HiLL PUBLISHING

Economic Perspectives and Trends, 2025, 2(2), 58-63
https://www.hillpublisher.com/Journals/ept/
ISSN Online: 3066-3180

Buying into Sustainability: A Demographic and Attitudinal Analysis of Organic and Biodynamic Food Consumption in China

Yuyang Cao[1,*], Yinan Wang[2], Yutong Zhou[3], Kedun Wang[4], Ziqin Luo[5], Zekai Cao[6]

[1]Shrewsbury School, Shrewsbury 01545, UK.
[2]Jinling Middle School, Nanjing 210000, Jiangsu, China.
[3]Nanjing No.1 Middle School, Nanjing 210000, Jiangsu, China.
[4]Jiangsu Changzhou High School, Changzhou 213000, Jiangsu, China.
[5]Nanjing Xianlin Foreign Language School, Nanjing 210000, Jiangsu, China.
[6]Hangzhou Olive Tree School affiliated to Beijing Foreign Studies University, Hangzhou 310000, Zhejiang, China.

How to cite this paper: Yuyang Cao, Yinan Wang, Yutong Zhou, Kedun Wang, Ziqin Luo, Zekai Cao. (2025) Buying into Sustainability: A Demographic and Attitudinal Analysis of Organic and Biodynamic Food Consumption in China. *Economic Perspectives and Trends*, 2(2), 58-63.
DOI: 10.26855/ept.2025.12.002

Received: September 12, 2025
Accepted: October 3, 2025
Published: November 14, 2025

***Corresponding author:** Yuyang Cao, Shrewsbury School, Shrewsbury 01545, UK.

Abstract

This study investigates the demographic and psychological factors influencing consumer behavior toward organic and biodynamic agricultural products in China. Through a mixed-methods approach combining field observations and a structured online questionnaire with 314 valid responses, the research examines how variables such as age, education, price perception, trust in labeling, and health motivation shape purchasing decisions. Statistical analyses including ANOVA, correlation, and multiple regression reveal that younger consumers exhibit more consistent and frequent purchase behavior, while higher educational attainment corresponds to greater willingness to pay—though often accompanied by skepticism toward certification claims. Price perception emerges as a key determinant across all demographics but is moderated by trust and motivation. These findings underscore the importance of tailoring marketing and policy interventions to different consumer segments. Strategies that promote transparency, increase accessibility, and foster trust in certification systems may be crucial in expanding consumer adoption of organic and biodynamic products.

Keywords

Organic agriculture; Biodynamic farming; Sustainable food systems

1. Introduction

The accelerating degradation of soil, loss of biodiversity, and overuse of agrochemicals have prompted growing interest in sustainable agricultural models—particularly organic and biodynamic systems. Unlike industrial agriculture, which often treats land as an input to be maximized, organic agriculture aims to restore ecological balance through crop rotation, composting, biological pest control, and minimal use of synthetic chemicals. Biodynamic farming, a holistic branch of organic agriculture, treats the farm as a closed-loop ecosystem and integrates planting calendars based on lunar and cosmic rhythms.

Organic agriculture is no longer a marginal or ideologically driven alternative. It has become a globally expanding sector, with over 70 billion USD in annual sales and more than 50 million hectares under certified production

(Reganold & Wachter, 2016). Beyond consumer perception, rigorous evaluations show that organic farming systems outperform conventional ones in several key sustainability metrics, including soil quality, biodiversity conservation, and energy efficiency, although they generally produce lower yields per hectare (Reganold & Wachter, 2016). Moreover, organic systems often lead to reduced nitrogen surpluses and pesticide use, especially when paired with reductions in food-competing animal feed and food wastage (Muller et al., 2017).

However, the role of organic agriculture in global food security remains contested. Critics highlight productivity trade-offs, arguing that widespread adoption of organic farming may increase land use and food prices, making organic products less affordable for low-income consumers (Meemken & Qaim, 2018). Proponents counter that, if supported by complementary food system changes—such as reduced meat consumption and more efficient use of cropland—organic agriculture can feed a global population sustainably while minimizing environmental harm (Muller et al., 2017).

