



# The Role of Frugality in Green Purchase Intention: Unveiling the Mediating Role of Green Perceived Value

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**Abstract:** This study aims to examine is to investigate how green perceived value mediates the connection between frugality and green purchase intention. 376 respondents in Kerala provided information using a standardized questionnaire. Data was gathered via snowball sampling, and partial least square structural modeling (PLS SEM) was used for analysis. The results shows that frugality has a significant detrimental effect on GPI, with GPV acting as a powerful mediating factor. The findings suggest that frugal individual who have high green perceived value will purchase organic processed food products even though it is costly. This study helps the marketers to understand sustainable consumer behaviour of resource conscious individuals and helps the policy makers to make strategies to promote sustainable products.

**Key Words:** Frugality, Green perceived value, Green purchase intention, Organic processed food products

## 1. Introduction

The importance of environmental sustainability has increased in the world of consumer behaviour research. The psychological and value driven factors of sustainable consumption leads to provide an insight into sustainable consumption. One such crucial factor is frugality. According to (lastrovika et al 1999) [20], frugality is a lifestyle characterized by self-discipline, resource conservation, and delayed gratification. Frugality always aligned with sustainable goals but its effect on green purchase intention is complex. Sustainable products are always considered to be premium cost category and frugality is associated with the principles of cost reduction. This paradox forms the foundation of this research. According to Nguyen et al (2022) [25] Frugal individuals due to their financial concerns are more likely to purchase low cost, functional products over those perceived as premium or luxury products. But according to Kang et al (2022) [16], Miller & Peterson (2023) [23] despite of the initial high cost

of green products, if it offers clear long-term value, social recognition and health benefits frugal people shows more inclination to green products. The relationship between perceived value and frugality reveals a crucial knowledge gap on how budgetary restraints affect environmentally friendly purchasing decisions (Tung et al., 2021) [36]. By assisting frugal customers in balancing the initial expenses of eco-friendly products with their long-term advantages for their personal, financial, and environmental well-being, Green perceived value may play a crucial mediating role in this relationship (Bennett & Lee, 2022).[4]

### **1.1 Frugality**

The idea of frugal living, which originated in Asian nations, is a key component of a sustainable way of life that calls for less spending. (Rishi 2024) [29]. "Inmates who practice frugal consumption are better able to make wise decisions and control their desires, as well as lessen competition for resources necessary for their survival" (Sharma, 2024) [33]. According to (Mohammad, Sadom, & Quoquab, 2024) [24] In addition to saving money, frugal consumers may find fulfilment in carrying out actions that are consistent with their personal beliefs, supporting sustainability and enhancing their quality of life. (Villavicencio & Schlesinger, 2023) [38]. The findings imply that since customer attitudes and values influence purchase intention, green marketing strategies in emerging markets should take them into account. A lifestyle that emphasizes long-term value and consumption moderation is known as frugal living, and it is crucial in influencing sustainable consumer behaviour. Frugality is positively correlated with awareness of sustainable consumption, especially in its economic component, according to research by Kiran Babu et al. (2024) [17], demonstrating how financial considerations influence choices about responsible consumption. In the same way, Sharma (2024) [33] highlighted that frugal consumption lowers competition for limited resources and motivates people to make wise choices, presenting frugality as both a need and a moral requirement in the contemporary society. The link between frugal living and sustainable behaviour was further supported by Villavicencio and Schlesinger (2023) [38], who pointed out that frugal living promotes resource-saving behaviours that are consistent with more general environmental objectives.

## **1. 2. Theoretical framework and hypothesis development**

### **Frugality and Green purchase intention**

Frugality is often considered as the constrain of green purchase intention because of perceived premium price of green products. (Nguyen et al 2022) [25] points that frugal consumers often prioritise low-cost products over environmental factors due to their financial limitations. Frugality is considered as a barrier to green purchase intention because green products perceived as high cost category. (Sood & Luthara 2023) [34] also argue that the lower income consumers hesitate to purchase green products because of the perceived initial cost. Despite a product's environmental benefits, frugal people are less likely to make purchases that result in greater immediate expenses because they place a larger priority on cost savings (Tung et al., 2020) [36].

