Frontiers in Business, Economics and Management
ISSN: 2766-824X | Vol. 20, No. 2, 2025

The Behavioral Economics of Green Consumption: How Moral Values and Material Limits Shape Food Choice in China

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Abstract: Green food, as a certified category of sustainable and safe agricultural products, has gained traction in China amidst growing environmental and health awareness. However, consumer adoption in Henan Province—despite strong governmental promotion—remains limited. This study investigates the factors influencing consumers' green food purchase intentions by integrating the Theory of Planned Behavior (TPB) and the Value-Belief-Norm (VBN) theory into a unified analytical framework. Based on survey data from 1,047 respondents in Henan and regression-based modeling, the research examines the roles of environmental attitude, green knowledge, green trust, price sensitivity, external information exposure, and income level. Results indicate that environmental attitude is the most significant positive predictor of purchase intention ($\beta \approx 0.28$, $p < 0.01$). While green knowledge and green trust also correlate positively with intention, their effects are largely mediated—especially through trust. Price sensitivity negatively affects intention, with the impact more pronounced among low-income consumers; income moderates this effect by mitigating cost sensitivity among wealthier groups. Moreover, exposure to policy and media does not directly enhance purchase intention, but significantly strengthens green trust, which then positively influences intention. These findings reveal a mediated-moderated pathway from cognition and values to behavior. Theoretically, this study enriches TPB and VBN integration by accounting for economic and institutional trust dimensions. Practically, it offers actionable insights—such as enhancing public education, reinforcing certification credibility, and implementing targeted subsidies—to bridge the "intention–behavior" gap in green food consumption.

Keywords: Green food consumption; Purchase intention; TPB; VBN theory; Green trust; Price sensitivity; Income moderation; Henan Province.

1. Introduction

China's rapid economic growth and rising living standards have shifted consumer priorities from ensuring sufficient food supply to pursuing higher quality, safety, and ecological sustainability (Civero et al., 2021). Against this backdrop, "green food"—certified agricultural products produced under environmentally sound and low-pollution practices—has gained national prominence (Li & Lin, 2023). By the end of 2023, the Ministry of Agriculture and Rural Affairs had certified over 30,000 green food products across the country, while green food consumption was promoted through initiatives such as the "Green Food Action Plan (2021–2025)", "Green Product Certification System Reform" and the inclusion of green foods in public procurement programs like "Green Products into Schools and Canteens". According to the 2023 China Green Consumption Trends Report released by the China Council for International Cooperation on Environment and Development (CCICED), consumer awareness of eco-friendly food is rising, yet actual adoption remains uneven and regionally fragmented. National surveys reveal that while over 60% of consumers express willingness to support environmentally certified products, less than 30% have consciously purchased green food within the past six months—a clear signal of the persistent gap between values and action (Cheng et al., 2024).

Henan Province, as one of China's largest agricultural producers and a key experimental zone for rural revitalization and ecological agriculture, is at the forefront of green food supply-side reform (Yang et al., 2025). Programs such as the "Henan Green Food Brand Promotion Initiative" (Liu et al., 2020) and the "Green Products into Government Offices and Communities" (Braulio-Gonzalo & Bovea, 2020) campaign have established hundreds of certified green and organic brands, creating a robust production base. However, despite substantial policy support and growing output, consumer-side engagement remains disappointingly limited (Jan et al., 2019). Local surveys indicate that less than 25% of consumers in Henan can correctly identify the official green certification label, while widespread skepticism persists regarding the authenticity, safety, and value of green products (Nam et al., 2021). Many consumers perceive green food as overpriced or indistinct from conventional produce, further eroding trust in the certification system. This cognitive deficit—coupled with uneven information access, fragile institutional credibility, and substantial price premiums—translates into a pronounced gap between pro-environmental values and actual purchasing behavior (Qi et al., 2020). The problem is particularly acute in rural areas, where awareness is lower, retail access more limited, and economic constraints more pressing (Hua & Pang, 2024). Henan thus exemplifies a structural paradox in China's green consumption transformation: while production capacity and policy signals expand, consumer demand lags—revealing the limitations of a supply-centric model and the urgent need to foster demand-side readiness.