Even as the ecological benefits of organic farming are well documented, the extent to which consumers adopt organic products depends on a range of socioeconomic and psychological factors. Variables such as education level, income, age, trust in food labeling, and price sensitivity all play a role in shaping consumer behavior. Although many consumers express a desire to purchase "healthier" or "greener" food, real-world purchasing decisions often contradict these stated preferences—revealing the influence of social desirability bias, economic constraints, and inadequate consumer education (Reganold & Wachter, 2016; Meemken & Qaim, 2018).

This study investigates these behavioral patterns in a localized Chinese context by combining field visits with a structured online survey. Specifically, we examine how demographic variables (age, education) and attitudinal factors (health consciousness, trust in organic labeling, and price perception) influence the frequency and motivation behind organic food purchases. By analyzing both quantitative and qualitative data, this research seeks to inform not only marketing strategies for sustainable agriculture, but also broader debates about consumer-driven environmental change.

2. Literature Review

Scholarly research on organic and biodynamic agriculture has grown in recent decades, aiming to evaluate not only environmental and economic impacts but also consumer preferences and market dynamics. The body of evidence suggests that biodynamic (BD) agriculture, while often viewed skeptically due to its spiritual and metaphysical underpinnings, offers tangible ecological benefits supported by empirical data. Studies have shown that BD methods, especially when integrated into long-term field trials, contribute to improvements in soil fertility, microbial activity, and biodiversity when compared to conventional and even organic practices (Turinek et al., 2009, p. 147-48).

Microbiological studies within the DOK trial (a long-term comparison of BD, organic, and conventional systems) report significantly higher microbial biomass nitrogen and carbon in BD-treated soils. For instance, BD systems yielded 59% more microbial nitrogen and 35% more microbial carbon compared to farmyard-manure-based conventional systems (Turinek et al., 2009, p. 148). These outcomes suggest that BD preparations — often applied in homeopathic doses — exert hormone-like or microbial inoculant effects that may enhance compost quality and nutrient cycling (Turinek et al., 2009, p. 147-49).

From a consumer standpoint, understanding preferences and attitudes toward organic labeling is essential for market growth. Meyerding conducted a discrete choice experiment in Germany, finding that taste, price, and pesticide use were the most influential attributes in consumer decision-making. Interestingly, the term "biodynamic" was largely unfamiliar to participants, though they associated it positively when explained, suggesting room for improved communication and branding strategies (Meyerding, 2016, p. 243).

Similarly, research in China highlights that urban consumers are increasingly concerned with food safety and environmental health. A recent study using the theory of planned behavior (TPB) found that attitude, subjective norms, and perceived behavioral control significantly influenced willingness to pay (WTP) for organic milk. Consumers were especially influenced by family and peer recommendations and trusted third-party certifications over producer claims (Tang et al., 2022, p. 8-9). This underscores the importance of building institutional trust and transparent certification processes to expand organic markets in emerging economies.

Further complicating consumer decision-making is the dual role of labels as information tools and trust signals. As the literature shows, many consumers cannot distinguish between "organic," "green," and "natural" products, leading to confusion and skepticism. The study by Aschemann-Witzel et al. confirms that while labels influence purchase

intentions, price sensitivity and incomplete knowledge often override environmental considerations (Aschemann-Witzel et al., 2022, p. 3).

Overall, while the environmental advantages of biodynamic and organic agriculture are increasingly supported by scientific evidence, consumer perception remains fragmented. A better understanding of the psychological, cultural, and socioeconomic dimensions influencing behavior is essential for sustainable agricultural systems to achieve broader adoption.

3. Research

3.1 Research Design and Data Collection

This study adopts a mixed-methods approach designed to capture both the contextual realities of retail environments and the individual motivations behind consumer behavior. The research began with extensive field observations across a range of market settings, including modern supermarkets (such as Golden Eagle) and more traditional street markets. During these visits, the investigator recorded how organic and biodynamic products were displayed, scrutinized label visibility and messaging, compared pricing strategies, and noted any promotional efforts. These observations were complemented by informal interviews with store personnel and shoppers, providing immediate, in-situ perspectives on product knowledge, trust in organic labeling, and price sensitivity.