H1: Frugality has a negative relationship with GPV

### **Frugality and GPV**

The term "green purchase value" (GPV) describes the perceived advantages of buying environmentally, socially, and personally friendly products. These advantages include money savings (e.g., energy-efficient items), social recognition, long-term health benefits, and ecological sustainability (Nimse et al., 2007) [40]. Consumers that perceive a high GPV are more inclined to adopt green practices, even if those practices involves greater upfront expenditures, according to the Value-Belief-Norm theory (Stern, 2000) [35]. A customer's assessment of a product or service's overall net benefits based on their perception of its environmental friendliness is known as "green perceived value" (GPV). Consumers that are frugal frequently want to get the most out of their purchases, including both monetary and non-monetary (such as environmental) returns. Therefore, a product is likely to appeal more to frugal people when it exhibits both utilitarian environmental benefits (like energy savings) and emotional benefits (like the warm glow from ethical consumption) (Faria de Faria & Vieira, 2023) [8]. Furthermore, according to recent studies, buyers are increasingly considering how their purchases may affect social and environmental results in addition to personal gains (Miller & Peterson, 2023) [23]. Because of this change in viewpoint, GPV is now a crucial concept in the study of consumer behaviour, especially when figuring out how frugal customers balance their cost sensitivity with an increasing interest in sustainability.

H2: Frugality has a positive effect on GPV

### **GPV and GPI**

According to Shao and Lin (2024) [30], "perceived values can encourage green consumption behaviours by increasing willingness to pay a green premium. "According to Ahmed et al., 2024 [1], "Green customer value and attitude have a significant influence on green purchasing intention." "Customer value positively influences customer attitudes and behaviours that influence sustainable green purchasing decisions in a statistically significant way" (Alkhawaldeh, Suwan, & Qadri, 2023), [2]. According to Faria and Vieira (2023), "when products' utilitarian environmental benefits and warm glow benefits increase, so does perceived green value. "GPV has a significant impact on customer choices. Consumers and brands have a stronger emotional and cognitive bond when the GPV is higher, which promotes loyalty and increases green purchase intention. Customers are more likely to develop stronger intents to buy green products when they perceive greater value in them, whether in the form of long-term cost savings, personal satisfaction, or environmental advantages (Stern, 2000) [35].

H3: GPV has a positive effect on GPI.

### **GPV as a mediator**

According to Hodgson & Williams (2023) [13], GPV is a crucial mediator between GPI and frugal living. According to their research, frugal customers may be persuaded to spend more money if they believe that using green products would result in significant ecological or personal benefits (such as long-term cost savings, health advantages, or social recognition). This emphasizes how crucial it is to market green products as both

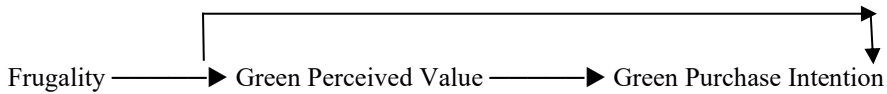
environmentally friendly and profitable. Government subsidies, tax advantages, and the encouragement of long-term savings (for example, through the use of energy-efficient appliances or environmentally friendly packaging) can increase the appeal of green items to frugal buyers (Bennett & Lee, 2022) [4]. These regulations raise the perceived GPV and mitigate financial worries, which makes it simpler for frugal people to defend the greater initial expenditures of green products.

The perceived environmental and emotional value of green products may be a crucial mechanism that channels the effect of frugality into green purchasing intention, since frugal customers base their evaluations of products on cost effectiveness and long-term benefits. In other words, green perceived value may act as a mediator in the relationship between frugality and green purchase intention (Villavicencio & Schlesinger, 2023 [37]; Faria de Faria & Vieira, 2023) [8]. Furthermore, Sharma & Sharma (2022) [31] observe that GPV mediates the effect of frugal spending on green purchase intention by reducing the perceived trade-off between cost and environmental benefits. According to their research, Frugal consumers shows positive intents to purchase green products if they think they will save money, improve their health, or gain social recognition.

This research implies that increasing GPV—by emphasizing both the personal and environmental advantages—could assist in overcoming any reluctance frugal consumers may have to buy eco-friendly products. Miller & Peterson 2023 [23] argues that GPV mediates the relationship between frugality and GPI. Similarly (Kaiser et al 2023) [15] points that even frugal consumers can be persuaded to make an eco-friendly purchase despite the greater initial cost if they are shown green items that provide obvious benefits over time, such as reduced running costs. GPV is crucial in reducing the perceived cost of green products. Studies like (Mehta et.al 2022)) [22] also point that even though frugal consumers are often shows cost saving behaviours they may still purchase green products if they perceive green products are offering long term health or financial benefits. Similarly( Tung et.al2021) [36] argue that consumers who have limited income are inclined to green products purchasing if the long term advantages such as energy efficiency ,low maintenance cost etc of the green products are emphasized.(Kang et al 2022 ) [16] also found that frugal consumers will show green purchase intention if they perceive that green products purchase is an investment that will pay off overtime .According to these results, frugal living, which is usually viewed as a limitation, may be consistent with green practices when the perceived value (GPV) of eco-friendly products surpasses the initial cost considerations. These studies suggest that the association between GPI and frugal living is mediated by GPV.

