

Exploring Consumer Value of Certified Sustainability Labels of Local versus National Brands: A Case Study of US Coffee Consumers*

Juyoung Yoo**, Jerrod Penn***, Mary Olivia Broussard****, Maria Bampasidou*****

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Keywords

Local coffee, Sustainability certifications, Willingness to pay, Discrete choice experiment

Abstract

Despite growing consumer interest in sustainability certifications, little is known about whether their value differs between local and national coffee brands. Using a discrete choice experiment with 893 US coffee-shop patrons, we estimated willingness to pay for four certifications (Fairtrade, USDA Organic, Rainforest Alliance, and Carbon Trust) on bagged coffee from a respondent-identified local shop versus three national brands, with a mixed logit model including brand-label interactions. Sustainability labels do not uniformly add value, and the value of some certifications depends on the brand. USDA Organic generates significant premiums for national brands but no measurable value on local bags. Carbon Trust, the least familiar label, interacted positively with the national brands and earned a \$1.83 premium on Starbucks bags, the most robust result across specifications. No certification generated a premium on local bags at the 5% level; Rainforest Alliance indicated only weak (10% level) evidence of a local premium. These findings caution local coffee retailers against assuming that certification costs can be recovered through label premiums; certification adoption should be evaluated selectively in light of brand context.

* This article builds upon the third author’s master’s thesis (Broussard, 2024) at Louisiana State University, incorporating an expanded analytical sample and additional analyses.

** Research Fellow, Korea Rural Economic Institute.

*** Associate Professor, Department of Agricultural Economics and Agribusiness, Louisiana State University, Corresponding author. email: JPenn@agcenter.lsu.edu

**** Graduate Student, Department of Agricultural Economics and Agribusiness, Louisiana State University.

***** Associate Professor, Department of Agricultural Economics, Texas A&M University.

미국 소비자의 커피 지속가능성 인증라벨에 대한 가치 분석: 로컬 브랜드와 전국단위 브랜드 비교를 중심으로*

유주영**, Jerrod Penn***, Mary Olivia Broussard****, Maria Bampasidou*****

Keywords

로컬 커피, 지속가능성 인증, 지불의사금액, 이산선택실험

Abstract

지속가능성 인증에 대한 소비자 관심이 증가하고 있으나, 그 가치가 로컬 브랜드와 내셔널 브랜드 간에 어떻게 다른지는 명확하지 않다. 본 연구는 커피숍을 이용하는 미국 소비자 893명을 대상으로 이산선택실험을 실시하여, 응답자가 스스로 지목한 로컬 커피숍과 3개 내셔널 브랜드의 봉지 원두커피에 부착된 4가지 지속가능성 인증(공정무역, USDA 유기농, 열대우림동맹, 카본 트러스트)에 대한 지불의사금액(WTP)을 혼합로짓모형으로 추정하였다. 분석 결과, 인증 라벨은 소비자 가치를 일률적으로 높이지 않았으며, 일부 인증의 가치는 브랜드에 따라 달라졌다. USDA 유기농은 내셔널 브랜드에서는 유의한 프리미엄을 보였으나 로컬 원두에서는 추가 가치가 확인되지 않았고, 표본에서 인지도가 가장 낮았던 카본 트러스트는 내셔널 브랜드와의 상호작용이 유의하였으며, 특히 Starbucks원두에서 유의한 프리미엄(\$1.83)을 창출하였다. 이 결과는 대안적 모형 설정에서도 가장 강건하였다. 반면 로컬 원두에서 5% 수준에서 유의한 프리미엄을 보인 인증은 없었고, 열대우림동맹만 10% 수준의 약한 프리미엄을 보였다. 이는 로컬 커피 소매업체가 인증 비용을 라벨 프리미엄으로 회수할 수 있다고 가정하기 어려움을 시사하며, 인증 도입은 브랜드 맥락과 인증 종류를 고려하여 선별적으로 검토될 필요가 있다.

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** 한국농촌경제연구원 부연구위원.

