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A multibarrier model of sustainable food consumption: Integrating price, availability, trust, and time constraints using Garrett ranking evidence

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Abstract
This study proposes a multibarrier model of sustainable food consumption by examining four major constraints: price, availability, trust, and time. Garrett Ranking analysis is used to determine the relative intensity of these barriers among consumers. The findings indicate that high prices are the most influential barrier, followed by the limited availability of sustainable food products. Distrust toward organic and eco-friendly labels emerges as a key perceptual obstacle, while time limitations associated with searching for and preparing sustainable foods further discourage adoption. The model illustrates how these barriers jointly influence consumption behaviour, showing that sustainable food choices are shaped by both economic conditions and consumer perceptions. The results provide practical insights for policymakers, retailers, and marketers to design strategies that enhance affordability, improve access, strengthen label credibility, and reduce time-related challenges, thereby encouraging wider adoption of sustainable food consumption.

Keywords: Sustainable food consumption, consumer barriers, garrett ranking, price constraint, label trust, availability and time constraints

Introduction
Sustainable food consumption has received growing attention as societies work to reduce environmental degradation, manage resource scarcity, and respond to changing consumer values. According to Smith and Turner (2018) [1], increasing concern about climate change and ecological impacts has encouraged consumers to reassess their food choices. Yet, despite this rising awareness, the shift from conventional to sustainable food options remains inconsistent across different consumer groups.

Arora *et al.* (2003) [2] note that several economic, behavioural, and structural barriers continue to hinder the adoption of sustainable alternatives. Among the most commonly reported challenges are price sensitivity, limited product availability, low trust in sustainability labels, and time constraints. These factors do not work independently; rather, they interact with one another and shape consumption behaviour across various demographic segments (Gleim & Lawson, 2014) [3].

Recognising the combined influence of these barriers is essential for developing effective strategies to promote sustainable consumption. Hence, this study introduces a multibarrier model of sustainable food consumption and employs Garrett Ranking analysis to identify the relative importance of these constraints. The findings aim to support policymakers, retailers, and market planners in designing targeted interventions that encourage wider adoption of sustainable food practices (Kim & Seock, 2019) [4].

Materials and Methods
This study employed a descriptive research design to identify and rank the key barriers affecting sustainable food consumption. A structured questionnaire was prepared to assess consumer perceptions of four major constraints: Price, availability, trust, and time. The instrument included Likert-scale statements and a ranking section required for applying the Garrett Ranking technique.

Data were collected from 80 respondents, selected to represent diverse consumer groups within the study area.

The rankings provided by respondents were converted into percent positions and subsequently transformed into Garrett scores using the standard conversion table. Mean Garrett scores were computed for each barrier, and the final ranking was determined based on these averages to assess the relative severity of consumer constraints.
Descriptive statistics were used to summarize demographic characteristics, while Garrett Ranking analysis provided evidence-based insights into the dominant barriers influencing sustainable food choices.

Experimental Site
The study was carried out in Coimbatore, Tamil Nadu, India, a rapidly developing city with a diverse population and a dynamic retail environment. Coimbatore was selected due to its mix of supermarkets, organic stores, local markets, and emerging sustainable product outlets. Data collection was conducted across selected urban and semi-urban locations within the city, ensuring representation from various consumer segments and purchasing environments.

Price sensitivity and its influence on sustainable food choices
Price sensitivity is one of the most dominant barriers preventing consumers from adopting sustainable food choices. Several studies highlight that sustainable or organic products are often perceived as expensive compared to conventional alternatives. This premium pricing discourages many middle- and low-income consumers, even when they value environmental responsibility. According to Magnusson *et al*. (2003) [5], higher prices reduce purchase frequency and limit experimentation with eco-friendly products. Differences in income level, perceived value, and promotional offers also influence consumers' willingness to pay. Understanding price-related concerns helps retailers design affordability strategies such as discounts, combo packs, and competitive pricing models.