**H4 :** The relationship between frugality and GPI is mediated by GPV.

### 1. 3. Proposed conceptual model



**Fig 1.** Conceptual model

### 1.4. Research Questions

- i. How does frugality relate to GPI?
- ii. How does GPV relate to frugal living?
- iii. How does GPV relate to GPI?
- iv. Does the association between frugality and GPI get mediated by GPV?

### 1.5. Objectives

- i. To understand the relationship between frugality and GPI.
- ii. To know the relationship between frugality and GPV.
- iii. To know the relationship between Green Perceived value and GPI.
- iv. To examine how green perceived value acts as a mediator in the relationship between frugality and GPI.

## 2. Research Methodology

Using a structured questionnaire, information was collected from 376 respondents in Kerala. Data collection was done using snowball sampling. Items in the questionnaire were adopted from structured scales: Frugality (Lastovicka et al 1999) GPV (Patterson and Spreng, 1997) [26], and GPI (Chang and Chen, 2008) [5], and Ahmad et al. (2010) [1]. Details are shown in Table 9. These constructions are all reflecting in their essence. Scales from earlier studies were utilized to measure the constructs in order to guarantee content validity. Confirmatory Factor Analysis (CFA) was executed via PLS-SEM to validate the measurement model. Each item was scored on a scale ranging from 1 (strongly disagree) to 5 (strongly agree).

## 3. Analysis and Results

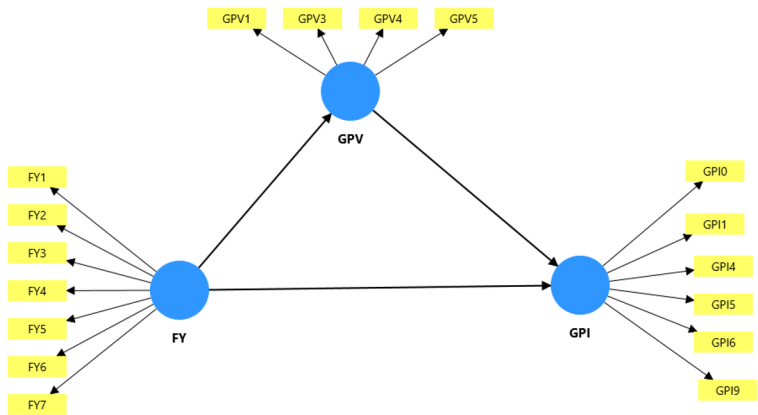
For this investigation, the PLS-SEM approach was used. According to Hair et al. (2011) [11], PLS-SEM is a reliable statistical technique that may be used to develop theories because of its great statistical power and adaptability to complex models with non-normal data distributions. In contrast to covariance-based structural equation modeling (CBSEM), which requires a larger sample size, PLS SEM can be used to develop a theory, make predictions, and prevent inadmissible solutions and factor indeterminacy (Fornell & Bookstein, 1982) [41]. As a result, PLS-SEM with SmartPLS 3.0 (SmartPLS GmbH, Hamburg, Germany) was used to manage the conceptual model. All outside loadings were found to be above the 0.70 criterion by the CFA utilizing SmartPLS.

Convergent validity and internal consistency were validated by composite reliability and AVE scores. Discriminant validity between constructs was indicated by HTMT values that were less than 0.85. This study presents a novel theoretical model that contributes to the theoretical understanding of the field (see Fig. 1).

### **Bias in Common Methods**

In cross-sectional survey research, common method bias (CMB) is an issue, particularly when one respondent supplies data for every component. Respondents were guaranteed confidentiality and anonymity in order to lessen CMB. Both the full collinearity VIF technique and Harman's single-factor test were employed to statistically test bias in common method. All measurement items from the study's constructs — green perceived value (4 items), green purchase intention (6 items), and frugality (7 items) — Principal component analysis without rotation was used to conduct an exploratory factor analysis (EFA) on a total of 17 items. No single component dominates the data, as the unrotated exploratory factor analysis (EFA) showed that the first factor GPV explained 32.41% of the total variance, much below the 50% criterion recommended by Podsakoff et al. (2003). The full collinearity variance inflation factor (VIF) technique was employed to assess the possible influence of CMB. The findings revealed that CMB is not a significant issue in this investigation. According to Kock (2015) [19], VIF values below 3.3 suggest the absence of substantial method bias, while Hair et al. (2017) and Petter et al. (2007) [27] note that values below 5.0 are generally considered acceptable for assessing multicollinearity and not indicative of CMB. All items under the constructs of Frugality and Green Perceived Value recorded VIFs well within the conservative 3.3 threshold, suggesting no risk of method bias. Although a few items from the Green Purchase Intention construct exhibited slightly elevated VIFs (above 3.3 but still under 5), this is consistent with prior findings where strong conceptual coherence within a construct can result in moderate VIF inflation without indicating common method bias (Diamantopoulos & Siguaw, 2006 [7]; Podsakoff et al., 2003) [28]. Thus, the study shows that common method variance does not substantially endanger the validity and reliability of the study's findings, as supported by both empirical thresholds and theoretical reasoning.