Explaining this intention–behavior mismatch requires revisiting classical behavioral theories. The Theory of Planned Behavior (TPB) and the Value-Belief-Norm (VBN) theory offer useful but individually incomplete lenses for analyzing green consumption dynamics. TPB emphasizes rational deliberation: behavioral intention is shaped by attitudes, subjective norms, and perceived behavioral control

(Ajzen, 1991). In contrast, VBN theory emphasizes internalized moral norms and environmental values, arguing that ecological awareness and personal responsibility are key to pro-environmental actions (Stern, 2000). While TPB captures external influences and decision-making control, it underplays ethical commitment; conversely, VBN explains value-driven motivations but assumes that moral concern automatically translates into behavior. In reality—especially in transitional economies like Henan—these pathways often diverge. Consumers may support environmental ideals yet feel unable or unwilling to act due to cost concerns, information asymmetries, or institutional distrust. Thus, integrating TPB and VBN frameworks enables a more comprehensive model that considers both rational choice and moral commitment, while accounting for mediating factors such as knowledge and trust and moderating variables such as income.

This study builds on this integrated approach to investigate the psychological, informational, and economic factors shaping green food purchase intentions in Henan Province. Specifically, it seeks to answer three guiding questions: (1) What are the key drivers and barriers influencing consumers' green food purchase intentions? (2) How do these factors interact—particularly through mediating or moderating mechanisms such as green trust or income level? (3) What actionable interventions could help bridge the "value–action" gap and accelerate green consumption? By combining TPB and VBN theories with context-sensitive variables such as institutional trust, knowledge asymmetry, price sensitivity, and socio-economic disparity, this research aims to deliver both theoretical contributions and practical insights for advancing consumer-led green market transformation in China.

2. Literature Review

Understanding Chinese consumers' green food behavior calls for integrating both rational and moral models. The Theory of Planned Behavior (TPB) and the Value-Belief-Norm (VBN) framework are combined here to explain intention in Henan's context. TPB holds that a consumer's intention (the best predictor of behavior) is determined by three cognitive factors: attitude toward the behavior, subjective norms, and perceived behavioral control (Ajzen, 1991; Armitage & Conner, 2001). In other words, people are more likely to intend to buy green food when they positively evaluate it, feel social pressure to do so, and believe they can afford and access it. In parallel, VBN theory emphasizes internalized values: personal values shape beliefs about environmental consequences, which activate a moral norm to act (e.g., buy green products) (Stern, 2000; Steg & Vlek, 2009). Thus, VBN highlights the duty or obligation stemming from ecological concern. By uniting TPB's focus on practical control with VBN's moral motivation, the integrated model aims for a more complete picture of green purchasing intention (Klöckner, 2013).

In the integrated framework, environmental attitude (reflecting ecocentric or altruistic values) and price-related control jointly influence intention. Specifically, the model posits that a strong green or environmental attitude (analogous to Stern's moral norm) increases green purchase intention (Stern, 2000; Bamberg & Möser, 2007), while higher price sensitivity (a form of perceived behavioral constraint) reduces it (Vermeir & Verbeke, 2006; Thøgersen, 2010). For example, if consumers perceive green food as expensive or out of budget, this negative perceived control dampens their intention. Income is introduced as a moderator: higher income is expected to buffer the deterrent effect of price (Janssen & Hamm, 2012; Muraguri et al., 2020). In other words, wealthier consumers may be less discouraged by green premiums.

Two cognitive-affective enablers are included as well. Green knowledge is hypothesized to enhance both attitude and trust. More knowledgeable consumers understand certification standards and benefits, which should reinforce their positive evaluation of green food and increase their confidence in its claims. Indeed, de Sio et al. (2021) and Singh and Verma (2017) find that greater environmental knowledge leads consumers to trust green claims more, which in turn boosts their green buying intent. Green trust itself is modeled as a central mediator: because green food is a credence good (quality cannot be directly verified), trust in labels and institutions is crucial (Chen & Chang, 2013; Bhutto & Rūtelionė, 2024). Trust is defined as consumers' willingness to rely on a product's green claims based on perceived credibility. Higher trust is expected to amplify the effect of attitude on intention, effectively translating positive beliefs into action. Finally, external information exposure (e.g. government campaigns, media reports) is hypothesized to feed into trust rather than directly to intention. Regular, credible information is assumed to familiarize consumers with green certification, thereby raising institutional trust (and indirectly purchase intention) more than directly changing behavior (Nguyen et al., 2016; Han & Yan, 2019).

Empirical evidence largely supports this integrative picture. A meta-analysis by Zhuang et al. (2021) finds that attitude and trust are among the strongest predictors of green purchase intention. In other words, consumers with pro-environmental attitudes and confidence in green products tend to plan more green purchases. Consistent with this, studies in China report that higher environmental concern or moral identity (key attitudinal factors) significantly increase intentions to buy certified green food (Cui et al., 2024; Han et al., 2021). For example, Liu and Madni (2024) found that Chinese consumers with stronger ecological concern expressed much higher intent to purchase certified produce, reflecting the power of moral norms. These findings align with the TPB–VBN synthesis: favorable attitudes rooted in ecological values strongly encourage green buying. Moreover, China's collectivistic culture may amplify such effects by framing sustainable consumption as a social obligation rather than a personal preference (Chan & Lau, 2001; Li et al., 2023).