*** 루이지애나주립대학교 농업경제학과 부교수, 교신저자. email: JPenn@agcenter.lsu.edu

**** 루이지애나주립대학교 농업경제학과 대학원생.

***** 텍사스A&M대학교 농업경제학과 부교수.

1. Introduction

Specialty coffee production has experienced a boom that has been driven by consumers' perceptions of quality and flavor profile. In relation to production and processing practices, consumers value information pertaining to the origin, production methods, and conditions of coffee farming. This demand has contributed to a surge in specialty coffee production, which is characterized by superior quality, flavor, and value-added features such as small-batch production and sustainability practices compared to conventional coffee (National Coffee Association of the United States [NCAUSA], 2023). Currently, specialty coffee dominates coffee consumption in the United States (US) (NCAUSA, 2014). This trend aligns with the growing interest in environmentally and socially sustainable products, with consumers increasingly considering sustainability and environmental impact in their food choices (Van Bussel et al., 2022).

Consumers value information related to the origin, production methods, and conditions of coffee farming, which has led suppliers to offer coffee that bears third-party certifications of social or environmental sustainability efforts, such as fair trade (Loureiro & Lotade, 2005). Research has delved into consumer interest and willingness to pay (WTP), the maximum amount a consumer is willing to pay for a product, for sustainability-labeled coffees. It has revealed a higher WTP for such products despite price remaining a critical factor in consumer choice (Andorfer & Liebe, 2015; Cranfield et al., 2010). While the relative importance of each label is mixed across studies, the WTP among US consumers is often highest for organic-labeled coffee, exceeding that for Rainforest Alliance and Fair Trade USA labels (Van Loo et al., 2015). Furthermore, meta-analytic evidence has documented positive premiums for both organic and fair trade coffee across different countries (Abdu & Mutuku, 2021).

Understanding WTP in relation to coffee and the value of third-party certifications remains largely unexplored for local US coffee shops and roasters, which account for approximately 40% of the US coffee shop market (Ridder, 2023). Local shops draw patronage through ambiance, place-based identity, customer loyalty, and perceived product quality, which allows them to command a premium (Barnes et al., 2014; Hamilton & Wagner, 2014; Huang, 2022; Samoggia & Riedel, 2018). However, the interplay between these local attributes and formal sustainability certification has not been examined. It is precisely this

interaction that can more fully determine whether certification adds value beyond local identity. We develop these experiential and quality dimensions of local shop patronage more fully in the literature review; here we emphasize the resulting empirical gap.

While these experiential and quality attributes have allowed local shops to command a premium, aligning consumer WTP with operational cost structures remains a critical challenge. Economies of scale have made it challenging for these establishments to compete with national brands in terms of storage, preparation, and roasting of coffee beans (Barreto Peixoto et al., 2023). Limited pricing power has impeded their ability to adjust prices without risking customer loss, particularly during supply chain disruptions. Additionally, small businesses often have less diversified supply chains, sourcing beans directly from farmers and increasing their vulnerability to disruptions (Giovannucci et al., 2008). Furthermore, brand recognition is typically lower for small suppliers than national brands (Giovannucci et al., 2008), which is important because research has shown that nearly 39% of US consumers select coffee based on the brand (Ridder, 2023). Lack of convenience presents another significant challenge, as many consumers opt for the convenience of purchasing coffee at grocery or convenience stores (Hicks, 2018).

While recent studies have examined factors that predict the WTP for sustainability labels on coffee (Fuller et al., 2022; Liu et al., 2019; Van Loo et al., 2015), they have overlooked how WTP may differ for consumers' own local coffee shops. In this study, these are defined as the shops that respondents themselves identify as local versus national premium and conventional coffee brands. This leaves a broader question relevant to many food markets unanswered: do third-party certifications generate value for local retailers comparable to that for nationally recognized brands? Because certification is costly, whether it generates incremental value beyond local identity is central to investment decisions for local food retailers—those who sell coffee as well as those who offer fruits, vegetables, meat, dairy, and other specialty foods. Coffee provides an ideal context in which to examine this issue because local providers compete directly with national brands while determining whether the cost of certified beans can be recovered through higher consumer WTP. This study addresses this gap by examining how consumer WTP for sustainability labels varies across local and national coffee brands with particular attention to potential synergistic effects between certification labels and brand identity. We achieved this objective through a discrete choice experiment (DCE) with US coffee drinkers.