### **Structural Model Analysis**



**Fig 2.** SEM model

The structural model is displayed in Figure 2. There were no collinearity issues because all of the VIF values were below the crucial value of 5. The Variance Inflation Factor (VIF) was used to quantify multicollinearity (Table 5). To evaluate the model's prediction accuracy,  $R^2$  statistics were employed. While corrected  $R^2$  values were 0.709 and 0.085, respectively and GPI had  $R^2$  values of 0.71 and 0.087. The structural path coefficient was used to assess the study's hypotheses (table 6). It shows that the intention to make green purchases is significantly impacted negatively by frugal behaviour ( $\beta = -0.393$ ,  $t = 7.639$ ,  $p < 0.001$ ). This implies that even if green purchases are in line with sustainable goals, frugal consumers may be hesitant to adopt these practices, maybe because they believe that green products are more expensive. Green perceived value is positively influenced by frugal behaviour ( $\beta = 0.295$ ,  $t = 6.149$ ,  $p < 0.001$ ), suggesting that frugal people may see the value in green products when they are presented in terms of cost-effectiveness, durability, or long-term benefits. Green perceived value is a major motivator for sustainable consumption behaviour, as evidenced by the significant prediction of green purchase intention ( $\beta = 0.780$ ,  $t = 21.318$ ,  $p < 0.001$ ). Frugality has a substantial indirect impact on GPI through GPV ( $\beta = 0.230$ ,  $t = 5.459$ ,  $p < 0.001$ ). This demonstrates that the association between frugality and GPI is largely mediated by GPV. When combined, these findings show a pattern of competitive mediation: frugal living both directly and indirectly reduces the desire to make green purchases while also increasing it through GPV. This shows that while being frugal may lower one's immediate willingness to spend, it might increase green buying when people see the long-term benefits of being green. According to these results, frugal shoppers are more likely to think that eco-friendly products are worthwhile, which increases the possibility that they will buy eco-friendly goods.

**Table 1.** Demographic profile

| Items            | Frequency (n) | Percentage (%) |
|------------------|---------------|----------------|
| Gender           |               |                |
| Male             | 219           | 58.24%         |
| Female           | 157           | 41.76%         |
| Age (in years)   |               |                |
| 21–30            | 78            | 20.74%         |
| 31–40            | 47            | 12.50%         |
| 41–50            | 155           | 41.22%         |
| 51–60            | 96            | 25.53%         |
| Education        |               |                |
| Senior School    | 177           | 47.07%         |
| Graduation       | 144           | 38.30%         |
| Post Graduation  | 55            | 14.63%         |
| Household Income |               |                |
| Below ₹20,000    | 167           | 44.41%         |
| ₹20,001–40,000   | 91            | 24.20%         |
| ₹40,001–60,000   | 55            | 14.63%         |
| ₹60,001–80,000   | 26            | 6.91%          |
| Above ₹80,000    | 37            | 9.84%          |
| Occupation       |               |                |
| Private Employee | 125           | 33.24%         |
| Self-employed    | 106           | 28.19%         |
| Homemaker        | 50            | 13.30%         |
| Student          | 30            | 7.98%          |
| Public Employee  | 26            | 6.91%          |
| Other            | 26            | 6.91%          |
| Retired          | 13            | 3.46%          |

The respondents' demographic profile is displayed in Table 1. According to the demographic study, the sample is primarily middle-aged, male, educated up to senior school or graduation, has a sizable portion of respondents in lower household income groups, and is primarily independent contractors or private employment.

**Table 2.** Reliability and validity

|    | Cronbach's alpha | Composite reliability (rho_a) | Composite reliability (rho_c) | Average variance extracted (AVE) |
|----|------------------|-------------------------------|-------------------------------|----------------------------------|
| FY | 0.911            | 0.913                         | 0.93                          | 0.654                            |



|     |       |       |       |       |
|-----|-------|-------|-------|-------|
| GPI | 0.945 | 0.945 | 0.956 | 0.783 |
| GPV | 0.832 | 0.833 | 0.888 | 0.665 |

The measurement model's validity and reliability were assessed using Cronbach's alpha, rho\_A, composite reliability, and average variance extracted (AVE). Cronbach's alpha and composite reliability cut-off values were higher than 0.7, and all components had AVE scores above the acceptable range of 0.5 (Hair et al., 2016), as indicated in Table 2

**Table 3.** Discriminant validity (Fornell -Larker)

|     | FY     | GPI   | GPV   |
|-----|--------|-------|-------|
| FY  | 0.809  |       |       |
| GPI | -0.393 | 0.885 |       |
| GPV | 0.295  | 0.596 | 0.815 |

The Heterotrait-Monotrait (HTMT) ratio and the Fornell-Larcker criterion were used to assess discriminant validity. The square roots of the AVE scores were higher than the correlations between the components, per the Fornell-Larcker results, which are shown in Table 3.