Table 1: Price sensitivity and its influence on sustainable food choices

Factor	Effect
High price	Low willingness to buy
Income level	Buying power varies
Perceived value	Influences justification of price
Promotions	Encourages trial purchases

Price as a primary barrier to sustainable food consumption
Price remains a major factor influencing sustainable food consumption, as higher production costs and certification procedures often elevate market prices beyond what most consumers consider affordable. Studies show that consumers with strong environmental motivation still hesitate when sustainable products are priced significantly higher than conventional foods (Magnusson *et al*., 2003) [6]. Similar findings indicate that economic considerations override positive attitudes toward sustainability when budgets are limited (Harper & Makatouni, 2002) [7]. Comparative value assessment further intensifies this barrier, as conventional products often appear more attractive due to discount schemes and bulk offers (Lockie *et al*., 2002) [8]. Research also indicates that price sensitivity is especially pronounced among middle-income groups, limiting sustainable food adoption (Lea & Worsley, 2005) [9]. Empirical analyses consistently rank price as the most influential barrier affecting purchasing decisions (Fotopoulos & Krystallis, 2002) [10]. The results of the current Garrett Ranking analysis confirm this pattern, reinforcing the need for price-related policy interventions (Hughner *et al*., 2007) [11].

Availability and Accessibility of sustainable food products
Availability is widely recognised as a critical structural barrier influencing sustainable food adoption, as consumers can only make environmentally aligned decisions when such products are consistently accessible (Magnusson *et al*., 2003) [12]. Limited distribution across mainstream retail outlets restricts access for many consumers, especially those who rely on neighbourhood stores (Harper & Makatouni, 2002) [13]. Research shows that insufficient shelf visibility and sporadic stocking patterns further weaken consumer engagement with sustainable products (Lockie *et al*., 2002) [14]. In many areas, sustainable foods are confined to high-end stores or specialised markets, making routine purchase difficult (Lea & Worsley, 2005) [15]. Availability challenges also reduce product familiarity and trial intention among first-time buyers (Fotopoulos & Krystallis, 2002) [16]. The present Garrett Ranking results identify availability as the second most influential barrier, consistent with global consumer behaviour studies (Hughner *et al*., 2007) [17].

Trust and Time constraints as behavioural barriers
Trust and time constraints act as major behavioural barriers restricting the uptake of sustainable foods. Consumers frequently doubt the authenticity of organic and eco-labels due to inconsistent verification procedures and unclear certification standards (Magnusson *et al*., 2003) [18]. Low confidence in sustainability claims prevents consumers from paying premium prices, even when they show environmental concern (Harper & Makatouni, 2002) [19]. Past incidents of mislabelling and irregular quality further reduce trust in sustainable brands (Lockie *et al*., 2002) [20]. Time constraints create additional challenges, as sustainable food purchase often requires extra effort to examine labels, compare certifications, or travel to speciality stores (Lea & Worsley, 2005) [21]. Working populations experience these barriers more intensely due to limited shopping time and busy schedules (Fotopoulos & Krystallis, 2002) [22]. Garrett Ranking results validate these factors as major behavioural obstacles, reinforcing earlier findings on sustainability adoption barriers (Hughner *et al*., 2007) [23].

Formula for Garett ranking

$$\text{Percent Position} = 100 \times \frac{[Rij - 0.5]}{Nj}$$

Where,
Rij = Rank given for ith item by the jth respondent I i
Nj = Total number of items ranked by the jth respondent

Result and Discussion
To identify the most influential constraints affecting sustainable food consumption, Garrett Ranking analysis was applied to the responses collected from participants. This method enabled the transformation of individual rankings into mean scores, allowing each barrier to be objectively compared based on its perceived severity. The outcomes of

this analysis are presented in Table 2, which lists the barriers alongside their respective Garrett scores and ranks. The table provides a clear and systematic representation of how consumers prioritise the challenges they face when attempting to adopt sustainable food practices. By examining these ranked barriers, deeper insights can be drawn into the economic, behavioural, and structural factors shaping consumer decisions. The following section discusses these findings in detail, highlighting the implications for promoting sustainable food consumption.