2. Literature Review

Labeling plays a crucial role in shaping consumer perceptions beyond the label contents, underscoring the significance of label use in coffee markets (Bernard et al., 2019). Relatedly, studies have found that interpreting and understanding sustainability labels is confusing for consumers (Grunert et al., 2014; Vanclay et al., 2011). This paper focuses on four labels: Fairtrade, United States Department of Agriculture (USDA) Organic, Rainforest Alliance, and Carbon Trust. Fairtrade labeling signifies full traceability or the segregation of goods from farm to shelf, emphasizing price premiums for producers (Basu et al., 2018; Reinecke et al., 2012). USDA Organic certification denotes compliance with USDA standards for organic production methods, with a focus on natural processes and high-altitude growing regions in the coffee industry (Harrison, 2008). The Rainforest Alliance organization upholds standards aimed at sustaining vegetation and ecosystems in rainforest regions (Partzsch et al., 2021). The Rainforest Alliance and UTZ merged in 2018, with the certification programs initially operating in parallel under the merged organization (Rainforest Alliance, n.d.). Carbon Trust labeling indicates accurate measures of carbon footprints, providing consumers with certified information about the environmental impact of their purchasing decisions (Birkenberg et al., 2021).

These four labels are third-party certified and often examined in consumer preferences for coffee sustainability labels (Abdu & Mutuku, 2021). Third-party certification can enhance the label's credibility, which potentially increases the WTP for their certifications (Del Giudice et al., 2018; Dragusanu et al., 2014; Grunert, 2011; Verbeke, 2008). Such premiums tend to occur among individuals who have a higher income, are more educated, or are female, as these groups are generally more inclined to purchase and pay more for sustainable coffees (Raynolds et al., 2007; Valenciano-Salazar et al., 2021).

Numerous studies have examined the premium across certified labels. Organic labeling often commands the highest WTP, followed by fair trade labeling (Abdu & Mutuku, 2021; Fuller et al., 2022; Gallenti et al., 2016; Maaya et al., 2018; Van Loo et al., 2015). For instance, other studies have similarly documented positive WTP for fair trade-labeled coffee (Yang et al., 2013). Birkenberg et al. (2021) found a small but still significant and positive WTP for carbon-neutral labeling. Additionally, labels with higher perceived trust, such as Rainforest Alliance and Fairtrade, tend to elicit a higher WTP from consumers

(Fuller et al., 2022). However, the magnitude of WTP varies depending on the label, experimental setup, and consumer demographics (Van Loo et al., 2015). While the synergistic effects of multiple labels have not been thoroughly studied, Birkenberg et al. (2021) found positive synergy between a “direct trade” claim and a carbon label on coffee. Table A1 consolidates recent and notable coffee sustainability WTP literature.

Despite growing interest in sustainability labels in various food products, the WTP for sustainable coffees from local versus national coffee brand purchase sources remains unexplored. National coffee brands are often perceived to offer higher product quality (e.g., Starbucks), compared to smaller coffee shops (Moon et al., 2023). Obermiller et al. (2009) suggested that larger, more recognizable coffee brands may have an advantage in marketing and selling coffee with Fairtrade and other sustainability labels to consumers. While consumers value locally labeled foods (Remar et al., 2016), the WTP for coffee from local businesses versus chains is largely unknown. Examining food, Picha et al. (2018) found that consumers perceive food made by local producers as higher quality and better aligned with their preferences and needs than “regional” or “national” food products.

Several studies have examined the interaction between locality and sustainability labels or claims on food products (Griffith et al., 2019; Onozaka & McFadden, 2011). Tennessee restaurant owners were willing to pay a price premium for Tennessee-certified grass-fed beef, for both ground beef and sirloin steak (Griffith et al., 2019). A local designation was the highest valued claim on fresh produce, which was further enhanced by the addition of the Fairtrade label (Onozaka & McFadden, 2011). Thus, consumers pay price premiums for locally designated food products, and value may be enhanced by adding sustainability attributes to food products.

