

## Article

# The Influence of GPV, Trust and Satisfaction on Intention to Buy Green Products in Germany and Brazil

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## ABSTRACT

*Background:* This study draws from buyer behavior and green marketing research and from the literature on relationship marketing, to test a model that compares strategies to raise consumers' green perceived value (GPV) through trust and satisfaction with green products. The study explores strategies to increase consumers' intention to buy a brand's green products in one developed (Germany) market and one developing (Brazil) market.

*Methods:* Data was collected through a self-administered online survey in Germany ( $n = 145$ ) and in Brazil ( $n = 209$ ). The hypothesized model was tested using structural equation modeling analysis.

*Results:* Findings reveal that the effects of price value in increasing consumers' trust and their satisfaction with green brands and products are greater in Brazil. Perceived quality drives trust and satisfaction in both countries. Mediation results demonstrate that, both green brand trust and satisfaction with green products are key relational mediators between quality and price and a buyer's intention to purchase green products in Germany and Brazil alike. However, country differences indicate that perceived quality (in Germany) and price value (in Brazil) drive purchase intention only to the extent that they contribute to build a brand's green reputation and meet customers' expectations.

*Conclusions:* This study highlights the influential role of economic factors in developing markets, of functional factors in developed markets, and of relational factors in both markets in shaping a buyer's green purchase intentions. Overall, marketers are advised to provide high quality green products to global consumers at a reasonable price, especially in emerging markets.

**KEYWORDS:** green perceived value; price; quality; green brand trust; green satisfaction; intention to buy green products; developed vs. developing markets

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## INTRODUCTION

As consumers around the world become more aware and concerned about the environment, they are looking for ways to contribute to the sustainability movement and to engage in a consumption behavior that helps mitigate issues relating to global warming [1]. Consumers, especially millennials and Generation Z (born after 1981), are looking to businesses to do more in minimizing or eliminating their carbon-footprint on the planet [2]. Green marketing strategies have become practically mandatory for businesses to remain competitive, as the number of brands that promote themselves as green or eco-friendly has grown. Companies also need to address growing pressure from stakeholders to perform sustainably [3]. However, despite the positive perception and high importance they give to the greenness of a brand's products, consumers are "unlikely to compromise on traditional product attributes, such as value, quality, price, and performance" [4]. Therefore, businesses are seeking to become sustainable by implementing economic models that produce financial, social, and environmental benefits. And to convince customers to adopt green products and services, companies must build trust and long-term relationships with customers through value creation. Ultimately, businesses must focus on the value proposition of their sustainable products and services that contribute to raise the product quality, while maintaining reasonable prices that lead to customers' trust and satisfaction with the products [5].

Under the pressure to demonstrate the value of their green products, some organizations have resorted to dishonest practices such as greenwashing, the practice of making "unsubstantiated and misleading claims about the green functionality of their products" [1]. Therefore, it is important for companies to raise the green perceived value of their products to increase consumers' intentions to buy their green products over the alternatives [4] in a genuine manner, without exaggerating their green features and benefits. Overall consumers' perceptions about the quality and value of green products have increased. For example, consumers typically perceive organic food to have better quality than non-organic food and they are willing to pay higher prices for the additional organic attributes of the product [6]. However, while developing the green perceived value of the products' high quality and fair prices, companies need to take consumer skepticism into consideration [4], and consequently need to provide transparent information about their brands' green benefits [1]. Consumers' perception of the value or utility of a product is a subjective assessment of the trade-off between what is given versus the benefits received [7]. Since green companies often communicate these benefits directly to consumers, the importance of a brand's green reputation and trustworthiness is paramount for green marketing strategies to be effective. In addition, consumers have certain expectations about a brand's green products and their purchase intentions are dependent upon the level of satisfaction derived from their previous green

purchases. Consequently, a company’s attempt to raise the green perceived value of their products should not happen in isolation from building a credible green brand reputation and assuring consumers’ satisfaction with their green products.

Furthermore, despite the worldwide nature of green consumerism, most studies on green perceived value examine consumer behavior in one country only. Comparative studies are rare, especially research that sheds light on specific distinctions between green consumers in developed and emerging markets. There are disparities in consumption between developed and developing countries [8], and, as the world population grows faster in emerging markets [9], so does the consumption that contributes to environmental problems [10]. Consequently, consumers in less economically developed regions of the world are also seeking to alleviate their environmental footprint by choosing green products over their alternatives. Therefore, this study addresses a research gap by providing a distinct cross-country comparative perspective on GVP and buyer’s intention to buy green products. It sheds light on how companies can raise consumers’ green perceived value of their products to an increasingly global green consumer market by focusing on the value creation of their sustainable business models.

This study draws from the theories of buyer behavior [11] and relationship marketing [12,13] to investigate strategies to raise consumers’ perceptions of green perceived value through trust in and satisfaction with green products, and to increase consumers’ intention to buy a brand’s green products in one developed (Germany) and one developing (Brazil) market. Germany and Brazil both made the 2021 list of top ten nations enjoying the fastest growth in small businesses [14]. Table 1 provides an overview of selected socio-economic attributes for both countries. As a developed nation, Germany has strong financial markets. However, the German economy is stagnant as the country and other EU nations are recovering from the COVID 19 pandemic. Its population is also decreasing and aging. Brazil, on the other hand, is an emerging market and, despite a growing gross domestic product, still has high inflation and unemployment, which in turn reduces potential customer expenditures.