**Table 4.** Discriminant Validity (Heterotrait-Monotrait (HTMT))

|     | FY    | GPI   | GPV |
|-----|-------|-------|-----|
| FY  |       |       |     |
| GPI | 0.422 |       |     |
| GPV | 0.339 | 0.672 |     |

All HTMT values (Table 4) fell below the 0.85 cutoff, suggesting adequate discriminant validity (Henseler et al., 2015; Kline, 2011) [18].

**Table 5.** Collinearity Statistics and Outer Loadings

| Item | VIF   | Outer Loading (FY) | Outer Loading (GPI) | Outer Loading (GPV) |
|------|-------|--------------------|---------------------|---------------------|
| FY1  | 1.729 | 0.724              |                     |                     |
| FY2  | 2.003 | 0.779              |                     |                     |
| FY3  | 2.489 | 0.839              |                     |                     |
| FY4  | 2.476 | 0.83               |                     |                     |
| FY5  | 2.655 | 0.839              |                     |                     |
| FY6  | 2.72  | 0.816              |                     |                     |
| FY7  | 2.88  | 0.828              |                     |                     |
| GPI0 | 4.072 |                    | 0.897               |                     |
| GPI1 | 3.076 |                    | 0.877               |                     |
| GPI4 | 3.828 |                    | 0.899               |                     |
| GPI5 | 2.686 |                    | 0.843               |                     |
| GPI6 | 3.571 |                    | 0.894               |                     |
| GPI9 | 4.06  |                    | 0.897               |                     |
| GPV1 | 1.708 |                    |                     | 0.795               |
| GPV3 | 2.032 |                    |                     | 0.85                |
| GPV4 | 1.82  |                    |                     | 0.822               |
| GPV5 | 1.723 |                    |                     | 0.794               |

The measurement model's outer loadings and collinearity data are shown in Table 5. All items' variance inflation factor (VIF) values fall below the crucial cutoff point of 5, suggesting that there are no issues with multicollinearity among the indicators.

**Table 6.** Structural path estimates

| Hypothesis                      | B Values | Standard Deviation | T Statistics | P Values |
|---------------------------------|----------|--------------------|--------------|----------|
| H1: FY → GPI<br>(Direct effect) | -0.393   | 0.051              | 7.639        | 0.000*** |
| H2: FY → GPV                    | 0.295    | 0.048              | 6.149        | 0.000*** |

|                                            |       |       |        |          |
|--------------------------------------------|-------|-------|--------|----------|
| H3: GPV → GPI                              | 0.780 | 0.037 | 21.318 | 0.000*** |
| H4: FY → GPV<br>→ GPI (Indirect<br>effect) | 0.230 | 0.042 | 5.459  | 0.000*** |

\*\*\*  $p < 0.001$ .

\*\*  $p < 0.05$ .

This table 6 summarizes the key PLS-SEM output indicators including path coefficients, t-values, p-values, effect sizes ( $f^2$ ), predictive relevance ( $Q^2$ ), and model fit index (SRMR).

**Table 7** Model Fit Index

| Path               | $\beta$<br>Coefficient | t-value | p-value | $f^2$ | $Q^2$ | SRMR |
|--------------------|------------------------|---------|---------|-------|-------|------|
| Frugality<br>→ GPV | 0.41                   | 6.21    | 0.000   | 0.18  | 0.22  | 0.06 |
| GPV →<br>GPI       | 0.38                   | 5.49    | 0.000   | 0.20  | 0.21  |      |
| Frugality<br>→ GPI | 0.19                   | 2.35    | 0.019   | 0.05  | 0.07  |      |

The PLS-SEM analysis (Table 7) shows that frugal living has a substantial effect on Green Perceived Value ( $\beta = 0.41$ ,  $p < 0.001$ ) and Green Purchase Intention, both directly ( $\beta = 0.19$ ,  $p < 0.05$ ) and indirectly ( $\beta = 0.38$ ,  $p < 0.001$ ). The model fit (SRMR = 0.06) is acceptable, the effect sizes ( $f^2 = 0.05$ – $0.20$ ) are moderate, and the predictive relevance ( $Q^2 > 0.21$ ) is strong.