To our knowledge, such information on the perception of locality and labeling does not exist for coffee. This study aims to fill this research gap by investigating whether the perceived locality of respondent-identified local coffee shops interacts with sustainability certification labels, leading to higher WTP for coffee bags bearing these labels.

3. Methods

To understand preferences and WTP for certified labels and different coffee sources, we implemented a DCE. The results align closely with consumer decision making (Auger & Devinney, 2007; Norwood & Lusk, 2011) and can reduce social desirability bias, e.g., when respondents conceal their true opinion on a subject to make themselves look good to others (Drichoutis et al., 2016). DCEs are commonly employed to assess WTP for sustainability labels (Lombardi et al., 2017; Onozaka & McFadden, 2011; Steiner et al., 2017; Van Loo et al., 2015). The DCE design, including all attributes and levels, are detailed in Table 1.

Each coffee company denotes the brand or source of the coffee and was included to capture its influence on consumer preferences. Brand options included a local coffee shop, Starbucks, Dunkin', and Folgers. Starbucks and Dunkin' were chosen because both are well-recognized national US brands with physical stores. Folgers was chosen as a recognizable "conventional" coffee brand sold nationally in grocery stores. The designation "local coffee shop" refers to a coffee shop or roaster that respondents themselves reported as a local shop that they frequented, rather than to an externally verified category of independent local businesses. This respondent-defined local category may include independent coffee shops, small local or regional chains, and private-label roasters. At the beginning of the survey, respondents manually typed in the name of their local coffee shop, which appeared in each alternative among the choice sets that featured local coffee.¹⁾ If respondents did not answer, [Your Local Coffee Shop] appeared in lieu of a specific brand name for each appropriate alternative. Because Dunkin' and Starbucks were two of the national brands featured in the DCE, respondents were not permitted to answer with either of these as their local shop to ensure that the DCE was sensible. Local shop bags were brown with no other design to increase realism in line with actual bags sold by many local shops.

In terms of labels, we included USDA Organic, Fairtrade, Rainforest Alliance, and Carbon Trust labels, all of which have third-party certifications to reduce issues (e.g. trust,

¹⁾ Respondents were also asked how many locations the coffee shop they identified as local operates: 33.8% reported a single location, 21.7% reported two to four, 6.9% five to 10, and 23.2% more than 10, while 14.3% did not know. Thus, a majority (55.5%) identified establishments with four or fewer locations, although a nontrivial share applied the label "local" to larger chains, a pattern that underscores why our estimates pertain to perceived local retailers rather than to a structurally defined category of independent businesses.

unfamiliarity) of uncertified sustainability claims. Their actual use for coffee varies between frequent (Organic, Fairtrade, and Rainforest Alliance) to infrequent (Carbon Trust). The inclusion of these labels on coffee bags allowed us to explore consumer preferences across various choice sets. Certification labels were superimposed onto the coffee bag images shown in the survey to increase realism for respondents. Notably, the presentation of more than two labels on a coffee bag, while uncommon in retail settings, mirrored practices observed among smaller roasters with sustainability-focused missions.²⁾

Participants were offered two options for the roast of the coffee bean-medium or dark-as an attribute to enhance realism in the choice scenarios. Each option was accompanied by corresponding imagery reflecting the roast level, ensuring clarity in the choice sets. Some bags featured roast name variations, and were mentioned in the instructions to minimize confusion. Lastly, price options ranged from \$5.95 to \$13.95 per 12-ounce bag to align with market information and facilitate the calculation of WTP. This wide price range reflects bagged coffee from local shops, grocery stores, retailers, and online stores in the US.

