

Differences in Consumer Sustainability Perceptions by Demographic Characteristics: Evidence from Azerbaijan's Fast-Food Industry

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Abstract. *This study investigates whether consumer sustainability perceptions vary across demographic characteristics within Azerbaijan's fast-food industry. Drawing on a multidimensional conceptualization, sustainability perception is operationalized through five dimensions: environmental responsibility, social responsibility, ethical business practices, health and consumer well-being, and long-term sustainability orientation. A quantitative cross-sectional design was employed using survey data from 475 fast-food consumers in Azerbaijan. Sustainability perceptions were measured using an adapted Likert-scale instrument. Exploratory factor analysis and reliability testing were conducted to validate the measurement model, followed by independent samples t-tests and one-way analysis of variance (ANOVA) to examine demographic differences. The findings confirm a robust five-factor structure with satisfactory internal consistency across all dimensions. Statistically significant differences in sustainability perceptions were observed across gender, age, education, income, and employment status. Environmental and social responsibility perceptions differed primarily by gender; whereas ethical business practices, health and consumer well-being, and long-term sustainability orientation varied more strongly by socio-economic conditions and life-stage characteristics. Overall, sustainability perceptions among fast-food consumers in Azerbaijan vary systematically across demographic groups. This study contributes to sustainability and consumer behavior literature by providing empirical evidence from an underexplored emerging market context and by offering a demographic-based perspective on sustainability perception. From a managerial standpoint, the findings underscore the importance of developing segmented and targeted sustainability strategies that align with the expectations of distinct consumer groups in the fast-food sector.*

Keywords: *consumer sustainability perception, demographic differences, fast-food industry, Azerbaijan, environmental responsibility, social responsibility*

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Demoqrafik xüsusiyyətlər kontekstində istehlakçılarının davamlılıq qavrayışlarındakı fərqlər: Azərbaycanın Sürətli Qida Sənayesi (Fast-Food) üzrə empirik tədqiqat

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Xülasə. Bu tədqiqat Azərbaycan fast-food sənayesində istehlakçıların davamlılıqla bağlı qavrayışlarının demoqrafik xüsusiyyətlər üzrə fərqlənib-fərqlənmədiyini araşdırır. Çoxölçülü konseptual yanaşmaya əsaslanaraq, davamlılıq qavrayışı beş ölçü üzrə əməliyyatlaşdırılmışdır: ekoloji məsuliyyət, sosial məsuliyyət, etik biznes təcrübələri, sağlamlıq və istehlakçı rifahı, eləcə də uzunmüddətli davamlılıq yönümlüliyi. Tədqiqatda kəmiyyət xarakterli kəsikli (cross-sectional) dizayn tətbiq edilmiş və Azərbaycanda fast-food istehlakçılarından toplanmış 475 sorğu məlumatı əsasında analiz aparılmışdır. Davamlılıq qavrayışları uyğunlaşdırılmış Likert şkalası vasitəsilə ölçülmüşdür. Ölçmə modelinin etibarlılığını və uyğunluğunu yoxlamaq məqsədilə kəşfiyyətçi amil analizi və etibarlılıq testləri aparılmış, daha sonra isə demoqrafik fərqlərin müəyyən edilməsi üçün müstəqil seçmələr üzrə t-testi və birləşdirilmiş dispersiya analizi (ANOVA) tətbiq edilmişdir. Nəticələr qənaətbəxş daxili tutarlılıq göstəriciləri ilə möhkəm beşamilli strukturun mövcudluğunu təsdiq etmişdir. Davamlılıq qavrayışlarında cins, yaş, təhsil səviyyəsi, gəlir və məşğulluq statusu üzrə statistik cəhətdən əhəmiyyətli fərqlər müəyyən edilmişdir. Ekoloji və sosial məsuliyyət qavrayışları əsasən cins üzrə fərqlənmiş, etik biznes təcrübələri, sağlamlıq və istehlakçı rifahı, eləcə də uzunmüddətli davamlılıq yönümlüliyi isə daha çox sosial-iqtisadi şərait və həyat mərhələsi xüsusiyyətləri ilə əlaqəli olmuşdur. Ümumilikdə, Azərbaycanda fast-food istehlakçıları arasında davamlılıq qavrayışlarının demoqrafik qruplar üzrə sistemli şəkildə dəyişdiyi müəyyən edilmişdir. Bu tədqiqat davamlılıq və istehlakçı davranışı ədəbiyyatına, az araşdırılmış inkişaf etməkdə olan bazar kontekstində empirik sübutlar təqdim etməklə və davamlılıq qavrayışına demoqrafik əsaslı perspektiv gətirməklə töhfə verir. Menecerial baxımdan nəticələr fast-food sektorunda fərqli istehlakçı qruplarının gözləntilərinə uyğun seqmentləşdirilmiş və hədəflənmiş davamlılıq strategiyalarının hazırlanmasının vacibliyini vurğulayır.

Açar sözlər: istehlakçı davamlılıq qavrayışı, demoqrafik fərqlər, fast-food sənayesi, Azərbaycan, ekoloji məsuliyyət, sosial məsuliyyət

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Introduction

Sustainability has become a central theme in academic research and business practice, driven by climate change, environmental degradation, resource constraints, and rising societal expectations regarding ethical and social responsibility. Consumers are increasingly viewed as active participants in sustainable development, as consumption choices directly shape environmental and social outcomes. This is particularly evident in high-visibility and high-frequency consumption sectors such

as food and fast food, which are commonly associated with packaging waste, intensive resource use, and health-related concerns (Liu, 2024; Verma et al., 2024; Nugraha et al., 2024).

Fast-food companies operate in highly competitive markets characterized by convenience, standardized offerings, and strong price sensitivity. At the same time, these firms face growing pressure from consumers, governments, and society to adopt more sustainable practices, including reducing plastic use, improving transparency in sourcing, supporting food safety, and engaging in socially responsible activities (Tiboni-Oschilewski et al., 2024; McDonagh et al., 2024; Liu, 2024). As a result, sustainability is no longer viewed solely as an operational or regulatory issue but has become a perceptual factor shaping how consumers evaluate and judge fast-food brands.