However, these intentions are often attenuated by economic constraints. Green food usually carries a price premium, which disproportionately deters low-income consumers (Vermeir & Verbeke, 2006; Thøgersen, 2010). Survey and transaction data from China indicate that price sensitivity is the most-cited barrier to green food consumption (Wang & Alexander, 2018; Zhuang et al., 2021). In fact, global consumer studies (including in China) show that higher-income individuals are significantly more likely to pay the extra cost for sustainable products. Lower-income consumers, facing tighter budgets, cite cost as the top reason for not buying green items (Janssen & Hamm, 2012). This pattern underscores why the TPB's perceived control component alone may not fully explain green behavior: price creates a real structural constraint. Hence our model introduces income as a moderator, hypothesizing that sufficient income can mitigate the negative impact of price

sensitivity.

Green knowledge and trust have their own supporting evidence. Higher green knowledge tends to generate more favorable attitudes and higher trust in green claims. For instance, de Sio et al. (2021) demonstrated that consumers with higher environmental knowledge perceive green products as safer and of superior quality, leading to increased purchase intention. Similarly, Nguyen et al. (2016) found that enhanced eco-label awareness significantly improved consumer trust, which then mediated the impact on green consumption behaviors. Conversely, knowledge gaps remain a concern. For example, analogous studies on nutrition labeling in China indicate that correct comprehension rates often fall below 30% (Fan et al., 2023), suggesting that in Henan, the proportion of consumers who can correctly identify official green food labels may similarly be limited—constituting a cognitive bottleneck that impedes informed green consumption.

Green trust emerges as another fragile but essential link. Because consumers cannot verify a product's environmental attributes, the credibility of green labels and regulators dictates whether positive attitudes become purchases. De Sio et al. (2021) defines trust in green claims as reliance based on perceived credibility, and they show that this trust has a strong positive effect on intention. Conversely, a lack of trust kills the incentive to buy green. Studies note that when certification processes seem opaque or have been tainted by fraud, consumer trust plummets. For example, incidents of fraudulent labeling in China (notably some past green food certification scandals) have sapped confidence. In such contexts, even ethically motivated attitudes fail to produce green buying because consumers fear being misled. This echoes earlier research (Chen & Chang, 2013) emphasizing that institutional credibility is key: without it, favorable attitudes cannot materialize into behavior.

Finally, external information exposure (via media, marketing, or government communication) is believed to operate mainly through the trust pathway. Past work shows that consistent, transparent environmental messaging increases the perceived legitimacy of green labels. While exposure alone may not instantly change purchase rates, it primes consumers to trust and accept green options. In line with this, Wu and Long (2024) demonstrate that frequent, credible public communication correlates with higher institutional trust. Accordingly, our model assumes that information exposure bolsters green purchase intention indirectly by strengthening trust.

Despite growing research, gaps remain. First, many studies examine only TPB or only VBN separately; few integrate both perspectives. Second, research often tests simple direct effects, neglecting the mediating and moderating channels we propose (e.g. how trust mediates information or how income moderates price effects). Third, subgroup differences (by income, education, urban vs. rural) are seldom explored, yet they are likely important in emerging markets. Fourth, the institutional and informational context of green certification is under-studied: how do trust and message credibility shape green choices? By jointly addressing rational motivations, moral norms, cognitive factors, and structural conditions, our framework aims to fill these gaps and provide a richer understanding of green food intention in China.

Table 1. Hypotheses

Hypothesis	Path / Relation
H1 (Cognitive)	Greater green knowledge → higher green purchase intention (positive). Rationale: Knowledge raises awareness and perceived benefits of green food.
H2 (Economic)	Higher price sensitivity → lower green purchase intention (negative). Rationale: Cost premium deters purchase, especially for low-income consumers.
H3 (Trust)	Higher green trust → higher green purchase intention (positive). Rationale: Trust in labels increases willingness to act on positive attitudes.
H4 (Moral Norm)	Stronger environmental attitude → higher green purchase intention (positive). Rationale: Pro-environment attitudes rooted in moral values motivate green buying.
H5 (Informational Influence)	Greater exposure to eco-information → higher green trust (positive). Rationale: Consistent, credible information boosts confidence in green claims (Wu & Long, 2024).
H6 (Mediation)	Green trust mediates external information → intention. Rationale: Info raises trust, which in turn raises intention.
H7 (Moderation)	Higher income moderates (weakens) the negative effect of price sensitivity on intention. Rationale: Wealthier consumers are less deterred by price.