Table 1: Discrete Choice Experiment Attributes and Levels

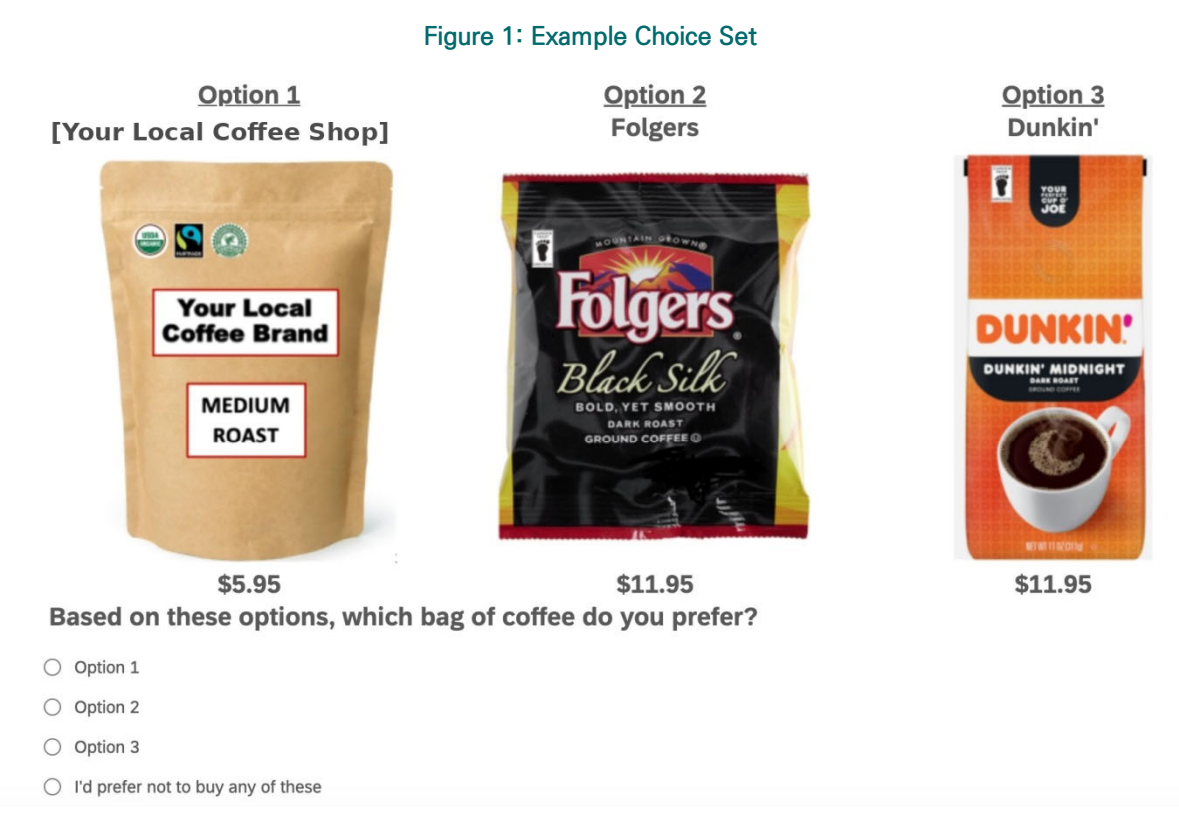
Attribute (# of levels)	Description	Levels
Coffee company (4)	The seller/source of purchase of the bag of coffee	Local, Starbucks, Folgers, Dunkin’*
USDA Organic (2)	Adheres to regulations such as being grown in soil that had no prohibited substances applied for three years prior to harvest	Present, not present*
Fairtrade (2)	Provides ethical and environmental sustainability regulations at farm origin and along the supply chain of a variety of foods and ingredients	Present, not present*
Rainforest Alliance (2)	Meets requirements on the ethicality of farmers, sustainability of practices, and sustainability in the supply chain	Present, not present*
Carbon Trust (2)	Greenhouse gas emissions from production are reduced and/or offset by carbon credit, meaning minimal impact to global climate change	Present, not present*
Roast (2)	The roast of the coffee beans	Dark roast, Medium roast*
Price (5)	Price of the 12-ounce bag of coffee	\$5.95, \$7.95, \$9.95, \$11.95, \$13.95

Note: *Indicates the omitted reference category

The label descriptions in this table correspond to the information presented to respondents in the instructional video and choice tasks; the certification images and wording shown to respondents are reproduced in Appendix Figure A1.