Consumer sustainability perception refers to consumers' overall evaluation of a firm's environmental, social, ethical, and long-term responsibility practices as reflected in its products, operations, and communication efforts (White et al., 2019; Khan et al., 2023; Wang et al., 2023). Prior research demonstrates that such perceptions. In the fast-food industry, sustainability perception is especially critical because consumers may be skeptical of sustainability claims due to concerns related to greenwashing or unhealthy food offerings.

Although the literature on sustainability and consumer behavior has expanded substantially, much of the existing research focuses on behavioral outcomes such as purchase intention, willingness to pay, or brand loyalty. These studies frequently rely on causal models and advanced analytical techniques, including advanced causal modeling approaches to explain sustainable purchasing and brand-related outcomes (Borah et al., 2024; Wang et al., 2023; Liu, 2024). While this body of work provides valuable insights, it often treats consumers as relatively homogeneous and pays limited attention to demographic variation in sustainability perceptions. In practice, however, consumers may perceive and prioritize sustainability issues differently depending on characteristics such as gender, age, education, income, and employment status (Nguyen et al., 2020; Ghouse et al., 2024; Szulc-Obłóza & Żurek, 2024).

Examining demographic differences in sustainability perception is particularly important in emerging market contexts. In such settings, environmental awareness, income distribution, and access to sustainability-related information often vary considerably across population groups. Demographic characteristics shape not only knowledge levels but also value orientations, risk perceptions, and sensitivity to ethical and health-related concerns (Mallick et al., 2024). Consequently, sustainability initiatives that resonate with one group of consumers may be less relevant or less credible to another, underscoring the need for more segmented and evidence-based sustainability strategies.

From a geographical perspective, empirical research on consumer sustainability perceptions has largely focused on developed economies or major emerging markets, especially in food and consumer sustainability research conducted across developed and major emerging markets (White et al., 2019; Khan et al., 2023; Yuan et al., 2025). In contrast, evidence from the South Caucasus region remains scarce. Azerbaijan represents a particularly underexplored context due to rapid urbanization, rising fast-food consumption, increased exposure to international brands, and the gradual integration of sustainability themes into public and corporate discourse. Despite these developments, little is known about how consumers in Azerbaijan perceive and evaluate sustainability practices in the fast-food industry.

To address this gap, the present study examines differences in consumer sustainability perceptions across demographic characteristics in Azerbaijan's fast-food sector. Rather than focusing on causal relationships or behavioral intentions, the study adopts a comparative quantitative approach to assess whether sustainability perceptions vary significantly across demographic groups. In doing so, the research contributes to the literature in three ways. First, it extends sustainability perception research

to an underrepresented emerging market context. Second, it offers a demographic-based perspective that complements intention-focused sustainability studies. Third, it provides practical insights for fast-food managers seeking to design targeted and credible sustainability strategies aligned with diverse consumer expectations.

Recent research in food service and hospitality further indicates that sustainability-related judgments are shaped not only by operational practices such as packaging choices, waste reduction, and sourcing transparency but also by how these practices are communicated and interpreted by consumers. Evidence suggests that sustainability communication can influence perceived responsibility and environmentally conscious responses, particularly in emerging markets where sustainability awareness is still evolving and information asymmetries are common (Fischer et al., 2021; Liu, 2024). At the same time, increased scrutiny of environmental claims in the food sector has heightened consumer skepticism and concerns about greenwashing, especially when sustainability claims lack clarity or visible supporting practices (Nugraha et al., 2024).

Accordingly, this study investigates whether consumer sustainability perceptions differ across demographic characteristics (gender, age, education, income, and employment status) in Azerbaijan's fast-food industry.

Literature Review

Consumer Sustainability Perception as a Multidimensional Construct

Consumer sustainability perception refers to how consumers evaluate a firm's responsibility toward the environment, society, and consumer well-being, as well as its commitment to sustainable development in the long run. Rather than being a single attitude, sustainability perception is generally understood as a multidimensional concept that combines environmental, social, ethical, health-related, and long-term strategic aspects (White et al., 2019; Khan et al., 2023; Wang et al., 2023).

In recent marketing work, sustainability perception is increasingly treated as a "bundle" of evaluations that combine environmental and social responsibility with consumer-centered value (e.g., health, safety, and well-being), and these evaluations are shaped by the way firms frame sustainability benefits and make them tangible for consumers. Framework-based syntheses in marketing emphasize that sustainability responses are driven by multiple psychological routes (e.g., self-relevance, habit, affect, social influence), which supports the use of multidimensional measurement rather than a single global attitude indicator (White et al., 2019). In food-related contexts, the interpretation of sustainability signals (including labeling) is heterogeneous, and recent reviews show mixed effects of eco-labeling and sustainability cues depending on consumers' understanding, trust, and perceived credibility (Tiboni-Oschilewski et al., 2024).

Earlier sustainability research mainly focused on firm-level outcomes and broader environmental and societal challenges (Brundtland Commission, 1987; Elkington, 1997). More recent studies, however, emphasize the role of consumers and argue that sustainability initiatives create value only when they are noticed, interpreted, and positively evaluated by consumers (Chen, 2010). This issue becomes especially important in industries such as fast food, where sustainability claims may contradict common perceptions related to convenience, speed, and unhealthy consumption patterns. In such contexts, consumer perception plays a critical role.

Based on previous literature, this study conceptualizes consumer sustainability perception through five related dimensions: environmental responsibility, social responsibility, ethical business practices, health and consumer well-being, and long-term sustainability orientation. Each dimension represents

a different, yet complementary, way through which consumers assess sustainability-related efforts in the fast-food industry.

Environmental Responsibility Perception

Environmental responsibility perception reflects consumers' evaluations of a firm's efforts to reduce environmental harm and contribute to ecological sustainability. This dimension is closely linked to the broader sustainability discussion, which highlights responsible resource use, waste reduction, pollution control, and environmental protection (Elkington, 1997).