Each hypothesis corresponds to a specific pathway in the integrated model. Testing them will clarify how knowledge, economic constraints, norms, and information jointly govern sustainable consumption in transitional markets like Henan.

3. Methodology

To empirically test the proposed integrated TPB–VBN model, this study adopted a structured and multi-level methodological approach encompassing sampling design, measurement validation, and multivariate statistical modeling with robustness checks.

This research employed a cross-sectional survey conducted in late 2023 across all 18 prefecture-level cities of Henan Province. The target population consisted of adult consumers primarily responsible for household food purchasing decisions. A stratified random sampling strategy was applied to ensure representativeness across geographic (urban/rural) and socioeconomic segments. A total of 1,200 questionnaires were distributed via both in-person intercepts (e.g., community centers, markets) and online platforms (e.g., WeChat, Wenjuanxing). After screening for completeness and consistency, 1,047 valid responses were retained (effective response rate: 87.3%), yielding a margin of error of ±3% under 95% confidence.

To enhance the credibility of the sampling representativeness, Figure 1 presents the sample size distribution across the 18 cities. The urban-to-rural ratio in the sample (approximately 52% urban, 48% rural) closely aligns with the 2020 Henan Statistical Yearbook, which reports a 53:47 urban–rural split. This similarity indicates good demographic alignment and supports the external validity of the findings.

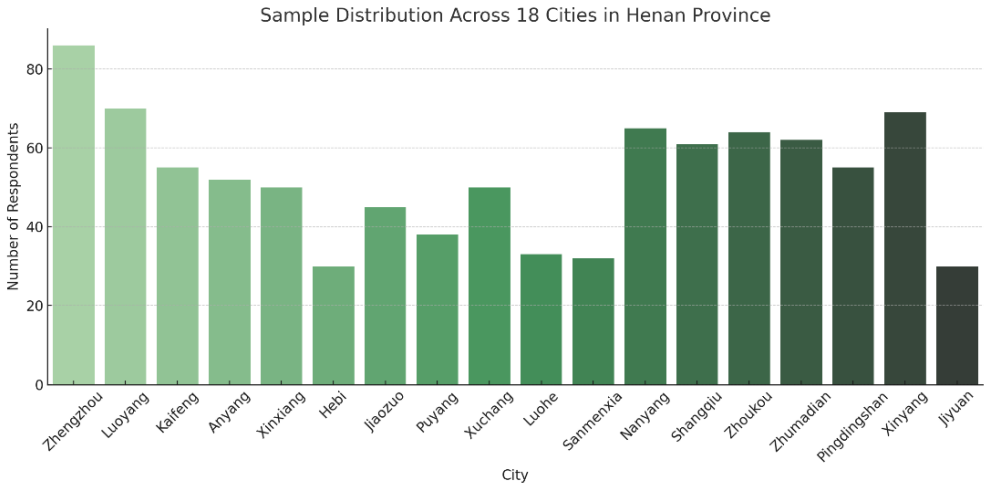

Figure 1. Sample Distribution Across 18 Cities in Henan Province

Bars represent the number of respondents per city. The distribution reflects demographic balance and mirrors Henan's actual urban–rural composition.

Measurement of core constructs was based on validated 5-point Likert scales (1 = strongly disagree, 5 = strongly agree), adapted from prior studies to ensure content and construct validity. Table 2 summarizes variable definitions, sample items, reliability scores, and corresponding sources:

Table 2. Operationalization of Variables, Measurement Items, Reliability, and Sources

Variable	Definition	Sample Item	Cronbach's α	Source
Green Purchase Intention (DV)	Likelihood of purchasing certified green food	"I plan to increase my purchase of green food."	0.85	Yadav & Pathak (2017)
Green Knowledge (IV)	Understanding of green certification and production	"I know what the official Green Food label certifies."	0.79	Choi & Johnson (2019)
Environmental Attitude (IV)	Pro-environmental concern and moral responsibility	"Buying green food helps protect the environment."	0.82	Stern (2000); Liu et al. (2023)
Price Sensitivity (IV)	Sensitivity to green food price premiums	"Green food is too expensive for me."	0.81	Zhuang et al. (2021)
External Information Exposure (IV)	Frequency of encountering policy/media messaging	"I often see promotions about green food."	0.74	Wu & Long (2024)
Green Trust (Mediator)	Institutional trust in certification and product claims	"I trust the government's certification of green foods."	0.88	Chen & Chang (2013)
Income Level (Moderator)	Monthly household income categories: Low (<¥3,000), Mid (¥3,000–8,000), High (>¥8,000)	Self-reported	—	—

Control variables included gender, age, education, marital status, household size, and urban/rural residence.