²⁾ One example: Pura Vida Coffee, an independent roastery out of Seattle, incorporates Fairtrade, Organic, Shade-grown, and other labels onto its bags.

Figure 1 illustrates an example choice set with different coffee bags. The experimental design encompassed three coffee bag alternatives and an opt-out option in each choice set, with participants randomly assigned to one of 10 blocks of four choice sets. The DCE was designed in Ngene using a D-efficient design that accommodated both the main effects and brand-label interactions central to this study. Prior parameter values for the design were obtained from a pilot survey of 50 respondents; the design minimized the D-error while ensuring balanced attribute representation across choice sets. To enhance respondent comprehension, participants watched video instructions³⁾ that detailed the DCE attributes and levels, followed by comprehension assessment questions and a reminder to answer questions correctly. The choice set order was randomized within each block to reduce potential order effects.



We considered several other elements of best practice for DCE and SP methods. Hypothetical bias (HB) is the disparity between results obtained from hypothetical elicitation and those from real payment scenarios (Penn & Hu, 2018) and most commonly

³⁾ Respondents were randomly assigned to one of two videos, which were exactly the same except for the instructional choice set: one featured higher prices and the other showed lower prices.

leads to overstated/inflated values in WTP studies (Haghani et al., 2021). The video tutorial contained a cheap talk script to encourage responses reflective of real purchase scenarios (Penn & Hu, 2019). This included checking for potential protestors, although none were identified.⁴⁾

3.1. Survey Design

The survey included consent and qualifier questions, another DCE related to charitable donations, a coffee characteristics section separate from the coffee DCE, and questions regarding labels, sustainability, and demographics. Respondents answered screening questions, and only participants who had visited the coffee shops in the previous three months were eligible for the coffee DCE. We asked respondents for the name and number of locations of their most-visited local shop. Coffee-related questions covered purchase habits, primary coffee brands purchased, sources, roast, ounces, and frequency. Other questions addressed spending, motivations, attitudes, and demographics.

Created and distributed in Qualtrics, the survey underwent several iterations to ensure credibility. Specifically, we conducted personal interviews with food/consumer survey researchers and individuals from the coffee industry and local businesses, and held several focus groups. Data collection occurred via a panel provided by Dynata in Spring 2024. Of the 2,667 panelists who entered the survey, 382 were removed owing to incomplete responses (progress below 90%), and 1,392 did not meet the screening criteria (421 did not make coffee at home and 971 had not visited a coffee shop other than Dunkin' or Starbucks within the past three months). Thus, the final sample included 893 respondents.⁵⁾ The survey was restricted to desktop and laptop devices because the choice-set images and instructional video were designed for larger screens. The implications of excluding mobile respondents are discussed in the limitations. The study protocol was approved by the Institutional

⁴⁾ Five people opted out in every choice set; however, based on a follow-up question after the DCE, none were determined to be protestors because their stated reason for opting out was related to their coffee preferences.

⁵⁾ As an additional data quality check, we re-estimated the main model excluding the 65 respondents (7.3%) who answered at least two of the three comprehension-check questions incorrectly. All statistically significant brand-label interactions listed in Table 5 retain their signs and significance (Folgers*Carbon Trust: 0.453***; Starbucks*Carbon Trust: 0.635***), and the Folgers*Rainforest Alliance coefficient remains negative and borderline (-0.448*); the remaining interactions are small and insignificant in both samples. Because any such exclusion threshold is necessarily arbitrary and the results are insensitive to it, we retained these respondents in the main sample to preserve statistical power. This model was estimated with 2,000 Halton draws.

