase behavior. As a result, environmental values

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alone may not be sufficient to drive sustainable purchasing decisions without additional influencing factors.

This result is consistent with earlier studies, such as those by Haider Iqbal et al. (2024) and Yadav & Pathak (2016), which found that environmental concern alone does not significantly influence the intention to buy eco-friendly or surplus food products. As Carrus et al. (2008) noted, environmental awareness does not necessarily lead to action unless it is activated by factors such as social norms, internal motivation, or personal beliefs. Moreover, Bamberg and Möser (2007) emphasized that pro-environmental attitudes require the presence of additional motivators to translate into actual pro-environmental behavior.

Thus, while environmental concern remains important, it is not enough by itself to drive purchase intentions for surplus food. Effective marketing strategies should integrate tangible personal benefits alongside environmental messaging and use incentive-based approaches to bridge the gap between awareness and action. By emphasizing both functional advantages and environmental impact, marketers can better align consumer values with sustainable purchasing behaviors.

3.3 The Influence of Price Consciousness on Purchase Behavioral Intention

The findings of this study reveal that Price Consciousness (PC) has a positive and significant impact on Purchase Intention (PI) for surplus food in online markets. With a path coefficient of 0.330, T-statistic of 5.274, and p-value of 0.000, this result suggests that consumers who are highly price-sensitive are more likely to consider purchasing surplus food due to its economic benefits. In other words, consumers perceive surplus food as a product that offers value for money, making it an appealing choice for budget-conscious consumers.

This finding aligns with prior research, such as Tufail et al. (2022), which identified that price-conscious consumers are attracted to surplus food because of its lower cost compared to regular, non-surplus products. The economic advantages of surplus food—such as lower prices and the ability to reduce food waste—are particularly appealing to consumers who are motivated by personal savings and budget-friendly purchasing decisions. Furthermore, Nichifor et al. (2025) note that economic factors, such as affordability, along with the physical availability of sustainable products, are crucial in influencing consumer behavior. In the online market, where consumers have easy access to a wide range of surplus food products, price competitiveness plays a significant role in shaping purchasing decisions. Economic conditions, such as pricing structures and discounts on surplus food, directly impact consumers' willingness to make purchases, especially among those with higher price consciousness.

Consumer education on the socio-economic benefits of surplus food can enhance its appeal, especially among price-sensitive consumers. By highlighting how surplus food saves money and benefits the environment, purchase intentions can be strengthened. Additionally, Nichifor et al. (2025) emphasize the role of marketing strategies on online platforms that communicate surplus food's dual value—affordability and social responsibility. Effective messaging that underscores both cost savings and environmental impact can influence price-conscious consumers' decisions.

4. Conclusion

The research on surplus food purchase intentions reveals the following conclusions:

1. Attitude has a positive and significant effect on purchase behavioral intention. The more favorable consumers' attitude toward surplus food, the stronger their intention to purchase it. Consumers who view surplus food as a valuable, sustainable option are more likely to translate this attitude into purchasing behavior.
2. Environmental concern shows minimal and statistically insignificant influence on purchase intention. Despite consumers expressing concern for environmental issues, this does not directly drive them to purchase surplus food, suggesting that environmental awareness alone is insufficient to prompt action.

3. Price consciousness has a positive and significant effect on purchase intention. Consumers who are more price-sensitive are more likely to purchase surplus food, driven by its economic benefits. The lower cost

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of surplus food aligns with consumers' desire for cost-effective choices, particularly in an online market setting.

In summary, attitude and price consciousness are key factors driving surplus food purchase intention, consistent with the Theory of Planned Behavior (TPB). A positive attitude and sensitivity to price increase purchase intentions, while environmental concern has no direct impact. This suggests that economic considerations outweigh environmental concerns for consumers. To boost purchase intention, marketing should highlight both the cost and environmental benefits of surplus food, focusing on educating price-conscious consumers through online platforms.

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