Building on these insights, a structured online questionnaire was developed and administered via WeChat, using snowball sampling to reach a diverse pool of respondents across different age groups, educational backgrounds, and income brackets. The survey was intentionally designed to probe several key dimensions: the extent of participant awareness about organic and biodynamic agricultural products; trust in certification systems and labeling; perceptions and acceptance of price differences compared to conventional products; and self-reported frequency of purchase. Demographic questions regarding age, education level, and income were included to enable subgroup comparisons.

Over the course of data collection, 314 valid responses were obtained. Each response underwent initial screening to ensure completeness and consistency. This sample size, while moderate, offers sufficient statistical power for downstream analyses, especially when combined with the external validity implications drawn from the field observations. Together, the observational and survey data provide a robust foundation for investigating how demographic characteristics and attitudinal factors shape consumer engagement with organic and biodynamic agriculture products.

3.2 Analytical Approach

In this study, we adopted a multi-step analytical framework designed to explore the influence of demographic factors and personal attitudes on consumers' purchasing behavior regarding organic and biodynamic products. First, descriptive statistics were computed for variables such as purchase frequency, awareness, trust in labels, and price perception across demographic categories. Means and standard deviations were derived to reveal overall trends and variations among demographic groups, laying the groundwork for further inferential analysis.

Next, we applied Analysis of Variance (ANOVA) to test whether demographic segments—particularly age and education—exhibited statistically significant differences in mean values of trust, price acceptance, and purchasing frequency. ANOVA was chosen for its suitability in comparing means across multiple groups simultaneously and determining whether observed differences could be attributed to chance or demographic segmentation.

To complement group comparisons, correlational analyses were conducted to assess the strength and direction of relationships among continuous variables—awareness, trust, price perception, and purchase frequency. By identifying these associations, we aimed to ascertain whether, for instance, higher levels of awareness and trust corresponded systematically with increased frequency of purchase.

Building on these foundations, multiple regression models were deployed to isolate and evaluate the unique predictive power of each independent variable (age, education level, awareness, trust, price perception) on the dependent variable—purchase frequency. This approach enabled us to control for potential confounding factors and quantify the relative importance of each predictor.

The decision to employ ANOVA alongside multiple regression draws on precedent in the empirical literature. For example, Gundala and Singh's study on organic food purchasing behavior in the United States used a combination of ANOVA, multiple linear regression, factor analysis, and hierarchical regression analysis to reveal the effects of health consciousness, consumer knowledge, subjective norms, price perception, and demographic variables on consumer attitudes and actual buying behavior (Gundala, Raghava, & Anupam, 2021).

Overall, our analytical strategy follows a logical progression: descriptive statistics establish foundational patterns; ANOVA reveals group-based differences; correlation analysis clarifies inter-variable associations; and regression techniques assess the independent contributions of variables to purchasing behavior. This strategy ensures a rigorous and nuanced understanding of how both demographic and attitudinal factors drive consumer engagement with organic and biodynamic products.

3.3 Results and Discussions

The findings reveal a nuanced interplay between demographic factors—specifically age and education—and psychological variables, including trust, price perception, and health motivation in shaping consumer behavior toward organic and biodynamic products.

3.3.1 Purchase Frequency and Demographics

Younger consumers, particularly those under eighteen, display the highest frequency of organic product purchases. Their purchase behavior not only exceeds that of older demographic groups but also shows less variability, indicating more consistent buying patterns. In contrast, adults—especially those aged between 26 and 40—demonstrate lower purchase frequency accompanied by greater variation. This suggests that younger consumers may be more influenced by peer behaviors, social media, or growing environmental awareness.

Table 1. Sample Age Distribution

	Sample Size	*Average*	*Standard Division*
Below 18	21	2.86	0.79
18~25	23	2.74	0.81
26~30	55	2.25	1.02
31~40	130	2.19	1.01
41~50	56	2.23	0.91
51~60	20	2.25	1.07
Above 60	9	2.67	1.5
F		2.385	
p		0.029	

3.3.2 Education, Trust, and Price Perception

Education emerges as a double-edged factor in consumer behavior. Respondents holding a bachelor's degree or higher exhibit greater readiness to accept premium prices for organic products. Nonetheless, this group also reveals significant variance in trust toward organic labels, hinting at a more discerning and critical approach to authenticity claims. It appears that while education increases awareness and willingness to invest in organic products, it also sharpens scrutiny of certifications and motivations. Notably, doctoral-level respondents do not consistently report stronger health motivations than undergraduates—suggesting that skepticism rather than lack of awareness may explain this inconsistency.