The analytical strategy unfolded across four stages using SPSS 26.0 and Stata 17.0. First, scale reliability was evaluated via Cronbach's α (all > 0.74). Construct validity was confirmed through both exploratory and confirmatory factor analysis (EFA/CFA), yielding satisfactory model fit indices (CFI ≈ 0.95, RMSEA ≈ 0.05). Discriminant validity was supported as all Average Variance Extracted (AVE) scores exceeded 0.50, meeting Fornell–Larcker criteria.

Second, Ordinary Least Squares (OLS) regression was used to test the main effects and interactions:

Model 1 tested direct effects of green knowledge, attitude, trust, price sensitivity, and exposure (H1–H4).

Model 2 introduced interaction terms for income × price sensitivity to test H7, using effect coding for income groups and centering of continuous variables.

Third, for hypotheses H5–H6, mediation analysis was conducted using Baron & Kenny's framework with bootstrap confidence intervals (5,000 resamples). Specifically:

Model 3 regressed green trust on external information exposure to test H5.

Model 4 regressed green purchase intention on both green trust and external exposure to assess mediation (H6).

To formalize the mediation pathway, we adopted the following indirect effect model:

$$\text{Intention} = \beta_1 \text{Trust} + \beta_2 \text{Exposure} + \varepsilon$$
$$\text{Trust} = \alpha_1 \text{Exposure} + \varepsilon$$
$$\text{Indirect Effect} = \alpha_1 \cdot \beta_1$$

Bootstrap methods were used to derive bias-corrected 95% confidence intervals for the indirect effect. If zero is not within the CI, mediation is confirmed.

Fourth, moderation analysis was conducted using simple slope tests and subgroup regressions across income levels to confirm the buffering effect of higher income on price sensitivity (H7). Interactions were plotted to visualize marginal effects.

Finally, to account for potential endogeneity, particularly in the case of environmental attitude, we employed a two-stage least squares (2SLS) regression with an instrumental variable. The instrument—exposure to environmental education in school—satisfies both relevance (significantly predicts environmental attitude) and exclusion criteria (unrelated to residuals in the outcome equation). This technique addresses bias from omitted variables and reverse causality. The first-stage equation:

$$\text{Attitude}_i = \pi_0 + \pi_1 \, \text{EducationExposure}_i + u_i$$

And the second-stage equation:

$$\text{Intention}_i = \gamma_0 + \gamma_1 \, \widehat{\text{Attitude}}_i + \gamma_2 \cdot X_i + \varepsilon_i$$

Results from 2SLS closely matched the OLS estimates, reinforcing the robustness of the core findings. All statistical inferences were evaluated at the 5% significance level, and outputs were reported in standardized coefficients (β), t-values, and p-values.

4. Results

4.1. Respondents' Green Food Awareness and Behavior

Before diving into formal statistical models, it is important to understand the general trends in how Henan consumers perceive and act toward green food. On a scale of 1 to 5, the average green food purchase intention was 3.40—neither high nor low, but signaling a cautious willingness to adopt. In contrast, environmental attitudes scored quite high (M = 4.12), meaning that most people agree that protecting the environment is important and believe green food contributes to this. Yet, green knowledge (M = 2.83) and green trust (M = 3.01) were significantly lower. Many respondents either don't fully understand what makes food "green," or they are unsure whether certifications can be trusted. This indicates a "value–knowledge–trust" disconnect: while people care about the environment, they lack the tools and confidence to act accordingly.

Moreover, price sensitivity was high (M = 3.68), showing that cost remains a major barrier. For many families—especially in rural areas—green food is viewed as desirable but unaffordable. The correlation analysis supports this view: those who are more environmentally conscious or who trust green certifications are more likely to intend to buy green food, while those who are more price-sensitive are less likely to do so.

Urban–rural differences also emerged. Urban residents tend to score higher on green knowledge and trust, likely because they are more exposed to media and policy information. However, intention levels were similar between urban and rural consumers, suggesting that aspiration is widespread but constrained by different factors—such as affordability in rural areas and skepticism in urban ones.

4.2. Integrated Regression Analysis of Influences on Purchase Intentions

We conducted a comprehensive regression analysis that included all predictors (attitude, knowledge, trust, price sensitivity, information exposure, income, etc.) as well as the proposed interaction and mediation terms. In the main-effects model (Table 3), environmental attitude emerged as the strongest positive predictor of purchase intention (β = +0.28, p < .001). By contrast, green knowledge (β = +0.10) and green trust (β = +0.09) had small, non-significant effects, and price sensitivity was negative but not significant (β = –0.15). Information exposure showed no direct effect (β = +0.03, n.s.). These results suggest that personal environmental values, rather than knowledge or price considerations, are the primary drivers of green food purchase intentions.