From a consumer point of view, environmental responsibility is often judged through visible and communicated practices, such as environmentally friendly packaging, recycling activities, and efforts to reduce environmental footprint. Mohr et al. (2001) argue that consumers increasingly expect firms to demonstrate concrete environmental actions, and these expectations strongly influence overall evaluations of corporate behavior. When such actions are perceived as sincere, they tend to improve consumers' sustainability perceptions.

Chen (2010) further points out that environmental responsibility is a key element of green brand equity, as it signals a firm's commitment to environmental values. In the fast-food industry, where issues such as plastic waste and energy use are highly visible, environmental responsibility perception plays an important role in shaping consumers' judgments of sustainability efforts.

In foodservice settings, environmental sustainability is closely linked to waste, plastics, energy intensity, and circular practices, and these themes dominate recent systematic reviews of restaurant sustainability. Current evidence suggests that restaurant adoption of green practices is uneven and often constrained by operational trade-offs, which reinforces why consumers may rely on visible cues (e.g., packaging, waste initiatives) when forming environmental responsibility perceptions (Madanaguli et al., 2022). Recent hospitality sustainability research further indicates that circular-economy practices aimed at reducing food waste represent a central environmental pathway for the sector, strengthening the relevance of the environmental dimension for consumer evaluation (Cardenas et al., 2024).

Social Responsibility Perception

Social responsibility perception refers to consumers' evaluations of a firm's responsibilities toward employees, local communities, and society as a whole. This dimension extends sustainability beyond environmental issues to include fair labor practices, social engagement, and community contributions. Brown and Dacin (1997) show that consumers develop corporate associations based on perceived social responsibility, which in turn affect their overall evaluation of firms and their products. Similarly, Mohr et al. (2001) emphasize that socially responsible behavior is increasingly seen by consumers as a basic requirement for acceptable corporate conduct. Firms perceived as ignoring social responsibilities may face negative evaluations, even when product quality is considered satisfactory. Recent studies indicate that social responsibility perception can strengthen the relationship between consumers and firms by increasing trust, credibility, and identification with the brand (White et al., 2019; Khan et al., 2023; Wang et al., 2023).

Recent studies further emphasize that consumers' perceptions of social responsibility are increasingly shaped by firms' engagement with employees, local communities, and broader societal issues. In service industries, including foodservice, socially responsible practices such as fair labor conditions, employee well-being, and community involvement have been shown to positively influence consumers' evaluations and trust, particularly when these practices are perceived as authentic rather than symbolic (Kim & Hwang, 2021; Khan et al., 2023).

In emerging market contexts, social responsibility perceptions are often influenced by socio-economic conditions and institutional development, which shape consumers' expectations regarding corporate social engagement (Zameer et al., 2022). This suggests that consumers may differ in how they evaluate social responsibility initiatives depending on income level, employment status, and exposure to corporate social responsibility discourse, reinforcing the relevance of demographic differences in social responsibility perception.

Ethical Business Practices Perception

Ethical business practices perception captures consumers' evaluations of a firm's honesty, transparency, and fairness in its business activities. This dimension reflects whether consumers believe that a firm behaves ethically in its operations, communications, and interactions with stakeholders.

Brown and Dacin (1997) suggest that ethical behavior forms an important part of consumers' corporate associations, influencing firm evaluations beyond basic product attributes. Ethical perception is particularly relevant in industries where concerns about misleading claims, quality standards, or unfair practices may arise. Ferrell and Hartline (2011) stress that ethical marketing practices are essential for building long-term credibility and reducing consumer skepticism.

Recent research indicates that perceived ethical behavior positively affects consumers' evaluations of firms by reinforcing perceptions of integrity, transparency, and credibility in sustainability communication (White et al., 2019; Wang et al., 2023). In the fast-food industry, ethical issues related to sourcing, transparency, and honest communication are closely connected to sustainability perception, making ethical business practices a crucial evaluative dimension.

Recent marketing and business ethics research highlights that ethical business practices play a critical role in shaping consumer trust and firm legitimacy, particularly in industries characterized by information asymmetry and frequent skepticism toward corporate claims. Studies show that transparency, honesty in communication, and ethical sourcing practices contribute significantly to consumers' ethical evaluations and overall sustainability perceptions (Ferrell & Hartline, 2011; Nugraha et al., 2024).

Contemporary evidence further indicates that consumers with higher levels of education and awareness are more likely to critically evaluate ethical claims and to differentiate between genuine ethical commitments and superficial or misleading practices (Wang et al., 2023). This supports the inclusion of ethical business practices as a distinct sustainability perception dimension and provides a theoretical basis for expecting demographic variation in ethical evaluations within the fast-food sector.

Health and Consumer Well-Being Perception

Health and consumer well-being perception refers to consumers' evaluations of a firm's concern for food safety, nutritional quality, and overall consumer welfare. In food-related industries, health considerations are closely linked to sustainability assessments.

Grunert et al. (2014) argue that consumers increasingly associate sustainability with food quality, safety, and transparency. Information about ingredients, nutritional value, and product safety strongly influences how consumers evaluate the responsibility of food providers. Lichtenstein et al. (2004) further show that perceptions of corporate responsibility, including concern for consumer well-being, shape consumers' responses to firms and their offerings.

Rokka and Uusitalo (2008) highlight that packaging and product presentation also influence health-related perceptions, as they act as signals of quality and responsibility. In the fast-food industry, where health-related concerns are frequently discussed, consumer well-being perception represents an essential dimension of sustainability evaluation.

Recent sustainability scholarship increasingly positions consumer health and well-being as a central pillar of sustainable consumption, particularly in food-related industries. Research indicates that consumers associate sustainability not only with environmental and social responsibility but also with food safety, nutritional quality, and long-term health outcomes (Grunert et al., 2014; Machin et al., 2025). In fast-food contexts, where concerns related to unhealthy consumption are prominent, health-related perceptions become especially salient in shaping overall sustainability evaluations.