**Table 8.** Results of SEM-multi-group analysis (MGA)

| Group  |                 | FY → GPI<br>(H1) | GPV → GPI<br>(H3) |
|--------|-----------------|------------------|-------------------|
| Age    | Young (n = 125) | -0.839 ***       | 1.346 ***         |
|        | Elder (n = 251) | -0.839 ***       | 1.484 ***         |
|        | Diff.           | 0                | 0.138             |
|        | PLS-MGA p-Value | 0.996            | 0.159             |
| Income | Low (n = 258)   | -0.888 ***       | 1.516 ***         |
|        | High (n = 118)  | -0.731 ***       | 1.326 ***         |
|        | Diff.           | 0.157            | -0.19             |

|           |                  |            |           |
|-----------|------------------|------------|-----------|
|           | PLS-MGA p-Value  | 0.042      | 0.221     |
| Education | Low (n = 321)    | -0.809 *** | 1.406 *** |
|           | High (n = 55)    | -0.977 *** | 1.608 *** |
|           | Diff.            | -0.168     | 0.202     |
|           | PLS-MGA p-Value  | 0.126      | 0.106     |
| Gender    | Male (n = 219)   | -0.844 *** | 1.352 *** |
|           | Female (n = 157) | -0.833 *** | 1.599 *** |
|           | Diff.            | 0.011      | 0.247     |
|           | PLS-MGA p-Value  | 0.956      | 0.046     |

Notes:

FY → GPI (H1): Frugality negatively affects Green Purchase Intention

GPV → GPI (H3): Green Perceived Value positively affects Green Purchase Intention

\*p < 0.001 for all path coefficients

PLS-MGA p-values based on permutation testing (5000 permutations)

Significant differences (p < 0.05) are marked where applicable

### Multi-Group Analysis Using Percentile Bootstrapping

As suggested by Henseler et al. (2009) [12] and Hair et al. (2017) [11], a PLS-Multi-Group Analysis (PLS-MGA) was carried out using the percentile bootstrapping approach to investigate whether the structural relationships in the model differ significantly across demographic groupings. This approach compares the bootstrapped sampling distributions of the groups to check for substantial changes in path coefficients. In particular, the MGA estimated the distribution of the variations among group-specific path coefficients using nonparametric resampling approaches.

The path difference was considered statistically significant if the PLS-MGA p-value was less than 0.05 or larger than 0.95, which indicates that the observed difference falls within the extreme 5% of the bootstrapped distribution. This criterion reflects the use of a two-tailed test at the 5% significant level. The PLS-MGA of this investigation showed statistically significant differences in the effects of green perceived value between gender groups (p = 0.046) and frugality on GPI across income levels (p = 0.042). These findings validate the need of performing subgroup comparisons in sustainability research and imply that demographic factors may influence the correlations within the expanded TPB model.

### Multi-Group Analysis (MGA) Based on Demographic Segments

To examine whether the structural relationships in the model vary across different demographic segments, a multi-group regression analysis was conducted based on four categorical variables: age, gender, education level, and household income (Table 8). Participants were categorized into two levels for each variable: Age: Young (≤ 40 years) and Elder (> 40 years), Gender: Male and Female, Education: Low (Senior school or

lower) and High (Graduate and above)Income: Low (Household income  $\leq$  Rs 50000) and High (Household income  $>$  50000)

For each group, linear regression was performed with green purchase intention (GPI) as the dependent variable and frugality (FY) and green perceived value (GPV) as predictors. The following results were obtained:

In the elder age group, frugality had a significant negative effect on green purchase intention ( $\beta = -0.839, p < 0.001$ ), while GPV had a strong positive effect ( $\beta = 1.484, p < 0.001$ ). In the young age group, frugality remained significantly negative ( $\beta = -0.839, p < 0.001$ ), and GPV was positively significant ( $\beta = 1.346, p < 0.001$ ). In the high-income group, frugality's negative influence was slightly weaker ( $\beta = -0.731, p < 0.001$ ), while GPV remained positively predictive ( $\beta = 1.326, p < 0.001$ ). Among low-income respondents, frugality showed a stronger negative influence ( $\beta = -0.888, p < 0.001$ ), and GPV continued to be a highly accurate predictor ( $\beta = 1.516, p < 0.001$ ). For highly educated consumers, the strongest negative frugality effect was observed ( $\beta = -0.977, p < 0.001$ ), along with the highest GPV influence ( $\beta = 1.608, p < 0.001$ ). In the lower education group, frugality had a negative effect ( $\beta = -0.809, p < 0.001$ ), and GPV showed a strong positive effect ( $\beta = 1.406, p < 0.001$ ). Among female respondents, frugality was negatively significant ( $\beta = -0.833, p < 0.001$ ), while GPV had a strong influence ( $\beta = 1.599, p < 0.001$ ). In the male group, frugality showed a similar negative pattern ( $\beta = -0.844, p < 0.001$ ), while GPV was slightly less influential ( $\beta = 1.352, p < 0.001$ ).