**Table 1.** Economic attributes of Brazil and Germany.

| Economic Attributes                                  | Brazil      | Germany    |
|------------------------------------------------------|-------------|------------|
| Population (2023 estimate)                           | 218,689,757 | 84,220,184 |
| Population Growth Rate (2023 estimate)               | 0.64%       | −0.12%     |
| Real GDP in 2017 trillion dollars (2021 estimate)    | \$3.128     | \$4.424    |
| Real GDP growth (2021 estimate)                      | 4.62%       | 2.63%      |
| Real GDP per capita* in 2017 dollars (2021 estimate) | \$14,600    | \$53,200   |
| Inflation (2021 estimate)                            | 8.3%        | 3.14%      |
| Unemployment Rate (2021 estimate)                    | 14.4%       | 3.54%      |

Source: The World Factbook [15].

An additional contribution of the study demonstrates the relevance of relationship marketing key mediating variables in green buying behavior theory. We test the influence of a functional value (perceived quality) and an economic value (price value) on relational factors (brand green trust and green satisfaction) that ultimately drive green purchase intention. Testing the model on samples from countries in different stages of economic development (developed vs. developing) allows for a comparison of the importance of a functional versus an economic value in driving consumers' intentions to purchase green products in distinct socio-economic contexts. The conceptual model is depicted in Figure 1.

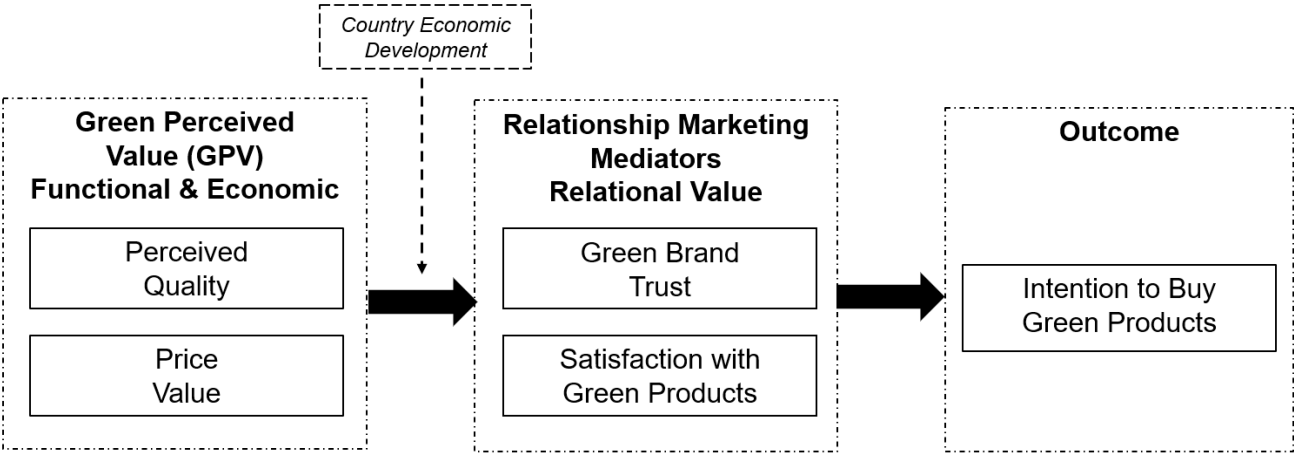


Figure 1. Conceptual model.

In the following sections, we develop the literature review, relationship model, and accompanying research hypotheses predicting how GPV's dimensions: perceived quality (functional value) versus price value (economic value) impact green brand trust and green satisfaction (relational values) in Germany and Brazil. We then test the direct effects and mediating effects of green brand trust and green satisfaction on the relationship between perceived quality and price value and a consumer's intention to buy green products. We subsequently review the results, discuss the implications of our findings, explain the limitations of the study, and provide recommendations for future research direction.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Traditional consumer behavior theory first developed by Howard and Sheth [11] has long included price and quality as key attributes in consumers' purchasing decision processes. Under this theory, the buyer's journey is a rational and methodical decision-making process where these two variables influence the course of the journey, ending in consumption, and ultimately satisfaction. Subsequently, theories of green marketing have highlighted the importance of perceived quality and price value of green products in building a brand's green reputation and promoting customer satisfaction [16–18].

Further, relationship-marketing theory [12,13] demonstrates the key mediating roles of relational factors such as trust and satisfaction on promoting customer's loyalty and repeat purchases. By combining the two theories (buyer behavior and relationship marketing), this study allows for a comparison of the impact that functional, economic, and relational values have on a consumer's intention to buy green products.

### **Intention to Buy Green Products**

A consumer's willingness to buy green products has been the focus of many green marketing studies. Traditional buyer behavior theory [11,19] highlights the relevance of consumer purchase intention in driving actual buying behavior. Furthermore, the Theory of Planned Behavior (TPB) is a dominant theory frequently used to investigate green buying behavior. It also assumes that behavior is preceded by the intention to perform said behavior [20], and it emphasizes the importance of purchase intention as a determinant of a buyer's future purchase decision of green products. Consequently, we include intention to buy green products as the outcome of this study and proxy for estimating consumer demand for green products [18].