Empirical studies further suggest that health and well-being perceptions vary across demographic and lifestyle characteristics, as age, employment status, and daily routines influence sensitivity to nutritional information and health risks (Nguyen et al., 2020; Wang et al., 2023). This reinforces the relevance of examining demographic differences in health and consumer well-being perception within fast-food sustainability research.

Long-Term Sustainability Orientation

Long-term sustainability orientation reflects consumers' perceptions of a firm's commitment to sustainability as a long-lasting strategic goal rather than a short-term marketing activity. This dimension emphasizes consistency, continuity, and future-oriented responsibility. The Brundtland Commission (1987) defines sustainable development as meeting present needs without compromising the ability of future generations to meet their own needs, providing the foundation for long-term sustainability thinking. Elkington's (1997) triple bottom line framework further underlines the importance of integrating environmental, social, and economic objectives over time. Martínez and del Bosque (2013) argue that consumers tend to evaluate firms more positively when sustainability initiatives are perceived as part of a long-term strategy rather than as temporary or opportunistic actions. In the fast-food industry, where concerns about greenwashing may exist, long-term sustainability orientation serves as an important signal of authenticity and genuine commitment.

Long-term sustainability orientation is increasingly discussed as a key indicator of perceived authenticity and strategic commitment in sustainability research. Recent studies suggest that consumers tend to evaluate firms more favorably when sustainability initiatives are perceived as embedded in long-term corporate strategy rather than short-term promotional activities (Martínez & del Bosque, 2013; Khan et al., 2023). This distinction is particularly important in sectors such as fast food, where concerns related to opportunistic sustainability claims and greenwashing are common.

Moreover, recent empirical evidence indicates that long-term sustainability orientation is influenced by consumers' socio-economic stability and educational background, as individuals with higher income and education levels are more likely to consider future-oriented sustainability outcomes (White et al., 2019; Szulc-Obłóza & Żurek, 2024). This supports the expectation that perceptions of long-term sustainability commitment may differ across demographic groups in emerging market contexts.

Conceptual Focus of the Study

Based on the reviewed literature, this study conceptualizes consumer sustainability perception in the fast-food industry as a five-dimensional construct consisting of environmental responsibility, social responsibility, ethical business practices, health and consumer well-being, and long-term sustainability orientation. Rather than focusing on causal relationships or behavioral outcomes, the

study adopts a comparative approach to examine whether these perceptions differ across demographic groups.

By focusing on demographic differences in sustainability perception within an emerging market context, this research addresses an important gap in the literature and provides a basis for more targeted and context-sensitive sustainability strategies in the fast-food industry.

Finally, recent research shows that sustainability-related attitudes and behaviors are moderated by socio-demographic factors (e.g., education and income), indicating that sustainability perceptions and responses are rarely uniform across populations. Empirical evidence from European consumer datasets confirms that socio-demographic variables can shape sustainability-related attitudes and behavioral patterns, strengthening the rationale for demographic segmentation and group comparisons in sustainability perception research (Szulc-Obłozza & Żurek, 2024; Szulc-Obłozza et al., 2025).

Research Methodology, Research Questions, and Hypotheses

Research Design

This study adopts a quantitative, cross-sectional research design, which is suitable for examining perceptual differences among predefined groups using statistical comparison techniques (Hair et al., 2019). A survey-based approach was used to collect standardized data from fast-food consumers in Azerbaijan, allowing systematic comparison of sustainability perceptions across different demographic categories.

Consumer sustainability perception is treated as a multidimensional construct, including environmental responsibility, social responsibility, ethical business practices, health and consumer well-being, and long-term sustainability orientation. This conceptualization is consistent with recent research in sustainability and consumer behavior literature emphasizing multidimensional evaluations of corporate environmental, social, and ethical responsibility (White et al., 2019; Khan et al., 2023; Wang et al., 2023). Demographic variables such as gender, age, education level, income level, and employment status, which influence how individuals approach products and services, are considered as grouping variables rather than independent predictors (Guliyev, 2024). Accordingly, independent samples t-tests and one-way analysis of variance (ANOVA) were employed to identify statistically significant differences between group means (Field, 2018).

Research Questions

Based on the literature review and the comparative focus of the study, the following research questions are proposed:

- **RQ1:** Do consumer perceptions of environmental responsibility differ across demographic characteristics?
- **RQ2:** Do consumer perceptions of social responsibility differ across demographic characteristics?
- **RQ3:** Do consumer perceptions of ethical business practices differ across demographic characteristics?
- **RQ4:** Do consumer perceptions of health and consumer well-being differ across demographic characteristics?
- **RQ5:** Do consumer perceptions of long-term sustainability orientation differ across demographic characteristics?

Hypotheses Development

Previous studies suggest that sustainability-related perceptions vary across demographic groups (Mohr et al., 2001; Lichtenstein et al., 2004). Based on this evidence, the following hypotheses are developed for each sustainability perception dimension:

- **H1:** Consumer perceptions of environmental responsibility differ significantly across demographic characteristics. *H1a:* by gender, *H1b:* by age and education level
- **H2:** Consumer perceptions of social responsibility differ significantly across demographic characteristics. *H2a:* by gender, *H2b:* by income and employment status
- **H3:** Consumer perceptions of ethical business practices differ significantly across demographic characteristics. *H3a:* by gender, *H3b:* by education and age
- **H4:** Consumer perceptions of health and consumer well-being differ significantly across demographic characteristics. *H4a:* by age, *H4b:* by employment status
- **H5:** Consumer perceptions of long-term sustainability orientation differ significantly across demographic characteristics. *H5a:* by income level, *H5b:* by education level

Measurement Instrument

Data were collected using a structured questionnaire consisting of two main sections. The first section gathered information on respondents' demographic characteristics. The second section measured consumer sustainability perception using a multi-item Likert-type scale, which is commonly applied in studies examining consumer attitudes and perceptions (Likert, 1932; Hair et al., 2019). Each sustainability perception dimension was measured using five items adapted from established studies in sustainability and corporate responsibility literature to ensure content validity (Elkington, 1997; Mohr et al., 2001; Pérez & del Bosque, 2015). All items were assessed using a 5-point Likert scale, ranging from 1 ("strongly disagree") to 5 ("strongly agree").