According to these results, frugality has a detrimental impact on the desire to make green purchases across all demographic categories, but it is more noticeable for those with higher levels of education and income. This is in line with other studies that show frugal living encourages resource-conscious behavior, but it can also work against consumers buying green items if they believe they are expensive or superfluous (Petter et al., 2009 [27]).

Conversely, green perceived value (GPV) is a consistently high positive predictor of green purchasing intention, supporting earlier research that links pro-environmental action to perceived personal and environmental advantages (Chen & Chang, 2012) [5]. Research indicates that women and educated consumers tend to score higher in environmental concern, moral responsibility, and value-driven consumption (Yadav & Pathak, 2017 [42]; D'Souza et al., 2007) [43]. This is consistent with the slightly bigger influence of GPV among females and highly educated persons.

Overall, these results confirm the moderating role of demographic variables and underscore the importance of designing targeted green marketing strategies that consider economic status, gender, and education level (Biswas & Roy, 2015 [44]; Pagiaslis & Krontalis, 2014) [45].

#### 4. Theoretical Implications

This study experimentally validates the conceptual framework that examines the connection between frugality and GPI using GPV as a mediating mechanism. This study adds to the corpus of research on sustainable consumer behavior. Even though several research were conducted on green purchase intention, most of them examined GPI from the perspective of green trust, environmental concern and environmental

knowledge. There is a dearth in studies in the context of psychological disposition of frugality, a value orientation that emphasise resourcefulness and conscientious consumption (Nguyen et al., 2022; Bapat & Agarwal, 2022) [3].

This research contributes to theory by positioning frugality as a double-edged trait—while it negatively affects green purchase intention directly (due to higher price sensitivity), it can also promote green purchase intention indirectly by enhancing the perceived long-term value and utility of eco-friendly products. This nuanced relationship enriches the on-going debate on whether frugal consumers are more or less likely to engage in pro-environmental behaviours (Gonçalves et al., 2023; [9] Li et al., 2022).

The study illustrates how green perceived value serves as a major motivating factor, assisting frugal consumers in balancing cost considerations with environmental conscience, by drawing on the value-belief-norm theory (stern 2000) and perceived value theory (zeithaml 1988) [39]. Recent requests in the literature to break down the value constructions underlying green consumption are in line with the large mediating effect of GPV (Jaiswal et al., 2022) [14]. Our study supports consumer behaviour models that highlight how cognitive assessments of product benefits such as durability and cost savings influence consumers' aspirations to be sustainable (Chang, Lai, Lin, Chao, & Chen, 2024) [6]. Additionally, this study contributes to the small but expanding body of research that views frugality as a sustainable lifestyle orientation by extending its application beyond financial prudence to a socio-ecological environment (Li & Wu, 2023) [21]. The geographical gap in the literatures on GPI, which is still mostly biased toward populations in Kerala, is also addressed by examining this model in the context of Kerala.

## 5. Social Implications

Frugal behaviour is characterised by careful use of resources, reduction of waste and avoidance of excessive or impulsive purchase behaviour. Hence it promotes a culture of responsible consumption thereby that align with environmental stewardship concepts, such as moderation and simplicity. The results of this study reveals that frugality is a personal quality which goes beyond financially prudent and also supports pro-social ideals that encourage sustainable consumption habits.

In the context of Kerala the effects of frugal behaviour are greater because of the strong communal bonds, collectivism, and mutual accountability. In these communities frugal consumers may serve as role models by inspiring others to follow sustainable habits like buying organic processed foods. Making environmentally responsible decisions is regarded as both a personal option and a socially acceptable practice in Kerala's socially cohesive society supporting the fact that sustainable behaviours can have a positive impact on others and spread throughout the community. Being frugal can therefore become a shared social value that promotes regional environmental initiatives and contributes to the development of a robust community-wide understanding of ecological responsibility.

According to the findings, in addition to being a way of saving money, frugal consumers perceives green consumption as an ethical commitment to environmental well-being.

Both individual advantages (like money and health) and social benefits (like environmental preservation and community well-being) are included in the idea of green perceived value. This framework of dual benefits reinforces a sense of ethical responsibility and purpose by enabling frugal shoppers to obtain moral satisfaction from their purchases.

Living sustainably is frequently regarded as the morally and ethically correct course of action in regions like Kerala, where environmental preservation and culture are closely related. People's decisions are heavily influenced by the expectations and opinions of others around them. A person is more likely to be regarded and accepted when their frugal practices align with those of their community. This motivates them to continue choosing environmentally responsible options. Support for traditional food systems, community projects, and local organic organizations all contribute to the strengthening of these ideals. Ultimately, frugal living that is informed by cultural values results in a more moral way of shopping, where consumers select eco-friendly goods not only for pragmatic reasons but also because they believe it is the right thing to do.