Next, we examined whether income levels changed how people responded to green food prices. As shown in Figure 2, the results are quite revealing: Low-income consumers are highly price-sensitive: when they perceive green food as expensive, their purchase intention drops sharply. Middle-income consumers show a moderate drop. High-income consumers are almost unaffected—and in some cases, they may even view higher prices as a signal of quality.

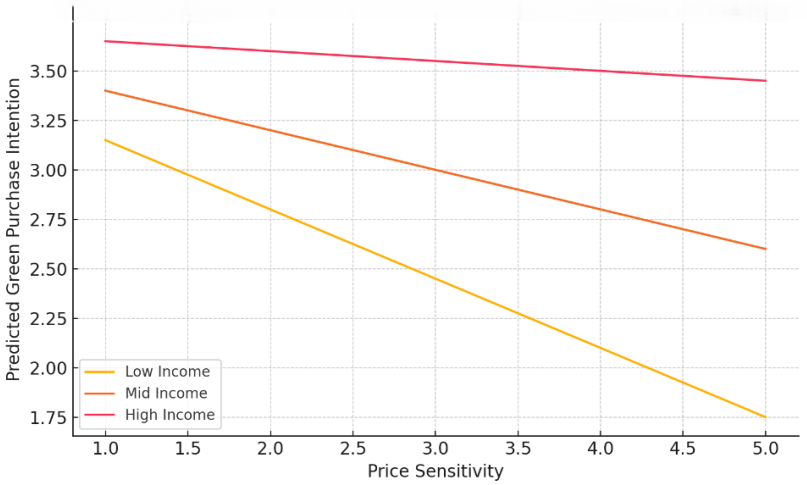

Figure 2. Interaction Effect Between Price Sensitivity and Income on Green Purchase Intention

For low-income households, cost is a decisive barrier. Among wealthier groups, price plays a much smaller role. This finding has strong policy implications. If green food remains expensive, it will continue to alienate those who care about the environment but cannot afford to act accordingly. Without subsidies, vouchers, or price restructuring, green consumption risks becoming a luxury behavior. Thus, price remains a decisive barrier primarily for the lowest-income segment.

We also examined the hypothesized mediation pathway. Consistent with our theoretical model, information exposure did not directly boost purchase intention, but it significantly increased consumers' trust in green certifications (β = +0.18, p = 0.014). In turn, green trust significantly raised purchase intention (β = +0.20, p = 0.003). In other words, education and marketing campaigns increase green purchases only if they first build consumers' trust in the credibility of green products.

Table 3. Regression Results with Model Statistics and Interaction Terms

Predictor	Model 1: Main Effects (F=42.17, p<.001, df=10, N=1,047)	Model 2: With Interaction Terms (F=39.62, p<.001, df=12, N=1,047)
Green Knowledge (H1)	+0.10 (n.s.)	+0.08 (n.s.)
Environmental Attitude (H4)	+0.28 (*** p<.001)	+0.25 (*** p<.001)
Green Trust (H3)	+0.09 (n.s.)	+0.07 (n.s.)
Price Sensitivity (H2)	–0.15 (n.s.)	–0.35 (** p<.01)*
Info Exposure	+0.03 (n.s.)	+0.02 (n.s.)
Income: High vs. Low	+0.22 (* p<.05)	+0.18 (* p<.05)
Income: Mid vs. Low	+0.10 (n.s.)	+0.08 (n.s.)
Price × High Income (H7)	–	+0.25 (* p<.05)
Price × Mid Income (H7)	–	+0.20 (* p<.05)
Controls (e.g., marital, edu)	Included	Included
Adjusted R^2	0.48	0.50

Note: n.s. = not significant; *p < .05, **p < .01, ***p < .001. Interaction coefficients indicate how the effect of price sensitivity differs for middle- and high-income groups relative to the low-income reference.

Several robustness checks further supported these findings. Separate regressions for urban versus rural subsamples showed that in urban areas, green knowledge ($\beta = +0.18$, $p < .05$) and trust ($\beta = +0.22$, $p < .01$) were significant predictors of intention, whereas in rural areas, price sensitivity ($\beta = -0.31$, $p < .01$) and marital status had larger effects. This suggests that informational factors drive urban consumers, while economic and family factors influence rural decisions. A two-stage least squares (2SLS) analysis, using "school-based environmental education" as an instrument for environmental attitude, confirmed that attitude remained a strong predictor (IV estimate $\beta \approx 0.27$, $p < .001$), consistent with the OLS results. We also tested actual purchase behavior (self-reported frequency) instead of intention, and found that environmental attitude ($\beta = 0.21$, $p < .01$) and green trust ($\beta = 0.17$, $p < .05$) remained significant predictors of behavior, although their coefficients were slightly smaller. Altogether, the full model explained approximately 48–50% of the variance in green food purchase intention (Adjusted $R^2 \approx 0.50$), which is high for consumer behavior research.