### **Green Perceived Value**

Green perceived value (GPV) refers to a consumer's overall evaluation of a green product, based on processed information and past experiences [16]. GPV is a multidimensional construct that includes four sub-constructs: functional value, economic value, social value, and emotional value [21,22]. Functional value refers to the practical utilities the consumers gain through a green product's consumption; it is linked to the value associated to perceived levels of quality [22]. Economic value, also referred as conditional value, is connected to extrinsic conditions such as discounts, incentives or subsidies, which can add value to a green product, and it is linked to price [17,23]. Social value relates to social image, personality, and social self-concept [16] as consumers choose green products that express their identity. Finally, emotional value encompasses the feelings consumers associate with a green product consumption, often feelings of pleasure and comfort [24]. In this study, we focus on the functional and economic values of green products (quality and price) as exogenous variables and antecedents to green brand trust and green satisfaction, which are relational factors.

#### *Perceived quality*

As defined by the seminal work of Zeithaml [7], perceived quality relates to a consumer's subjective judgment about the superiority of a product. As a functional dimension of GPV, perceived quality reflects consumers' evaluation of the product's performance based on their previous experiences and expectations. Relationship marketing literature

demonstrates how functional benefits and the seller's level of competence and expertise drive customers' confidence in and satisfaction with their business partners [12,13]. Similarly, in the context of B2C, we propose that consumers will trust brands that provide a high level of product quality. In addition, consumers' perceptions of the quality of a product will affect their overall evaluation of that product's performance that will ultimately determine their satisfaction.

In the case of green products, perceived quality extends to the degree to which a product demonstrates environmental excellence [7]. Although studies have investigated the direct influence of quality on intention to purchase green products [25,26], Chen and Chang [4] found that green perceived quality positively affects green satisfaction and green trust. Several studies have focused on the essential role that GPV plays in promoting consumer trust and satisfaction with green products [27–32].

Based on previous findings, we propose the following hypotheses:

H<sub>1 (a, b)</sub>: Perceived quality of green products and services will have a positive impact on a consumer's level of trust with the green brand (a) in Germany and (b) in Brazil.

H<sub>2 (a, b)</sub>: Perceived quality of green products and services will have a positive impact on a consumer's level of satisfaction with green products and services (a) in Germany and (b) in Brazil.

Cross-country examinations that include a developed and a developing market are scant. Therefore, we examine country comparisons with both a deductive and inductive reasoning approach. The decision-making process of buyers in developed economies tends to be more focused on product performance than economic variables [33]. Given the higher income level of the overall consumers in Germany (Table 1), we expect that purchase decisions in that country will be more influenced by functional aspects of the products such as credibility, reliability, and consistency than by economic factors. Although the perceived quality dimension of GPV is found to be important to consumers in both countries [34], we predict that the effect of quality, as a functional dimension of GPV, on green trust and satisfaction will be greater in Germany. Therefore, we propose the following hypotheses:

H<sub>1 (c)</sub>: The effect of perceived quality on green brand trust will be greater in Germany than in Brazil.

H<sub>2 (c)</sub>: The effect on perceived quality on satisfaction will be greater in Germany than in Brazil.

### *Price value*

Although earlier studies of green consumer behavior suggested that consumers would pay a premium price for green-labelled products, price has been found to be the main reason why consumers do not purchase green products [35]. These contradicting findings demonstrate the complexity of price value in green buying behavior. Woo and Kim [16] included price in their research on green perceived value. They found that

value for money, price and quality standard had the strongest positive influence on customer attitudes, and subsequently on purchase intention. Other studies have demonstrated how price value affects green trust and satisfaction [27–29,31,32,36]. Therefore, based on these findings, we propose the following hypotheses:

H<sub>3</sub> (a, b): Price value of green products and services will have a positive impact on a consumer's level of trust with the green brand (a) in Germany and (b) in Brazil.

H<sub>4</sub> (a, b): Price value of green products and services will have a positive impact on a consumer's level of satisfaction with green products and services (a) in Germany and (b) in Brazil.

Similar to the approach discussed earlier regarding perceived quality's greater impact in Germany, we propose that a country's level of economic development will affect the relationship between price value and outcomes. Although Brazil is one of the BRIC (Brazil, Russia, India and China) countries and a large emerging market, its economy is still developing and economic institutional voids still exist [37]. Compared to German consumers, the overall economic condition of the Brazilian consumer is much lower (Table 1). Therefore, we expect that consumers in emerging countries will be more sensitive to the economic value of the product. In addition, price is a more conspicuous attribute of a product and tends to be the first determinant in purchase decisions [38], especially for consumers with lower income levels. Therefore, we propose the following hypotheses:

H<sub>3</sub> (c): The effect of price value on green brand trust will be greater in Brazil than in Germany.

H<sub>4</sub> (c): The effect of price value on satisfaction will be greater in Brazil than in Germany.

### **Green Brand Trust as Antecedent and Mediator**

Green brand trust refers to the brand's reputation regarding its sustainability practices and green image [39]. For example, brands with a history of using eco-friendly packaging are considered to have a trustworthy green record and a strong green image. They are more likely to be recognized as brands that are concerned about environmental issues [39]. In turn, having a positive reputation as an environmentally conscious and green brand has been found to increase loyalty among green consumers [36] and influence consumers' intentions to buy green products in various studies [4,27,29,40–42] as well as actual consumption [43]. In addition to the direct effect of green brand trust on consumers' purchase intentions, these studies also demonstrate the mediating effect that trust has between GPV and purchase intention. For example, as an economic dimension of GPV, price value will affect the purchase of green products up to a threshold amount [44] and to the extent that it contributes to increase the consumer's level of trust in the brand and satisfaction with its green products. Therefore, we propose the following hypotheses:

$H_5(a, b)$ : Green brand trust will have a positive impact on a consumer's intention to buy green products and services (a) in Germany and (b) in Brazil.