Table 2. Education Degree vs. The Pursuit of Healthy Living

Education Degree	**numbers**	**average**	**Standard division**
High school graduation and below	33	2.27	0.80
Associate degree	38	2.08	1.10
Bachelor's degree	204	1.86	0.84
Master's degree	34	1.62	0.70
Doctoral degree	5	2.60	1.52
F		3.671	
P		0.006	

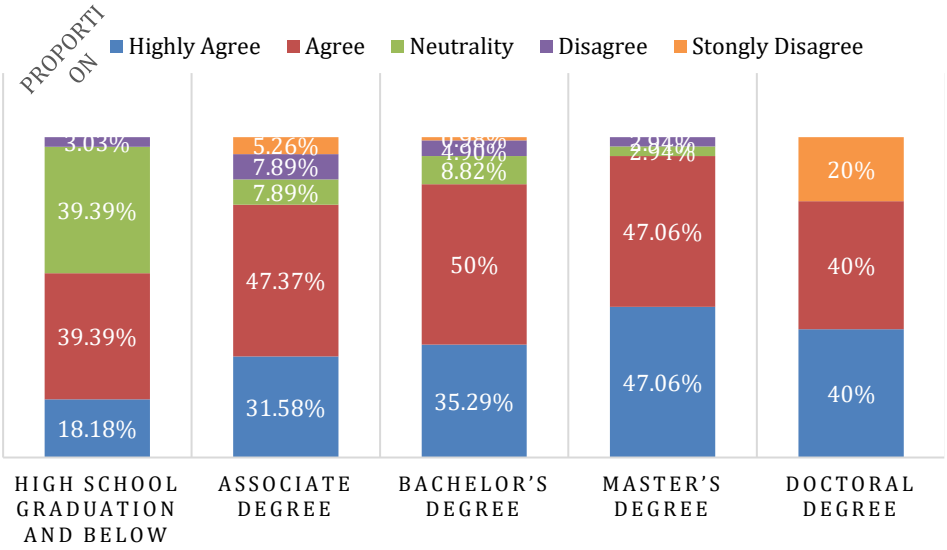

Figure 1. Education Degree vs. The Pursuit of Healthy Living.

3.3.3 The Universality of Price Perception

Price perception stands out as a universal determinant across all education levels. Even among groups with higher educational attainment, concerns about fairness and value persist. However, when consumers align strong health motivations and trust in labeling with price perceptions, they become more willing to accept higher prices. This demonstrates that positive attitudes towards health and authenticity can mitigate cost barriers to organic purchasing.

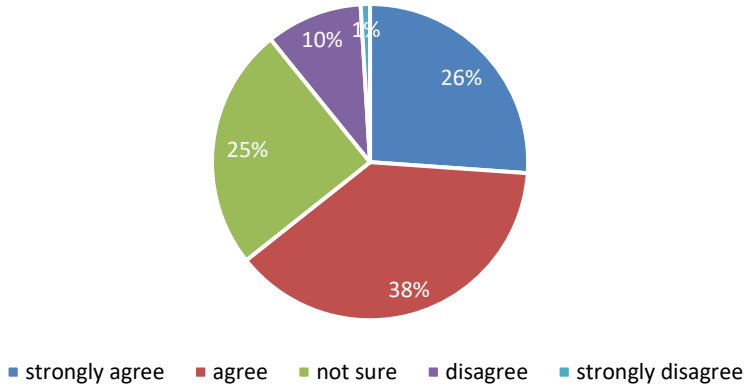

Figure 2. Trust in Organic Food Suppliers.