Review Board of Louisiana State University (IRBAG-23-0052) and all respondents provided informed consent. Thirty respondents (3.4%) reported instant coffee as their only brewing method; because eligibility was defined by coffee-shop patronage and the purchase scenario (a 12-ounce bag of coffee) was available to all such patrons, they were retained.⁶⁾

3.2. Empirical Model

The underlying theoretical framework employed to analyze DCE data is random utility theory (RUT), where rational individuals make choices by comparing and selecting an alternative with highest utility. RUT expresses a rational person's indirect utility (U_{ijt}) function as in Equation 1, in which person i derives utility from alternative j , a bag of coffee, in the t -th choice set (McFadden & Train, 2000).

$$U_{ijt} = V_{ijt} + e_{ijt} = X_{ijt}\beta + e_{ijt} \quad (1)$$

where $V_{ijt} = X_{ijt}\beta$ is the deterministic (systematic) component of utility. X_{ijt} is a vector of product attributes, label, brand, roast, and price; β represents a vector of unknown parameters to be estimated; and e_{ijt} is error, unobservable heterogeneity due to attribute perceptions or non-controllable factors. Equation 2 indicates that an individual i will choose coffee bag j over coffee bag k , if and only if the utility of j is greater. The term $e_{ik} - e_{ij}$ represents the difference in the unobservable components of utility between the two bags of coffee.

$$U_{ij} > U_{ik} \Leftrightarrow V_{ij} + e_{ij} > V_{ik} + e_{ik} \quad (2)$$

Equation 3 presents the utility function with attributes coded as dummy variables. "OptOut" equals 1 when respondents select "prefer not to buy any of these," and 0 otherwise. Local, Starbucks, and Folgers are brand dummy variables with Dunkin' as the reference. Fairtrade, Organic, Rainforest, and Carbon are label dummy variables, while the products of the brand and label dummies serve as interaction terms, again with Dunkin' as the reference. Price is treated as a continuous variable, and the unobservable component of utility is

⁶⁾ Excluding these 30 respondents did not qualitatively alter the results: all statistically significant brand-label interactions listed in Table 5 remain significant with the same signs (Folgers*Carbon Trust: 0.470***; Starbucks*Carbon Trust: 0.544***; estimated with 2,000 Halton draws).

included at the end of the equation.

Importantly, it includes interaction terms between label and brand attributes, capturing synergistic effects on coffee bag choice. These interactions, such as “FolgersRA”, measure how the value of a label (Rainforest Alliance) may change with a specific brand (Folgers).

$$\begin{aligned}
 U_{ijt} = & \beta_0 optout_{ijt} + \beta_1 Local_{ijt} + \beta_2 Starbucks_{ijt} + \beta_3 Folgers_{ijt} \\
 & + \beta_4 FT_{ijt} + \beta_5 Org_{ijt} + \beta_6 Rain_{ijt} + \beta_7 Carbon_{ijt} \\
 & + \sum_{k=8}^{11} \beta_k (Local * Label)_{ijt} \\
 & + \sum_{k=12}^{15} \beta_k (Starbucks * Label)_{ijt} \\
 & + \sum_{k=16}^{19} \beta_k (Folgers * Label)_{ijt} \\
 & + \beta_{20} Price_{ijt} + e_{ijt}
 \end{aligned} \tag{3}$$

Assuming a type 1 extreme value distribution, a logit model can be created to determine the probability of individuals selecting alternative j . Conditional logit models, shown in Equation 4, rely on the independence from irrelevant alternatives (IIA) property, under which the ratio of choice probabilities for any two alternatives is independent of the other alternatives in the choice set (McFadden, 1974).

$$P_{ijt} = \frac{\exp(X_{ijt}\beta)}{\sum_{k=1}^J \exp(X_{ikt}\beta)} \tag{4}$$

This assumption may be restrictive when alternatives are close substitutes. The mixed logit model relaxes it by allowing heterogeneous preferences, as shown in Equation 5.

$$P_{ijt} = \int \frac{\exp(X_{ijt}\beta)}{\sum_{k=1}^J \exp(X_{ikt}\beta)} h(\beta) d\beta \tag{5}$$

The model is estimated in panel form, allowing random coefficients to be respondent-specific and constant across the four choice tasks completed by each respondent. In this model, unknown parameters β are treated as random variables, allowing for variability across respondents (Hu et al., 2009). This specification enables flexible substitution patterns and accurate standard error estimates while relaxing the IIA property (Lancsar et al., 2017). The random parameters β are assumed to follow a distribution $H(\cdot)$; that is, $\beta \sim H(\theta, v)$, where $H(\cdot)$ denotes a specified probability distribution with parameters q and n (here, the mean and standard deviation). Thus, θ and v are the parameters actually estimated (Hu et al., 2009). In the mixed logit model, we assume that all attributes, except price, are specified as random parameters following a normal distribution.