$H_6(a, b)$ : Green brand trust will mediate the relationship between perceived quality and price value and a consumer's intention to buy green products and services (a) in Germany and (b) in Brazil.

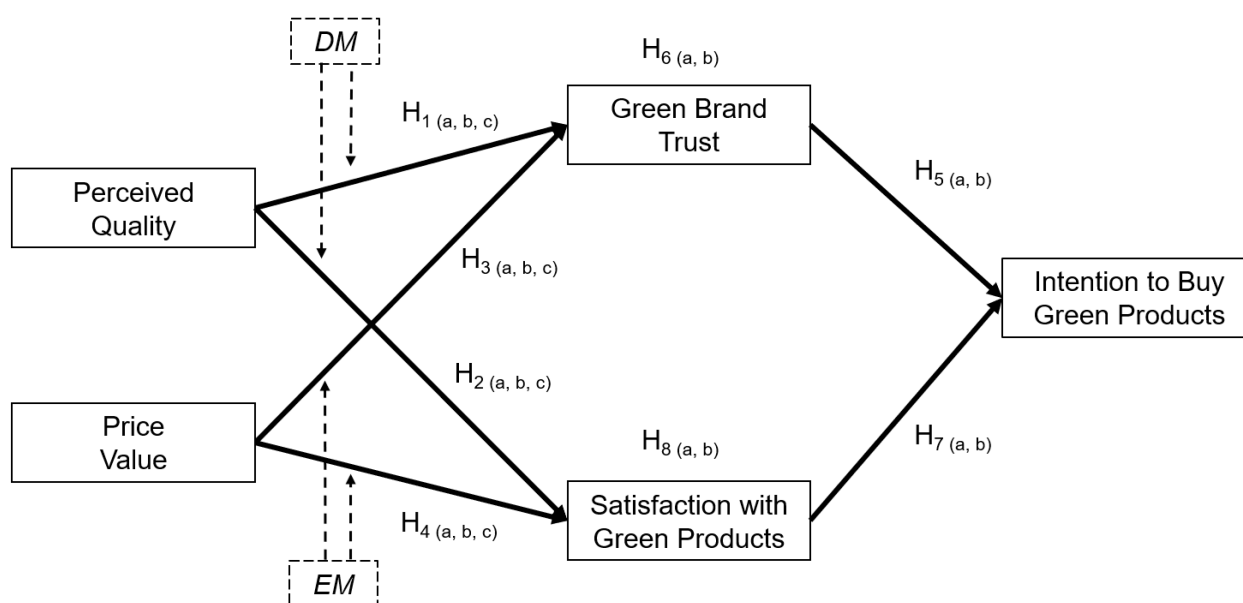
### Green Satisfaction as Antecedent and Mediator

Green satisfaction represents the degree to which the product meets or exceeds the consumer's expectations and the level of consumer enjoyment achieved from consuming the green product [16]. As such, green satisfaction provides an emotional value to consumers and significantly influences a buyer's decision to purchase a green product. Green satisfaction was also found to contribute to repeat purchases, positive word-of-mouth and green loyalty [4,27,29]. Like green brand trust, green satisfaction has a direct effect on a consumer's purchase intention, and it mediates the relationship between GPV factors and purchase intention. Therefore, we propose the following hypotheses:

$H_7(a, b)$ : Green satisfaction will have a positive impact on a consumer's intention to buy green products and services (a) in Germany and (b) in Brazil.

$H_8(a, b)$ : Green Satisfaction will mediate the relationship between perceived quality and price value and a consumer's intention to buy green products and services (a) in Germany and (b) in Brazil.

The relationship model presented in Figure 2 provides a visual summary of this study's hypotheses.



**Notes:**  $H_6(a, b)$  and  $H_8(a, b)$  mediation hypotheses

**Figure 2.** Relationship model.

## DATA AND METHODS

### Research Methodology

We followed standard procedures in developing the measures and assessing the reliability and validity of the measurement model [45,46]. In addition, we used the recommended methodology to address cross-cultural sampling, measure development, validity, and data analysis [47–49]. The main objective was to assure an acceptable level of structural equivalence that allowed for a comparison of the two country samples [50].

### Population and Sampling Procedure

We collected the data via a self-administered electronic survey using Amazon's Mechanical Turk (MTurk) between March and September of 2022. Data obtained via MTurk has become popular as research demonstrates high reliability of such data and validity of results [51]. In addition, MTurkers are more attentive to instructions and in answering survey questions than college students [52], and more diverse and representative of the general population than convenient samples such as college student samples [53,54]. Participants were required to sign an informed consent question and to repeat a unique code at the end of the survey [55]. The country location was restricted to ensure that only German or Brazilian respondents had access to the survey in their corresponding languages (German and Portuguese). In order to assure high quality responses, participants were required to have a 100% approval rating [56]. Less than 1% of the total responses were removed due to being incomplete and of low quality. To reduce invariance and method biases, participants received the same instructions and were asked to answer the survey in a similar manner in both countries [57]. Respondents were instructed to continue only if they had purchased a green/eco-friendly product or service in the past year. The following brief description of what constitutes green products and services was provided:

*“Green products are those that cause no or minimum harm to the environment, people or animals. Examples include, but are not limited to organic, non-GMO, recycled, energy efficient and/or free from toxic products. Green services are those provided by companies with sustainable practices such as companies that save energy, practice fair trade; attain their natural resources from environmentally friendly farms and producers, etc. in order to minimize their environmental impact”.*

We conducted nonresponse bias tests and found no statistically significant differences between the means of early and late respondents [58]. The final samples sizes were as follows: German ( $n = 145$ ) and Brazil ( $n = 209$ ). Given the distinction in country sample sizes, we used bootstrapping to mitigate it and increase the robustness of the study results. The distribution of the samples is summarized in Table 2.