Sample and Data Collection

The target population of the study consisted of consumers in Azerbaijan with prior experience in fast-food consumption. Data were collected through an online survey distributed via social media platforms and consumer networks. Participation in the survey was voluntary, and respondent anonymity was ensured. A target sample size of 400–500 respondents was determined, as this range is considered sufficient for group comparison analyses involving multiple demographic categories (Hair et al., 2019).

Data Analysis Techniques

Data analysis followed a structured, multi-step procedure. First, descriptive statistics were calculated to summarize respondents' demographic characteristics and sustainability perception levels. Reliability analysis was conducted using Cronbach's alpha, with values of 0.70 or higher considered acceptable for internal consistency (Nunnally & Bernstein, 1994). To test the proposed hypotheses, independent samples t-tests were applied for demographic variables with two categories, while one-way ANOVA was used for variables with more than two categories (Field, 2018). When statistically significant differences were identified, appropriate post hoc tests were conducted. All statistical analyses were evaluated at a 5% significance level ($p < 0.05$).

Summary of Methodological Approach

In summary, this study employs a quantitative, survey-based methodology supported by validated measurement scales and established statistical techniques to examine demographic differences in

consumer sustainability perceptions. The methodological approach is consistent with prior consumer behavior research and provides a reliable basis for interpreting the empirical findings.

Data Analysis and Hypotheses Testing

Descriptive Statistics

The empirical analysis is based on 475 valid responses collected from consumers in Azerbaijan who have prior experience with fast-food consumption. This sample size is above the commonly suggested minimum levels for group comparison analyses and is sufficient to conduct independent samples t-tests and one-way ANOVA with adequate statistical power (Hair et al., 2019).

The sample includes 475 respondents, of which 53.1% are female and 46.9% are male, showing a relatively balanced gender distribution. The age distribution is mainly composed of young and middle-aged consumers. The largest group falls within the 25-34 age category (35.6%), followed by 18-24 (26.9%), 35-44 (22.9%), and 45 years and above (14.6%). Regarding education level, 46.7% of respondents hold a bachelor's degree, while 26.9% have completed high school and 26.3% have a master's or doctoral degree. The distribution of income and employment status shows sufficient variation across different economic and occupational groups. Overall, the demographic profile of the sample indicates that it is appropriate for conducting comparative statistical analyses.

Exploratory Factor Analysis and Reliability Assessment

Since the sustainability perception scale was adapted from previous studies and applied in an emerging market context, an exploratory factor analysis (EFA) was performed to examine construct validity (Hair et al., 2019; Field, 2018).

Sampling adequacy and the suitability of the data for factor analysis were assessed using the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity. KMO values above 0.60 indicate acceptable sampling adequacy, values above 0.70 indicate good adequacy, and values above 0.80 indicate very good adequacy (Kaiser, 1974; Hair et al., 2019). Bartlett's test is expected to be statistically significant at $p < 0.05$, indicating sufficient correlations among the items (Bartlett, 1954).

The results of the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity are reported in Table 2.

Table 1
KMO and Bartlett's Test

Statistic	Value
KMO (overall)	0.810
Bartlett's Chi-square	3668.83
Bartlett's df	300
Bartlett's p-value	< 0.001

Note: Table is produced by the authors based on the survey data.

The KMO value obtained is higher than 0.80, which is above the recommended level, and Bartlett's test is statistically significant. These results show that the data are suitable for conducting factor analysis.

Factor extraction was carried out using principal component analysis with varimax rotation. Only factors with eigenvalues greater than 1.0 were kept, following Kaiser's criterion (Kaiser, 1960). In social science research, a cumulative explained variance of around 50–60% or more is generally considered acceptable (Hair et al., 2019).

The eigenvalues and cumulative explained variance of the extracted components are presented in Table 3.

Table 2
Eigenvalues and Explained Variance (First 5 Components)

Component	Eigenvalue	Explained Variance (%)	Cumulative (%)
1	5.92	23.7	23.7
2	4.11	16.4	40.1
3	3.28	13.1	53.2
4	2.45	9.8	63.0
5	1.84	7.4	70.4

Note: Table is produced by the authors based on the survey data.

The results confirm a five-factor structure, consistent with the conceptual framework of consumer sustainability perception.

Reliability Analysis

Internal consistency reliability was examined using Cronbach's alpha. Alpha values of 0.70 or higher are generally accepted as indicating satisfactory reliability, while values above 0.80 are considered to show good reliability (Cronbach, 1951; Nunnally & Bernstein, 1994).

The internal consistency reliability of each sustainability perception dimension, assessed using Cronbach's alpha coefficients, is reported in Table 4.

Table 3
Reliability Statistics (Cronbach's Alpha)

Dimension	Cronbach's α
Environmental responsibility	0.832
Social responsibility	0.796
Ethical business practices	0.804
Health & consumer well-being	0.795
Long-term sustainability orientation	0.822

Note: Table is produced by the authors based on the survey data.

All dimensions exceed the accepted threshold, confirming strong internal consistency of the adapted scale.

Hypotheses Testing

Hypotheses were tested using independent samples t-tests and one-way analysis of variance (ANOVA). Statistical significance was evaluated at the 5% level ($p < 0.05$), which is standard in behavioral and social science research (Field, 2018; Pallant, 2020).

Environmental Responsibility Perception (H1)

Gender-based differences were examined using an independent samples t-test. Gender-based differences in environmental responsibility perception were examined using an independent samples t-test, and the results are presented in Table 5.

Table 4
t-Test by Gender (Environmental Responsibility)

Mean (Male)	Mean (Female)	t	p-value
3.52	3.86	-3.51	<0.001

Note: Table is produced by the authors based on the survey data.

The p-value is below the predefined threshold of 0.05, indicating a statistically significant difference. Therefore, H1a is supported. Differences across age and education levels were examined using one-way ANOVA. Differences in environmental responsibility perception across age and education groups were analyzed using one-way ANOVA, with the results summarized in Table 6.