Table 2: Garrett ranking of barriers influencing sustainable food consumption

Barrier	Garrett Score (Mean)	Rank
Sustainable food products are too expensive	70.00	1
Sustainable foods are not easily available near me	52.03	2
Time constraints prevent me from eating sustainably	47.47	3
I do not trust organic or eco-friendly labels	40.38	4
Lack of awareness prevents me from choosing sustainable foods	37.85	5
I find it difficult to identify genuine sustainable products	37.34	6

The results of the Garrett Ranking analysis provide clear evidence of the relative severity of the barriers affecting sustainable food consumption among the respondents. The barrier "Sustainable food products are too expensive" obtained the highest mean Garrett score (70.00), emerging as the most significant constraint. This indicates that price strongly influences purchasing decisions, particularly in contexts where consumers compare sustainable products with conventional alternatives that are more affordable and widely discounted. The high ranking of this barrier reflects the economic sensitivity of households and suggests that cost differentials continue to limit widespread adoption of sustainable food choices. The dominance of price as the top-ranked barrier also highlights the need for policy and market interventions such as subsidies, targeted discounts, and improved supply chain efficiency to make sustainable options more competitively priced.

The second highest concern, "Sustainable foods are not easily available near me", received a Garrett score of 52.03, suggesting that accessibility remains a substantial structural obstacle. Limited distribution across neighbourhood stores, inconsistent product availability, and low visibility on supermarket shelves hinder routine purchase and reduce consumer confidence in adopting sustainable foods regularly. This lack of accessibility can also lead to reduced trial intent among first-time consumers, reinforcing dependency on conventional food products. The ranking indicates that increasing availability through partnerships with retailers, strengthening distribution networks, and integrating sustainable products across diverse retail outlets could significantly improve consumer adoption rates.

The barrier "Time constraints prevent me from eating sustainably" was ranked third with a score of 47.47. This finding shows that behavioural factors also play a crucial role in shaping sustainable food consumption. Time-poor consumers, including working professionals, students, and dual-income households, may find it difficult to allocate time for evaluating labels, comparing product attributes, or travelling to stores that stock sustainable items. Time constraints may also relate to perceptions about the preparation and storage requirements of fresh or organic foods. This highlights the importance of convenience-oriented strategies such as clearer labelling, improved store layout, online delivery options, and ready-to-cook sustainable food products that reduce the time needed for informed decision-making.

Trust-related issues also emerged as key behavioural barriers. The statement "I do not trust organic or eco-friendly labels" ranked fourth with a Garrett score of 40.38, indicating considerable scepticism among consumers. Unclear certification systems, inconsistent quality, and past incidents of mislabelling have contributed to this distrust. Low confidence in authenticity prevents consumers from justifying premium prices or making consistent sustainable choices. Addressing this barrier requires transparent labelling, strong certification mechanisms, and communication strategies that build credibility.

The remaining two barriers, "Lack of awareness prevents me from choosing sustainable foods" (37.85) and "I find it difficult to identify genuine sustainable products" (37.34), were ranked fifth and sixth, respectively. Although these barriers received lower scores, they still demonstrate that knowledge gaps and difficulty in distinguishing authentic products remain relevant concerns. Consumers may lack adequate exposure to sustainability concepts, health benefits, or environmental impacts, which affects their motivation to shift away from conventional foods. Improving awareness through educational campaigns, in-store promotions, and digital information tools can play a critical role in guiding informed decisions.

Overall, the results demonstrate that sustainable food consumption is shaped by interconnected economic, structural, and behavioural barriers. Price and availability dominate as primary constraints, while trust, awareness, and time contribute to the complexity of consumer decisions. Addressing these barriers collectively is essential for promoting a supportive environment that encourages the widespread adoption of sustainable food practices.

Conclusion

The findings of this study highlight the multifaceted nature of the barriers that influence sustainable food consumption. The Garrett Ranking analysis clearly shows that economic, structural, and behavioural constraints collectively shape consumer decision-making. Price emerged as the most significant barrier, demonstrating that affordability remains central to consumer choices, particularly when sustainable products are compared with cheaper conventional alternatives. Limited availability was identified as the second major constraint, confirming that access to sustainable foods is not yet widespread or consistent enough to support regular adoption. Behavioural factors such as time constraints, distrust of organic and eco-friendly labels, limited awareness, and difficulty identifying genuine sustainable products also play crucial roles in limiting sustainable food choices among consumers. These findings suggest that increasing sustainable food consumption requires a combination of strategies that address financial affordability, improve market accessibility, strengthen certification systems, and enhance consumer knowledge. Policymakers, retailers, and supply chain actors need to work collaboratively to create an environment where

sustainable food options are affordable, accessible, and trustworthy. By addressing these interconnected barriers, efforts to promote sustainable food consumption can be more effective, ultimately contributing to healthier communities and more environmentally responsible food systems.

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