**Table 2.** Sample distribution.

| <b>Variable</b>   | <b>Germany (n = 142)<br/>Percentage (%)</b> | <b>Brazil (n = 209)<br/>Percentage (%)</b> |
|-------------------|---------------------------------------------|--------------------------------------------|
| Age               |                                             |                                            |
| Baby-boomers      | 4.1                                         | 0.5                                        |
| Gen X             | 13.1                                        | 9.6                                        |
| Gen Y             | 65.5                                        | 60.3                                       |
| Gen Z             | 17.2                                        | 29.7                                       |
| Gender            |                                             |                                            |
| Male              | 71.0                                        | 65.1                                       |
| Female            | 29.0                                        | 34.9                                       |
| Income*           |                                             |                                            |
| Low               | 13.1                                        | 14.8                                       |
| Upper-low         | 18.6                                        | 24.4                                       |
| Low-Middle        | 31.7                                        | 17.7                                       |
| Middle            | 22.8                                        | 13.9                                       |
| Upper-Middle      | 4.8                                         | 7.7                                        |
| High              | 3.4                                         | 10.0                                       |
| Upper-High        | 5.5                                         | 11.5                                       |
| Education         |                                             |                                            |
| No Degree         | 1.4                                         | 1.0                                        |
| High School       | 26.9                                        | 23.4                                       |
| Associates Degree | 3.4                                         | 14.8                                       |
| Bachelor's Degree | 31.7                                        | 50.2                                       |
| Master's Degree   | 34.5                                        | 9.1                                        |
| Doctorate Degree  | 2.1                                         | 1.4                                        |

Notes: Baby-Boomers born between 1946–1964; Gen X born between 1965–1980, Gen Y participants born between 1981–1996 and Gen Z born between 1997–2004. Income distribution was commensurate to social class in each country according to The World Bank classification [59].

Sample results demonstrate the high diversity among respondents [54]. There were some differences and similarities between the German and Brazilian samples. Both Brazilian and German samples included a large portion of males, and they were comparable in terms of age and income, key similarities for the context of this study. A higher percentage of German participants reported having a master's degree, thus the German sample tended to be slightly more educated. Overall, the samples were comparable enough to allow for statistical comparison analyses of the survey results.

### Measurement Development, Validity and Reliability

The scales were adapted from existing green buying behavior and relationship marketing studies [16,17,39,60–63]. To ensure content validity, semantic and conceptual equivalence, and consistency of construct meaning among samples, the original English version of the survey

underwent translation and subsequent back-translation by professional translators well versed in German or in Portuguese. Advice of bilingual experts was sought on the meaning of each item in both the original and the translated survey versions [47,64]. We pre-tested the surveys with practitioners prior to administering to participants. No concerns were raised regarding the meaning of each survey item during the pilot tests, suggesting that the survey questions were equally understood and accepted in both countries. The final scale items are listed in the Appendix A.

To reduce the potential of measurement error, participants were reminded of the confidential, voluntary and academic natures of the survey, and all items belonging to one variable were grouped together [57,65]. We conducted a Harman's single factor test to examine the model variables for common method bias. The total variance explained by loading all items in the survey in one single factor extracted was 48%, less than the threshold of 50%. Since not one single factor emerged explaining more than 50% of the variance from the factor analysis, we do not expect common method variance to be a major concern in this study [57].

Next, the internal consistency and validity of the scales were assessed by analyzing the composite reliability for each scale. The final measures demonstrate excellent properties as the Cronbach's Alpha for each scale for both groups exceeds 0.80, above the .70 threshold [50]. The average variance extracted (AVE) provides initial evidence of convergent validity as measures have an AVE exceeding the recommended threshold of 0.50 [50,66]. Table 3 summarizes descriptive statistics and the reliability and validity tests for the scales used in the study. The correlation matrix for the two groups is shown in Table 4.

**Table 3.** Descriptive statistics, reliability and validity tests for measures.

| Variable               | Germany (n = 145) |      |      |      | Brazil (n = 209) |      |      |      |
|------------------------|-------------------|------|------|------|------------------|------|------|------|
|                        | Mean              | SD   | CR   | AVE  | Mean             | SD   | CR   | AVE  |
| Perceived Quality      | 4.93              | 0.95 | 0.87 | 0.63 | 5.61             | 0.98 | 0.93 | 0.76 |
| Price Value            | 4.28              | 1.16 | 0.83 | 0.61 | 4.77             | 1.19 | 0.78 | 0.55 |
| Green Brand Trust      | 5.00              | 0.98 | 0.80 | 0.58 | 5.32             | 1.11 | 0.84 | 0.64 |
| Green Satisfaction     | 4.71              | 0.97 | 0.76 | 0.52 | 5.31             | 1.11 | 0.87 | 0.70 |
| Green Buying Intention | 5.17              | 1.13 | 0.85 | 0.65 | 5.20             | 1.41 | 0.92 | 0.79 |

Note: SD Standard Deviation; CR Composite Reliability measured using Cronbach's Alpha; AVE Average Variance Extracted.