Table 5
One-Way ANOVA Results (Environmental Responsibility)

Grouping Variable	F	p-value
Age	14.90	<0.001
Education	6.12	0.002

Note: Table is produced by the authors based on the survey data.

Significant F-values confirm differences across age and education groups. Thus, H1b is supported, and H1 is supported overall.

Social Responsibility Perception (H2)

The results of the independent samples t-test examining gender differences in social responsibility perception are reported in Table 7.

Table 6
t-Test by Gender (Social Responsibility)

Mean (Male)	Mean (Female)	t	p-value
3.61	3.89	-3.22	0.001

Note: Table is produced by the authors based on the survey data.

Female consumers report significantly higher social responsibility perceptions than male consumers. As the p-value is below 0.05, H2a is supported. Differences in social responsibility perception across income levels and employment status were examined using one-way ANOVA, as shown in Table 8.

Table 7
One-Way ANOVA Results (Social Responsibility)

Grouping Variable	F	p-value
Income	8.41	<0.001
Employment	5.06	0.025

Note: Table is produced by the authors based on the survey data.

Statistically significant differences are observed across income levels and employment status. Therefore, H2b is supported, and H2 is fully supported.

Ethical Business Practices Perception (H3)

H3: Consumer perceptions of ethical business practices differ significantly across demographic characteristics. Table 9 presents the results of the independent samples t-test assessing gender differences in ethical business practices perception.

Table 8
t-Test by Gender (Ethical Business Practices)

Mean (Male)	Mean (Female)	t	p-value
3.74	3.81	-1.21	0.227

Note: Table is produced by the authors based on the survey data.

The gender-based difference is not statistically significant ($p > 0.05$). Thus, H3a is not supported. Differences in ethical business practices perception across age and education groups were examined using one-way ANOVA, with the results reported in Table 10.

Table 9
One-Way ANOVA Results (Age and Education – Ethical Business Practices)

Grouping Variable	F	p-value
Age	4.88	0.003
Education	9.34	<0.001

Note: Table is produced by the authors based on the survey data.

Significant differences are observed across age and education groups. Accordingly, H3b is supported, and H3 is partially supported.

Health and Consumer Well-Being Perception (H4)

H4: Consumer perceptions of health and consumer well-being differ significantly across demographic characteristics. The results of the one-way ANOVA examining differences in health and consumer well-being perception across age groups and employment status are presented in Table 11.

Table 10
One-Way ANOVA Results (Age and Employment – Health & Well-Being)

Grouping Variable	F	p-value
Age	4.99	0.002
Employment	7.21	0.008

Note: Table is produced by the authors based on the survey data.

Health and consumer well-being perceptions differ significantly across age groups and employment status. Both p-values are below the 0.05 threshold, indicating support for H4a and H4b. Therefore, H4 is supported.

Long-Term Sustainability Orientation (H5)

H5: Consumer perceptions of long-term sustainability orientation differ significantly across demographic characteristics. Differences in long-term sustainability orientation across income and education levels were examined using one-way ANOVA, with the results reported in Table 12.

Table 11
One-Way ANOVA Results (Income and Education – Long-Term Sustainability Orientation)

Grouping Variable	F	p-value
Income	10.84	<0.001
Education	7.65	<0.001

Note: Table is produced by the authors based on the survey data.

The results show statistically meaningful differences across income and education groups. Since both p-values are below the accepted significance level, hypotheses H5a and H5b are confirmed, and therefore H5 is also supported. By using clear and well-established statistical thresholds from the literature, this study presents reliable empirical evidence that sustainability perceptions among consumers in Azerbaijan's fast-food sector vary across demographic characteristics. In addition, the validated measurement structure and transparent testing of hypotheses provide a solid empirical basis for the theoretical discussion and managerial implications discussed in the following section.

Discussion

The findings of this study align with recent research showing that sustainability perceptions are unevenly distributed across demographic groups. Prior studies indicate that gender, education, and income influence how consumers interpret environmental and social responsibility signals, whereas age and employment status shape sensitivity to health-related and long-term sustainability concerns (Nguyen et al., 2020; Wang et al., 2023). Consistent with evidence from foodservice and hospitality research, the present results suggest that sustainability perceptions are shaped by consumers' socio-economic conditions and life-stage characteristics rather than being universally shared (Kim & Hwang, 2021; Wang et al., 2024).

Environmental Responsibility Perception (H1)

The results show that perceptions of environmental responsibility differ significantly across demographic characteristics, providing full support for H1. Female consumers reported higher levels of perceived environmental responsibility than male consumers, and statistically significant differences were also observed across age and education groups. These findings are consistent with

earlier research suggesting that environmental concerns are not evenly distributed across demographic segments, particularly with respect to gender and education. Previous studies indicate that women and individuals with higher education levels tend to exhibit greater sensitivity to environmental issues and sustainability practices, which may reflect higher environmental awareness and stronger pro-social value orientations (Elkington, 1997; Mohr et al., 2001; Chen, 2010). The observed age-related differences further suggest that perceptions of environmental responsibility vary across life stages, reflecting generational differences in values, knowledge, and exposure to environmental discourse. In the context of Azerbaijan's fast-food industry, these results imply that environmental sustainability initiatives may be more effective when targeted toward specific demographic groups rather than implemented through uniform communication strategies.

Social Responsibility Perception (H2)

The empirical results fully support H2, indicating that perceptions of social responsibility differ significantly across gender, income level, and employment status. Female consumers reported higher levels of perceived social responsibility, while income and employment status were also associated with meaningful differences. These findings are in line with prior research emphasizing that perceptions of corporate social responsibility are shaped by socio-economic conditions and social roles (Brown & Dacin, 1997; Mohr et al., 2001; Pérez & del Bosque, 2015). Consumers with higher income levels may have greater exposure to CSR-related information or higher expectations regarding corporate conduct. Similarly, employment status may influence how consumers evaluate firms' social engagement, particularly in relation to labor practices, community involvement, and social fairness. Within an emerging market context such as Azerbaijan, where formal CSR frameworks are still evolving, these results suggest that social responsibility is interpreted differently across segments of society. Accordingly, fast-food firms may benefit from tailoring social responsibility initiatives to the expectations and sensitivities of different consumer groups.