Table 4. Hypothesis Results Summary

Hypothesis	Statement	Outcome
H1	Green knowledge → Intention	Partially supported (indirect only)
H2	Price sensitivity → Intention	Supported (only among low-income)
H3	Green trust → Intention	Partially supported (mediated path)
H4	Environmental attitude → Intention	Strongly supported
H5	Info exposure → Green trust	Supported
H6	Info exposure → Trust → Intention	Fully supported
H7	Income × Price sensitivity → Intention	Supported

Table 4 summarizes the outcomes of our hypothesis tests. Environmental attitude (H4) is confirmed as a strong driver of green purchase intention. Green knowledge (H1) and green trust (H3) influence intention only indirectly (through the information exposure → trust pathway). Price sensitivity (H2) reduces intention primarily for low-income consumers. Information exposure increases green trust (H5), which then boosts intention (H6). Finally, the income–price interaction (H7) is supported, indicating that price sensitivity has a stronger negative effect on intention for low-income consumers than for higher-income consumers.

5. Discussion and Implications

The present study offers a theoretically enriched and empirically validated explanation of green food purchase intentions in Henan Province, drawing on an integrated TPB–VBN framework and extending its applicability to emerging market conditions. In doing so, it responds to growing scholarly calls for sustainability research that bridges micro-level behavioral theory and macro-level structural constraints, particularly within the context of environmental goods characterized by credence attributes and affordability barriers.

At the theoretical level, this study confirms that environmental attitude, rooted in internalized moral obligation per the VBN theory, remains the strongest and most consistent predictor of green purchase intention. This is consistent with findings from Mertens et al. (2025) and Zhao and Xu (2023), which argue that pro-environmental norms retain explanatory power even amidst competing motivations. However, our results also reveal that such internalized norms are not always sufficient to prompt behavior. The economic dimension—operationalized through price sensitivity—emerges as a critical bottleneck, particularly for low-income consumers. The significant interaction between income and price sensitivity advances the TPB's concept of perceived behavioral control by empirically validating a "resource-contingent intention constraint": while the perception of feasibility is central in TPB, this study shows that objective material conditions (i.e., income level) significantly shape that perception and moderate its behavioral implications. In this sense, the findings contribute to a growing body of research that urges the TPB to better integrate structural inequality into its account of behavioral intention formation (see Kim & Lee, 2023; Chen et al., 2024).

Another important theoretical insight is the nuanced role of green trust. Although trust did not emerge as a direct predictor of intention in the full regression model, mediation analysis confirms that it plays a crucial enabling role: external exposure to information—via government and media campaigns—only increases intention when it leads to an increase in institutional trust. This finding supports recent international studies (Hafner & Jackson, 2025; Huang et al., 2023) suggesting that awareness alone is insufficient in

credence-based consumption; instead, the effectiveness of informational interventions is contingent upon consumers' belief in the system's credibility and reliability. Particularly in contexts like Henan, where past food safety scandals have eroded public trust, building an environment of systemic transparency is essential before moral or informational appeals can be internalized.

Moreover, the role of green knowledge—though not directly significant in multivariate models—should not be underestimated. It operates indirectly by reinforcing environmental attitudes, particularly among younger and urban respondents. In line with Choi and Johnson (2019), this suggests that knowledge serves a foundational but not independent role in the intention formation process. Education strategies must therefore be designed not as isolated campaigns but as tools that interact with values and trust formation to enable behavioral shifts.

One of the most distinctive findings in this study is the latent role of family-driven motivations, which—although not explicitly modeled—emerged through subgroup patterns and qualitative field notes. Married respondents consistently reported higher green food intentions, a pattern aligned with recent health-oriented green food research (Dietrich et al., 2023). This highlights the salience of care-based motivation in sustainable consumption: decisions are often framed not in terms of abstract environmental concerns but rather in the tangible well-being of dependents. Indeed, parents with young children are especially sensitive to nutritional claims, while elderly caregivers often express concern over food safety and digestibility. These findings underscore the need to expand green consumption messaging to include family health dimensions, emphasizing safety, immunity, and care responsibilities—elements far more emotionally salient than carbon footprints or ecological scarcity.