**Table 4.** Correlations matrix.

| Variable                     | PQ      | PV      | GBT     | GS      | GBI     |
|------------------------------|---------|---------|---------|---------|---------|
| Perceived Quality (PQ)       | 1       | 0.672** | 0.642** | 0.740** | 0.480** |
| Price Value (PV)             | 0.632** | 1       | 0.516** | 0.747** | 0.539** |
| Green Brand Trust (GBT)      | 0.538** | 0.387** | 1       | 0.603** | 0.587** |
| Green Satisfaction (GS)      | 0.690** | 0.683** | 0.479** | 1       | 0.662** |
| Green Buying Intention (GBI) | 0.425** | 0.412** | 0.454** | 0.614** | 1       |

\*\* . Correlation is significant at the 0.01 level (2-tailed). Top Correlations (shaded) = Brazil, Bottom Correlations (not shaded) = Germany.

To further assess convergent validity, a confirmatory factor analysis was conducted and the overall fit of the measurement model is excellent for the complete sample ( $\chi^2_{(354)} = 188.323$ ,  $p < 0.01$ ; CFI = 0.98; TFI = 0.97; NFI = 0.95; RMSEA = 0.053), for the German sample ( $\chi^2_{(145)} = 140.926$ ,  $p < 0.01$ ; CFI = 0.96; TFI = 0.95; NFI = 0.90; RMSEA = 0.059), and for the Brazilian sample ( $\chi^2_{(209)} = 170.598$ ,  $p < 0.01$ ; CFI = 0.98; TFI = 0.97; NFI = 0.94; RMSEA = 0.063) [50]. In addition, the factor loadings of items onto each construct across both samples exceeded the recommended threshold of 0.70 [50] with the exception of one item for price value in Brazil, which had a loading of 0.68. Modification indices were also analyzed and their low values, combined with the excellent goodness of fit of the measurement models reported above demonstrate a lack of alternative factor structure, indicating further evidence of configural invariance. Measurement invariance was also investigated for both measurement models. Partial metric invariance was established, since at least one item per scale did not significantly differ between the two groups. There was no evidence of sufficient differences in regards to how participants from each group responded to the survey and the measurement models demonstrated an adequate level of universal structure to allow for cross-cultural comparisons of the structural model [67].

## RESULTS

We analyzed and statistically compared the path coefficients for the two groups using structural equation modeling software [68], and pairwise parameter comparisons to examine significant differences and test the moderation effects on the hypothesized relationships. We tested the invariance in the parameter coefficients for each relationship by calculating the critical ratios for differences between parameters, to assess the z-scores for the difference in each parameter between groups [69]. We included age, gender, income and education, as control variables and found no significant influences on the outcome variable. Table 5 presents the results of the direct relationships in the model and the country moderation.

**Table 5.** Results of the direct relationships in the model and country moderation.

| Direct Relationships                                               | Germany<br>( $\beta$ ) | Brazil<br>( $\beta$ ) | Z-score |
|--------------------------------------------------------------------|------------------------|-----------------------|---------|
| H <sub>1</sub> (a, b, c): Perceived Quality → Green Brand Trust    | 0.63***                | 0.47***               | n/s     |
| H <sub>2</sub> (a, b, c): Perceived Quality → Green Satisfaction   | 0.49***                | 0.26***               | n/s     |
| H <sub>3</sub> (a, b, c): Price Value → Green Brand Trust          | 0.03                   | 0.32***               | 2.06**  |
| H <sub>4</sub> (a, b, c): Price Value → Green Satisfaction         | 0.45***                | 0.70***               | 2.19**  |
| H <sub>5</sub> (a, b): Green Brand Trust → Green Buying Intention  | 0.22**                 | 0.27**                | n/s     |
| H <sub>7</sub> (a, b): Green Satisfaction → Green Buying Intention | 0.54***                | 0.54***               | n/s     |
| <i>Variance Explained (R<sup>2</sup>)</i>                          |                        |                       |         |
| Green Brand Trust                                                  | 0.42                   | 0.56                  |         |
| Green Satisfaction                                                 | 0.77                   | 0.84                  |         |
| Green Buying Intention                                             | 0.47                   | 0.56                  |         |

Notes: \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.10$ ;  $\beta$  = standardized parameter estimates. Z-Scores Critical Ratios.

As shown in Table 5, full support is found for hypotheses H<sub>1</sub> (a, b), H<sub>2</sub> (a, b), H<sub>3</sub> (b), H<sub>4</sub> (a, b), H<sub>5</sub> (a, b), and H<sub>7</sub> (a, b). Apart from price value on green brand trust in Germany—as H<sub>3</sub> (a) is not supported—the direct and significant effects of green perceived functional and economic values on relational factors (green brand trust and green satisfaction) are confirmed. The ‘c’ series of hypotheses tested country differences. Results suggest that H<sub>1</sub> (c) and H<sub>2</sub> (c) are not supported. The impacts of perceived quality on trust and satisfaction are positive for both groups, and their difference in value is not found to be statistically significant. However, H<sub>3</sub> (c) and H<sub>4</sub> (c) are fully supported, suggesting that price value has a greater effect on trust and satisfaction in Brazil. The parameters for each country are statistically and significantly different.

To test for the mediating effects of green brand trust and green satisfaction between perceived quality and price value on consumer’s intention to buy green products, we performed a combination of Baron and Kenny [70] and bootstrapping [71] analyses to calculate the indirect effects of the antecedents on green buying behavior and their significance.