Table 3. Trust Levels in Organic Food Suppliers in Different Education Categories

Education Level	Strongly Agree	Agree	Not Sure	Disagree	Strongly Disagree	Total
Graduated from high school/technical secondary school or below	3(9.09%)	6(18.18%)	19(57.58%)	5(15.15%)	0(0.00%)	33
Graduated from a junior college	5(13.16%)	7(18.42%)	12(31.58%)	14(36.84%)	0(0.00%)	38
Bachelor's degree	28(13.73%)	60(29.41%)	74(36.27%)	37(18.14%)	5(2.45%)	204
Master's degree	4(11.76%)	9(26.47%)	13(38.24%)	8(23.53%)	0(0.00%)	34
Doctor's degree	1(20%)	1(20%)	2(40%)	0(0.00%)	1(20%)	5

3.3.4 Interaction Effects Among Variables

Awareness and trust function most effectively not in isolation but in combination with demographic factors. Younger consumers, despite potentially lower income or educational status, often display higher trust and awareness—suggesting influences from social networks or cultural trends. Conversely, older and better-educated groups, while more knowledgeable, may hesitate or act inconsistently due to elevated scrutiny or concerns about greenwashing. Thus, purchase behavior is shaped by a triadic interaction among trust, motivation, and demographic background.

3.3.5 Implications and Interpretation

These findings imply several strategic directions for marketers and policymakers:

I. Targeting younger demographics: Given their consistent purchase behavior, youth represent both early adopters and influencers. Communications emphasizing authenticity, the health advantages of organic food, and environmental benefit may reinforce their habits and foster loyalty.

II. Addressing skepticism in educated consumers: For consumers with higher education, transparency regarding certification processes, traceability, and third-party validation could reduce skepticism and foster trust.

III. Mitigating price concerns: Price remains a key barrier across demographic groups. Interventions such as tiered pricing, bundled offers, or public subsidy programs may help convert interest into purchasing behaviors, especially when combined with messages that enhance perceived value.

4. Conclusion

This study provides a nuanced understanding of how demographic characteristics and psychological factors jointly shape consumer engagement with organic and biodynamic agricultural products. By analyzing both in-field behavioral patterns and survey-based self-reported attitudes, it becomes evident that no single factor—whether age, education, or trust—acts in isolation. Rather, it is their interaction that defines purchasing behavior.

The consistently high engagement from younger consumers suggests this group may serve as early adopters and long-term advocates for organic consumption. At the same time, more educated consumers, though financially capable, demonstrate selective trust and a critical lens, indicating the need for greater transparency and clarity in certification processes. Across all groups, price remains a universal concern, yet its impact can be reduced when paired with strong health motivations and belief in product authenticity.

For policymakers and marketers alike, these insights offer actionable direction: awareness campaigns should emphasize verified health benefits and traceable sourcing; pricing strategies must consider psychological thresholds and perceived value; and differentiated communication should reflect the diversity of consumer knowledge and trust levels. As interest in sustainable agriculture continues to grow, such consumer-centered strategies are essential for accelerating the mainstream adoption of organic and biodynamic practices.

References

Aschemann-Witzel, J., et al. (2022). Consumers' priorities and perceptions of organic food in relation to sustainability: A review. *Sustainable Agriculture Research, 12*(2), 1-16. https://doi.org/10.5539/sar.v12n2p1

Gundala, R. R., & Singh, A. (2021). What motivates consumers to buy organic foods? Results of an empirical study in the United States. *PLOS ONE, 16*(9), e0257288. https://doi.org/10.1371/journal.pone.0257288

Meemken, E.-M., & Qaim, M. (2018). Organic agriculture, food security, and the environment. *Annual Review of Resource Economics, 10*, 39-63. https://doi.org/10.1146/annurev-resource-100517-023252

Meyerding, S. G. H. (2016). Consumer preferences for organic labels in Germany using discrete choice experiments. *Journal of International Food & Agribusiness Marketing, 28*(3), 237-260. https://doi.org/10.1080/08974438.2016.1145610

Muller, A., et al. (2017). Strategies for feeding the world more sustainably with organic agriculture. *Nature Communications, 8*(1), 1290. https://doi.org/10.1038/s41467-017-01410-w

Reganold, J. P., & Wachter, J. M. (2016). Organic agriculture in the twenty-first century. *Nature Plants, 2*, 15221. https://doi.org/10.1038/nplants.2015.221

Tang, Y., et al. (2022). Investigating the role of trust and knowledge in Chinese consumers' purchase intentions for organic milk: An extended theory of planned behavior model. *Organic Agriculture, 12*, 1-12. https://doi.org/10.1007/s13165-022-00394-2

Turinek, M., et al. (2009). Biodynamic agriculture research progress and priorities. *Renewable Agriculture and Food Systems, 24*(2), 146-154. https://doi.org/10.1017/S174217050900252X