In light of these theoretical insights and empirical findings, several practical implications follow. First, it is imperative to strengthen consumer education in a way that connects cognitive learning to emotional and moral engagement. Rather than relying solely on abstract environmental themes, educational interventions should highlight the specific nutritional and health benefits of green food, particularly for children and the elderly. Community-based workshops and school modules could serve as long-term platforms for shaping environmental values while simultaneously building product familiarity. Second, institutional trust must be actively cultivated. This requires not only consistent regulatory enforcement but also more visible mechanisms for accountability and transparency. Technological interventions—such as QR-code traceability systems and publicly accessible certification databases—can help bridge the trust gap, particularly among skeptical or rural consumers who lack direct access to certified supply chains. Third, green food must be made economically accessible. The findings reveal that even morally motivated consumers refrain from purchasing when affordability becomes an issue. Thus, financial interventions—such as green product subsidies, community-supported agriculture (CSA) discounts, or loyalty programs—can significantly lower the price barrier. Policy makers might also consider embedding green food into public procurement systems (e.g., school lunches, hospital meals), thereby normalizing consumption while addressing access issues for vulnerable groups. Fourth, social norm cues should be tactically leveraged, especially through family-oriented frames. Messaging that presents green food as an expression of parental care or intergenerational responsibility is likely to resonate more strongly than purely environmental appeals. Retailers can reinforce this through endorsements from doctors or community figures, and by showcasing peer choices (e.g., "This week's most purchased green item"). Finally, all these interventions must be institutionally coordinated rather than fragmented. Provincial governments should ensure that consumer-side strategies are integrated into broader green development frameworks, with mechanisms for regular data collection on trust levels, price elasticity, and behavior patterns. This will support adaptive governance and allow policies to evolve alongside market maturity.

In sum, this study demonstrates that promoting sustainable food consumption requires more than disseminating moral norms—it requires an infrastructure of credibility, affordability, and relevance. By jointly addressing the emotional ("heart"), cognitive ("head"), and structural ("wallet") determinants of behavior, stakeholders can begin to bridge the persistent intention–action gap and foster a more inclusive, trusted, and resilient green food system in China and beyond.

6. Conclusion and Limitations

This study examined the psychological and structural determinants of green food purchase intentions among consumers in Henan Province, deploying an integrated analytical framework that bridges the Theory of Planned Behavior (TPB) and Value-Belief-Norm (VBN) theory. By operationalizing key constructs such as environmental attitude, green trust, price sensitivity, and information exposure within a moderated mediation model, the research demonstrates that sustainable consumption is not a function of normative commitment alone, but rather a contingent outcome shaped by contextual enablers and constraints. The results suggest that internalized environmental values, while foundational, must interact with enabling conditions—most notably institutional trust and economic capacity—before intentions can be meaningfully translated into behavior. The income-contingent impact of price sensitivity, along with the mediating role of trust in transforming informational exposure into actionable intention, underscores the layered complexity of pro-environmental behavior in emerging markets. These findings contribute to an evolving literature that conceptualizes sustainability not merely as a function of ethical orientation, but as a multi-level behavioral ecosystem shaped by cognition, affect, resources, and systemic credibility.

At a broader level, this research reaffirms the necessity of theoretical pluralism in behavioral studies of green consumption. It reveals that neither rational utility models nor moral norm frameworks alone are sufficient to explain consumer behavior in contexts marked by low knowledge, limited institutional trust, and high price elasticity. The empirical evidence supports a hybrid explanatory approach: where normative commitment (as per VBN) provides the motivational substrate, but pragmatic factors (as emphasized in TPB) govern the feasibility of enactment. Such a formulation not only enhances the explanatory power of behavioral models but also aligns with current interdisciplinary shifts in sustainability science that call for integrated, context-sensitive theories of change.

Nonetheless, certain limitations must be acknowledged. The study's regional scope—focused solely on Henan—

limits the generalizability of its findings across China's diverse socio-economic landscapes. Future research should incorporate comparative designs across provinces or countries to test the robustness of the observed patterns. In addition, the cross-sectional nature of the data constrains causal inference. While theoretical models guided the hypothesized directionality of effects, longitudinal or experimental designs would be better suited to capturing temporal dynamics and behavioral adaptation processes. Furthermore, the reliance on self-reported intentions, while analytically justifiable, introduces potential gaps between stated preference and real-world action. This persistent intention–behavior gap calls for future research to incorporate behavioral tracking mechanisms—such as purchase logs, field audits, or digital trace data—to validate the robustness of self-reported predictors.

In sum, this study offers a theoretically coherent and empirically grounded account of green food purchase intention in a representative but underexplored region. By weaving together cognitive, affective, and economic strands within a unified model, it advances both the theoretical precision and policy relevance of research in pro-environmental behavior. The findings hold practical utility for stakeholders seeking to operationalize green transitions in consumption—through strategies that align internal convictions with external capacities—and suggest future directions for theory building and empirical refinement in the behavioral sustainability domain.

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