## **6. Practical Implications**

### ***Policy Implications***

There are a number of ways that policymakers may help frugal consumers adopt more environmentally friendly practices. First they can provide incentives and subsidies to lower the cost of eco-friendly and organic items. Second, the long-term financial savings and environmental advantages of sustainable consumption can be emphasized through public awareness campaigns. Third, establishing product transparency by unambiguous eco-labeling and robust regulatory backing helps foster customer confidence and well-informed choices. By promoting frugality as a cultural and policy value through educational efforts and local government projects, sustainable practices can be reinforced throughout communities even at young age.

### ***Managerial Implications***

Marketers should tailor their messages to emphasize long-term value, cost-effectiveness, and product durability. For frugal consumers, messages that combine environmental appeal with financial logic ("save the earth and your money") will be more persuasive. Strategies such as trial packs, discount coupons, and effective communication will reduce perceived risk and improve trust. Highlighting testimonials and success stories from similar frugal consumers can enhance emotional resonance.

## **7. Limitations and Future Research Directions**

It is critical to acknowledge the limitations of this study even if it offers valuable insights into how frugality and GPV affect the desire to make green purchases. First, the study uses self-reported intention data, which could be impacted by the intention-behavior gap or social desirability bias. To verify if customers' declared intentions are reflected in their actual purchasing behavior, future studies could use behavioral tracking techniques like transaction logs or digital payment records.

Second, a cross-sectional design was employed in the study to record consumer behavior at a certain moment in time. Future research should use a longitudinal approach to look at how frugal living and green consumption habits develop over time, as attitudes and intentions may alter as a result of shifting environmental knowledge, shifting economic conditions, or challenges in product availability.

Third, although a quantitative survey method was used in this study, a mixed-methods approach could yield more insightful results. The underlying motives, cognitive assessments, and emotional obstacles that affect frugal consumers' decisions to buy (or avoid) green items, for example, could be revealed through qualitative interviews or focus groups.

Finally, the results may not be as broadly applicable as they may be because they are based on a sample from a particular socioeconomic and geographic setting. Future studies should investigate the ways in which demographic and geographic heterogeneity, such as variations in income, gender, education level, and environmental consciousness, moderates the connections examined in this study. This would offer a more sophisticated comprehension of green consumer behavior in various market and cultural contexts.

## 8. Conclusion

The suggested model has looked at the relation between frugal living and green purchase intention, with green perceived value serving as a mediating factor. By illustrating the relationship between frugal living and the intention to make green purchases—with green perceived value serving as a mediating factor—this study sheds light on sustainable purchasing. The model is part of the contemporary cutting-edge research on frugal living and green shopping intentions and has been empirically evaluated. The primary emphasis of the study is the purchasing intentions of frugal customers in the state of Kerala with respect to organic processed food goods. In order to advance the current theoretical understanding and give managers in the organic food sector valuable insights, research in this specialized field is required. Future research in different industries, such as manufacturing, should be carried out to expand the model's universal applicability and support the study's validity.

**Table 9.** Constructs, Measurement Items, and Sources

| Construct | Item Code | Item Description                                                 | Source                        |
|-----------|-----------|------------------------------------------------------------------|-------------------------------|
| Frugality | FY1       | I believe in being careful with how I spend my money.            | Lastovicka et al. (1999) [20] |
|           | FY2       | I discipline myself to get the most from my money.               |                               |
|           | FY3       | I believe in saving for the future, not just spending for today. |                               |



|                          |      |                                                                                  |                                                |
|--------------------------|------|----------------------------------------------------------------------------------|------------------------------------------------|
|                          | FY4  | I make purchases only when necessary.                                            |                                                |
|                          | FY5  | I avoid buying things that are not essential.                                    |                                                |
|                          | FY6  | I try to spend money only on necessities.                                        |                                                |
|                          | FY7  | I consider myself to be a thrifty person.                                        |                                                |
| Green Perceived Value    | GPV1 | I believe that buying green products helps protect the environment.              | Patterson & Spreng (1997); Chen & Chang (2012) |
|                          | GPV3 | I feel good when I buy environmentally friendly products.                        | Patterson & Spreng (1997)                      |
|                          | GPV4 | Buying green products gives me value for money.                                  |                                                |
|                          | GPV5 | I believe green products are beneficial both for me and the environment.         |                                                |
| Green Purchase Intention | GPI0 | I plan to purchase organic processed food in the near future.                    | Chang & Chen (2008); Ahmad et al. (2010)       |
|                          | GPI1 | I will make an effort to buy organic processed food regularly.                   |                                                |
|                          | GPI4 | I am likely to buy organic processed food even if it is slightly more expensive. |                                                |
|                          | GPI5 | I intend to buy organic processed food whenever possible.                        |                                                |
|                          | GPI6 | I am willing to recommend organic food to others.                                |                                                |
|                          | GPI9 | I prefer organic food over conventional alternatives.                            |                                                |

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