Ethical Business Practices Perception (H3)

The findings provide partial support for H3. While no significant differences were observed between male and female consumers, perceptions of ethical business practices varied significantly across age and education groups. The absence of gender differences suggests that ethical aspects of business behavior are perceived similarly by men and women in this context. In contrast, the significant effects of age and education are consistent with prior research highlighting the role of knowledge, experience, and cognitive resources in shaping ethical evaluations (Brown & Dacin, 1997; Ferrell & Hartline, 2011; Pérez & del Bosque, 2015). Consumers with higher education levels may be more familiar with ethical standards, transparency norms, and corporate governance practices, leading to more critical assessments of firms' ethical conduct. In Azerbaijan's fast-food market, these findings indicate that ethical business practices are particularly salient for consumers with higher education and greater life experience. This underscores the importance of communicating ethical commitments in ways that correspond to varying levels of consumer awareness and scrutiny.

Health and Consumer Well-Being Perception (H4)

The results fully support H4, revealing significant differences in health and consumer well-being perceptions across age groups and employment status. These findings highlight the influence of lifestyle and daily routines on how consumers evaluate health-related sustainability dimensions. Consistent with earlier studies, perceptions related to health and well-being vary across life stages, as consumers of different ages assign differing importance to nutrition, personal health, and long-term well-being (Grunert et al., 2014; Lichtenstein et al., 2004; Rokka & Uusitalo, 2008). Employment status may further shape eating habits, time constraints, and reliance on fast food, thereby influencing perceptions of health-related responsibility. In an emerging economy such as Azerbaijan, where

awareness of health issues in the fast-food sector is increasing but remains uneven, these results suggest that health-focused sustainability initiatives should be adapted to specific consumer segments rather than applied uniformly.

Long-Term Sustainability Orientation (H5)

The findings provide full support for H5, indicating that long-term sustainability orientation differs significantly across income and education levels. Consumers with higher income and education levels exhibit a stronger orientation toward long-term sustainability commitments. This result is consistent with sustainability theory, which links long-term orientation to economic stability and cognitive capacity (Brundtland Commission, 1987; Elkington, 1997; Martínez & del Bosque, 2013). Consumers with more secure financial conditions and higher educational attainment may be more inclined to consider future-oriented sustainability issues, including resource conservation and long-term social impacts. In the context of Azerbaijan's fast-food industry, this finding highlights the importance of framing long-term sustainability commitments in ways that are accessible and meaningful to consumers from diverse socio-economic backgrounds.

Conclusion

This study examined differences in consumer sustainability perceptions across demographic characteristics in Azerbaijan's fast-food industry. Using a quantitative approach and a multidimensional measurement framework, the findings provide empirical evidence that sustainability-related perceptions are not uniform across consumer groups in an emerging market context. The results confirm that sustainability perception consists of several distinct dimensions: environmental responsibility, social responsibility, ethical business practices, health and consumer well-being, and long-term sustainability orientation. Each of these dimensions varies according to demographic factors such as gender, age, education, income, and employment status. While some dimensions show clear gender-based differences, others are more strongly shaped by socio-economic conditions and life-stage factors. This highlights the limitations of a one-size-fits-all approach to understanding sustainability perceptions. Overall, the study contributes to a more detailed understanding of how consumers in emerging economies perceive sustainability in the fast-food sector. By demonstrating the demographic diversity of sustainability perceptions, the study supports the view that sustainability is a socially embedded concept influenced by consumers' backgrounds and lived experiences.

Implications

Theoretical Implications: From a theoretical perspective, this study contributes to sustainability and consumer behavior literature in several ways. First, it provides empirical evidence from Azerbaijan, a context that has received limited attention in previous research on sustainability perceptions. Second, by applying a multidimensional framework and explicitly examining demographic differences, the study deepens understanding of how different sustainability dimensions are perceived unevenly across consumer groups. The findings support theoretical arguments that sustainability perceptions are shaped by social, educational, and economic factors, rather than being universally shared. This demographic-focused approach offers a useful direction for future research in emerging market contexts. **Managerial Implications:** From a managerial standpoint, the results suggest that fast-food companies operating in emerging markets should reconsider standardized sustainability strategies. The observed demographic differences indicate that sustainability initiatives and communication efforts are likely to be more effective when tailored to specific consumer segments. For instance, environmental and social responsibility initiatives may appeal more strongly to certain groups, while health-related or long-term sustainability messages may be more relevant to others. Managers may therefore benefit from segmenting sustainability communication strategies based on demographic characteristics and aligning specific sustainability dimensions with the expectations of

different consumer groups. Such targeted approaches can enhance the credibility of sustainability efforts, strengthen consumer engagement, and support more effective implementation of sustainability practices in the fast-food industry.

Policy Implications: The findings also offer important implications for policymakers and regulators. Recognizing that sustainability perceptions differ across demographic groups can help in designing more inclusive sustainability policies and public awareness campaigns. Policymakers may use these insights to promote responsible business practices and develop sustainability education initiatives that address the diverse needs and expectations of society.

Future Studies

Despite its contributions, this study has several limitations that point to directions for future research. First, future studies could use longitudinal designs to examine how consumer sustainability perceptions change over time, especially as sustainability awareness and regulatory frameworks continue to develop in emerging economies. Second, incorporating psychographic variables, such as personal values, environmental concern, or ethical orientation, may provide deeper insights into sustainability perceptions beyond demographic characteristics. Future research could also extend the analysis to other sectors, such as retail, hospitality, or manufacturing, to explore whether similar demographic patterns exist across industries. Comparative cross-country studies would further improve understanding of how cultural, institutional, and economic contexts influence sustainability perceptions. Finally, mixed methods approach combining quantitative surveys with qualitative interviews could help capture more nuanced consumer views on sustainability. By addressing these areas, future studies can build on the findings of this research and contribute to the development of more context-sensitive and inclusive sustainability strategies in both academic and practical settings.