Full mediation is demonstrated when the direct effect of an antecedent on an outcome diminishes to the point of non-significance in the presence of a mediator, and the indirect effect is significant. Partial mediation is demonstrated when the direct effect of an antecedent on an outcome diminishes, but it remains significant in the presence of the mediator, and the indirect effect is significant. A summary of the mediation results is presented in Table 6.

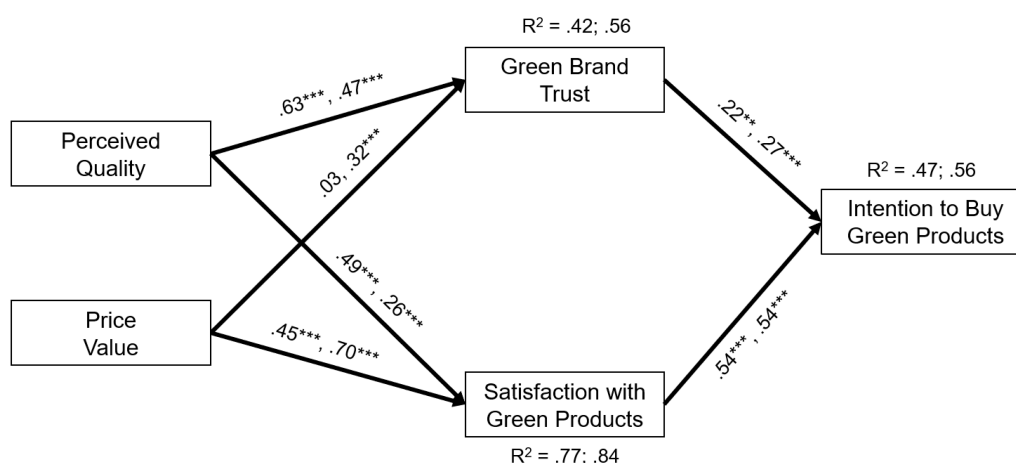
**Table 6.** Mediation results.

| Relationships (Mediator)                                                                | Direct Effects ( $\beta$ ) Without Mediators | Direct Effects ( $\beta$ ) With Mediator | Standardized Indirect Effects–Bootstrap Two Tailed Significance (Type of Mediation) |
|-----------------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------|
| H <sub>6a, b</sub> : Perceived Quality → Green Buying Intention ( <i>Trust</i> )        | 0.29*; 0.01                                  | n/s; n/s                                 | $p = 0.02$ ; $p = 0.002$ ( <i>Full, None</i> )                                      |
| H <sub>6a, b</sub> : Perceived Quality → Green Buying Intention ( <i>Satisfaction</i> ) | 0.29*; 0.01                                  | n/s; n/s                                 | $p = 0.005$ ; $p = 0.038$ ( <i>Full, None</i> )                                     |
| H <sub>8a, b</sub> : Price Value → Green Buying Intention ( <i>Trust</i> )              | 0.22; 0.65***                                | n/s; .50***                              | $p = 0.02$ ; $p = 0.002$ ( <i>None, Partial</i> )                                   |
| H <sub>8a, b</sub> : Price Value → Green Buying Intention ( <i>Satisfaction</i> )       | 0.22; 0.65***                                | n/s; n/s                                 | $p = 0.007$ ; $p = 0.002$ ( <i>None, Full</i> )                                     |

Notes: \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.10$ ;  $\beta$  = standardized parameter estimates. First Values (H<sub>6a</sub>) = Germany; Second Value (H<sub>6b</sub>) = Brazil.

Results suggest that for the German group, the effect of perceived quality on green buying intention is fully mediated by green brand trust and satisfaction, lending support for H<sub>6a</sub>. For the Brazil group, the effect of price value on green buying intention is partially mediated by green brand trust and fully mediated by green satisfaction, lending support for H<sub>8a</sub>. Overall, the mediation results demonstrate some country differences. In Germany, perceived quality only affects green buying intentions via the relational mediators. In Brazil, price value only affects green buying intentions via the relational mediators. Taken together, the results support the importance of quality as a functional factor in a developed country (Germany) while an economic factor such as price value has a greater effect in a less economically developed country (Brazil).

The result of the model is depicted in Figure 3.



**Notes:** First values = Germany ( $n=145$ ); second values = Brazil ( $n=209$ ).  
Significance: \*\*\*  $p < 0.01$ ; \*\*  $p < 0.05$ ; \*  $p < 0.10$ ;  
All value are  $\beta$  = standardized parameter estimates. R<sup>2</sup> = Variance explained  
Model Fit:  $\chi^2_{(354)} = 188.323$ ,  $p < 0.01$ ; CFI = .98; TLI = .97; NFI = .95; RMSEA = .053

**Figure 3.** Complete model results.

The explanatory and predictive power of the model is robust. Combined, the direct effects of perceived quality and price value explain 42% (Germany) and 56% (Brazil) of variation in green brand trust and 77% (Germany) and 84% (Brazil) of variation in green satisfaction. In turn, green brand trust and green satisfaction explain 47% (Germany) and 56% (Brazil) of variation in consumers' green buying intention. Green brand trust and green satisfaction are not only direct determinants of a buyer's green purchase intentions, but they also partially or fully mediate the relationships between green perceived value factors and outcome in Germany and Brazil. Overall results demonstrate the importance of economic value to consumers in developing countries, as well as functional and relational to consumers in developed and developing countries alike.

Next, we discuss the implications of the study, theoretical and practical contributions, limitations, and possible future research opportunities.

## **DISCUSSION AND CONTRIBUTIONS**

### **Discussion**

Green buying behavior knows no borders and is neither enhanced nor diminished by the economic environment of a country. This is a reassuring finding as emerging markets' populations are growing at fast rates and consuming more and more products that can cause environmental damage [10]. Companies can therefore expect consumers in both economic environments to behave similarly towards green products. This study compares the influence of functional and economic GPV factors and relational variables on consumer green buying intention in two countries at different stages of economic development. Findings reveal that consumers from both countries are influenced by these factors when deciding to purchase a green product, but with minor differences.

When evaluating green products, customers will consider their perceptions of both the products' quality and price value. These will influence their trust in a green brand and their satisfaction with it. However, consumers in developed markets give more weight to the perception of quality while consumers in emerging markets give more importance to price value. These preferences are likely due to the lower income levels present in emerging markets and the higher quality standards demanded by consumers in developed countries.

### **Theoretical Contributions**

The first theoretical contribution of this study is to demonstrate the mediating effects of green brand trust and green satisfaction on the influence that perceived quality and price value have on consumer's intention to buy green. The results highlight the relevance of relationship marketing key mediating variables in green buying behavior theory. It also shows that perceptions of the green product's quality and price value,

except for price in Germany, are key antecedents to green brand trust and satisfaction with green products in both a developed and emerging country. Second, the moderating effects of economic development in the model contribute to advance the theory of institutionalism in the context of B2C green buying consumer behavior. Comparative studies must consider levels of economic development and other institutional factors such as culture as theoretical background to explain distinctions across various countries. Lastly, traditional theory of consumer behavior confirms the importance of quality and price value as key factors that drive purchase intentions.

### **Managerial Contributions**

Regardless of their economic environment, consumers still expect excellent quality and competitive prices when considering the purchase of green products and services. Thus, it is important to highlight quality attributes to consumers such as durability and effectiveness. It is also important to maintain affordable prices and highlight the price value to consumers. When all things are equal, consumers prefer a green option over the one that it is not environmentally friendly. So, companies should, for example, design promotional campaigns to communicate the quality associated with green offerings and the additional value consumers receive from selecting eco-friendly products and services. However, marketers in developed countries must appeal to the socio-ecologically conscious consumers by placing emphasizes in their advertising campaigns on the high-quality offering of their green products. This requires underlining the high-quality materials and parts as well as strict quality control implemented by the company. On the other hand, marketers in emerging markets must deliver a reliable product for a reasonable price, so that their consumers also recognize the economic value of the green product. Integrated communication strategies should focus on a message that demonstrates the competitive nature of the company's green products and services.

### **LIMITATIONS AND FUTURE RESEARCH**

Several limitations of this study serve as future research opportunities. First, the two-country sample limits the generalizability of the study results. Although Brazil is representative of a developing economy and Germany of a developed economy, the results can only be generalized to other countries with similar economic conditions if the model is tested with samples from other countries. The inclusion of other developed and developing country samples to explore economic development as a moderator can improve the generalizability of the study. The heightened concern for the environment and history of sustainability practices in each country must also be taken into account [2]. History and the geopolitical contexts of the countries selected for future research should be considered as well. Secondly, the relatively small size of the two country

samples represents an additional limitation of the study methodology despite the use of bootstrapping to increase the robustness of the statistical tests and accuracy of the results.

Lastly, despite the rigor of the survey methodology that included expert review, translation and back-translation, pre-test, and rigorous scale purification process, misinterpretation of some survey questions cannot be ruled out since the original items were written in English and based on the interpretation of North American buyers. In addition, future research could investigate several other variables that can influence a customer's decision to buy a green product. These include customer characteristics, such as cosmopolitanism, as well as demographic variables such as age, gender, and income. Lastly, examining additional variables can improve the explanatory power of the model and contribute to further the theory of green buying behavior.

#### **DATA AVAILABILITY**

The dataset of the study is available from the authors upon reasonable request.

#### **AUTHOR CONTRIBUTIONS**

SG and VK designed the study, analyzed the data, and wrote the paper in collaboration with each other.

#### **CONFLICTS OF INTEREST**

The authors declare that there is no conflict of interest.

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*Technical Appendices***APPENDIX A: STUDY SCALES**

- **Quality** [17]

1. Green products and services have good quality (overall quality)
2. Green products and services are well-produced (credibility)
3. Green products and services are reliable (Reliable)
4. Green products and services have consistent and acceptable standards of quality (consistent)

- **Price** [16]

1. Purchasing green products and services offers value for the money
2. Green products and services are worth the money compared to other non-green products and services
3. The price of green products and services reflects their high quality

- **Green Brand Trust** [39]

1. Green brands have a strong reputation towards a sustainable environment
2. I consider brands with eco-friendly and green characteristics trustworthy
3. I can easily recognize a green brand because of its environmental concern

- **Satisfaction** [16]

1. I am satisfied with eco-friendly and green products and services
2. Green products and services usually meet or exceed my expectations
3. I enjoy green and eco-friendly products and services

- **Green Buying Intention** [16,60,63]

1. My willingness to repurchase green products and services is very high
2. I am more willing to buy green products and services than non-green ones
3. Next time that I buy, the possibility that I will choose green products or services is very high

Note: items have been adjusted to fit the context of the study

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