Ethical Statement

This study involved human participants. Participation was voluntary, and informed consent was obtained from all respondents prior to data collection. Formal ethical approval was not required for this study under applicable institutional/national guidelines, as the research involved anonymous adult participants and no sensitive personal data were collected. Respondent anonymity and confidentiality were ensured, and no personally identifiable information was collected. The study was conducted in accordance with generally accepted ethical principles for research involving human subjects.

References

1. Borah, P. S., Dogbe, C. S. K., & Marwa, N. (2024). Generation Z's green purchase behavior: Do green consumer knowledge, social responsibility, advertising, and trust matter? *Business Strategy and the Environment*, 33(5), 4530–4546.
2. Cardenas, M., Schivinski, B., & Brennan, L. (2024). Circular practices in the hospitality sector regarding food waste: A systematic review and research agenda. *Journal of Cleaner Production*, 431, 143452.
3. Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Sage Publications.
4. Fischer, D., Reinermann, J.-L., Guillen Mandujano, G., DesRoches, C. T., Diddi, S., & Vergragt, P. J. (2021). Sustainable consumption communication: A review of an emerging field of research. *Journal of Cleaner Production*, 300, 126880. <https://doi.org/10.1016/j.jclepro.2021.126880>
5. Ghouse, S. M., Shekhar, R., & Azam, A. (2024). Green purchase behaviour of millennials toward eco-friendly products. *The Bottom Line*, 38(3), 286–308.
6. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (8th ed.). Cengage Learning.

7. Khan, S. A., Popp, J., & Oláh, J. (2023). Sustainability perception and consumer behavior in developing economies. *Sustainable Development*, 31(1), 312–325. <https://doi.org/10.1002/sd.2405>
8. Kim, E., & Hwang, J. (2021). What drives consumers to support sustainable restaurants? *International Journal of Hospitality Management*, 92, 102720. <https://doi.org/10.1016/j.ijhm.2020.102720>
9. Liu, C. (2024). Green messaging in the fast-food industry: The role of responsibility, obligation, and values in driving eco-conscious behavior. *Sustainability*, 16(19), 8445.
10. Machin, J. E., Kasser, T., & Hennigan, K. (2025). From satisfaction to sustainability: A conceptual introduction to sustainable consumer well-being. *AMS Review*. <https://doi.org/10.1007/s13162-025-00317-w>
11. Madanaguli, A., Dhir, A., Kaur, P., Srivastava, S., & Singh, G. (2022). Environmental sustainability in restaurants: A systematic review and future research agenda on restaurant adoption of green practices. *Scandinavian Journal of Hospitality and Tourism*, 22(4–5), 303–330. <https://doi.org/10.1080/15022250.2022.2134203>
12. Mallick, S. S., Hota, S. L., & Kumar, A. (2024). Eco-friendly marketing tools and sustainable consumer choices. *Environment and Social Psychology*, 9(8), 1–11.
13. Nguyen, T. N., Lobo, A., & Greenland, S. (2020). The influence of cultural and demographic factors on green consumption behavior. *Journal of Consumer Marketing*, 37(6), 665–679. <https://doi.org/10.1108/JCM-03-2019-3114>
14. Nugraha, W. S., Szakos, D., Süth, M., & Kasza, G. (2024). Greenwashing in the food industry: A systematic review exploring the current situation and possible countermeasures. *Cleaner and Responsible Consumption*, 15, 100227.
15. Pallant, J. (2020). *SPSS survival manual* (7th ed.). McGraw-Hill Education.
16. Guliyev, S. M. (2024). Impact of branding strategies on consumer behavior in Azerbaijan's food industry: An evaluation of demographic factors. *Russian Journal of Management*, 12(4), 214–223. <https://doi.org/10.29039/2500-1469-2024-12-4-214-223>
17. Szulc-Obłoz, A., & Żurek, M. (2024). Attitudes and sustainable behaviors with special consideration of income determinants. *European Research on Management and Business Economics*, 30(1), 100240. <https://doi.org/10.1016/j.iedeen.2023.100240>
18. Szulc-Obłoz, A., Żurek, M., & Bąk, I. (2025). Socio-demographic determinants of sustainable consumption attitudes. *Sustainability*, 17(2), 642.
19. Tiboni-Oschilewski, O., et al. (2024). Strengths and weaknesses of food eco-labeling: A review. *Frontiers in Nutrition*, 11, 1381135. <https://doi.org/10.3389/fnut.2024.1381135>
20. Verma, S. K., Prasad, A., & Katiyar, V. (2024). Sustainable biodegradable polymers and packaging. *Materials Today Sustainability*, 26, 100776.
21. Wang, J., Wang, S., & Wang, Y. (2023). Consumer sustainability perception and brand evaluation: The role of ethical and environmental responsibility. *Business Strategy and the Environment*, 32(6), 4031–4045. <https://doi.org/10.1002/bse.3379>
22. Wang, Y., Zhang, J., & Gursoy, D. (2024). Sustainability communication in foodservice: Effects on consumer trust and behavioral responses. *Tourism Management*, 94, 104641. <https://doi.org/10.1016/j.tourman.2023.104641>
23. White, K., Habib, R., & Hardisty, D. J. (2019). How to SHIFT consumer behaviors to be more sustainable: A literature review and guiding framework. *Journal of Marketing*, 83(3), 22–49. <https://doi.org/10.1177/0022242919825649>
24. Yuan, R., Jin, S., & Lin, W. (2025). Trust and eco-friendly food consumption. *Agribusiness*, 41(1), 260–288.
25. Zameer, H., Wang, Y., & Yasmeen, H. (2022). Reinforcing green competitive advantage through green innovation and green knowledge management: The moderating role of social responsibility. *Technological Forecasting and Social Change*, 176, 121455. <https://doi.org/10.1016/j.techfore.2021.121455>