WTP values are calculated using Equation 6, where the numerator represents the estimated mean value of the coefficient associated with a particular attribute, $\beta_{attribute}$, and the denominator is the price coefficient, β_{price} .

$$WTP_i = - \frac{\beta_{attribute} + \beta_{Brand*attribute}}{\beta_{price}} \quad (6)$$

The equation also incorporates interaction variables to describe how WTP for an attribute may vary by brand. Standard errors for the WTP of each attribute are calculated using the delta method.

In the mixed logit models, the price coefficient is held fixed while all non-price attributes are specified as random. This specification is chosen for inference on WTP rather than for in-sample fit. When the price coefficient is random, WTP is the ratio of two random variables, and its magnitude depends on which moment of the price-coefficient distribution is used; with the log-normal specification of Table A2 Model II ($\sigma = 0.746$), mean-based WTP exceeds median-based WTP by approximately 32%. More generally, WTP distributions derived from random price coefficients may have undefined or extremely heavy-tailed moments (Daly et al., 2012; Train & Weeks, 2005). A fixed price coefficient yields well-defined WTP measures and permits coherent delta-method inference on the brand-specific linear combinations and cross-brand equality tests reported in Table 6, which are central to this study's research question. Therefore, we treat the alternative specifications as robustness checks rather than as competing preferred models. Although Table A2 Model II attains a lower AIC and BIC than the main model, Table A3 indicates that its median-based WTP estimates are nearly identical to those of the main model (e.g., \$1.58 versus \$1.64 for USDA Organic on Dunkin' bags, and \$2.12 versus \$1.83 for Carbon Trust on Starbucks bags), thus, its better fit does not alter any substantive conclusion. By contrast, the correlated-coefficients specification (Model III) is strongly disfavored by BIC owing to its 67 parameters (8,061.6 versus 7,835.6 for the main model), and it also reproduces the same qualitative pattern of results.

4. Results

4.1. Sample Results

A total of 893 respondents qualified to complete the coffee DCE. Table 2 provides demographics of the respondents, as well as segmented demographics of the respondents who purchased coffee locally. We defined three types of coffee consumers based on their stated frequency of purchasing local coffee: 1) Non-local purchasers: purchased local coffee five times or less per year; 2) Local purchasers: purchased local coffee at least six times a year and at most monthly, and 3) Local frequenters: purchased local coffee weekly or more often. The sample comprised 35% non-local purchasers, 37% local purchasers, and 28% local frequenters.

As detailed in Table 2, the sample skewed older (75% aged 35-74) and educated (65% held at least a college degree, versus the 2021 national average of 38%; Korhonen, 2023), with a slight female majority (52%) and a majority married (58%), employed at least part-time (55%), white (76%), and non-Hispanic (90%). Nearly three-quarters reported a household income of \$50,000 or more. Segment differences were modest, although local frequenters skewed more male (58%) and more likely to have dependents and full-time employment than non-local purchasers. Table 2 presents the full segment-level statistics.

Table 2: Sample Summary Statistics of Coffee Drinkers who visit local coffee shops (%)

Characteristic	Total Sample (893)	Non-Local Purchasers ¹ (316)	Local Purchasers ² (330)	Local Frequenters ³ (247)
Age				
18 to 34	14.6	9.0	18.3	16.7
35 to 54	35.9	29.4	39.3	39.6
55 to 74	38.8	47.3	33.8	34.7
75+	10.7	14.4	8.5	9.0
Gender				
Male	48.1	43.6	44.7	58.4
Female	51.9	56.4	55.4	41.6
Education				
High school/GED	12.6	11.8	11.9	14.7
Some college/Technical	22.9	19.8	23.7	25.7
College degree	39.2	44.1	38.0	34.7
Postgraduate degree	25.3	24.3	26.4	24.9

(Continue)

Characteristic	Total Sample (893)	Non-Local Purchasers ¹ (316)	Local Purchasers ² (330)	Local Frequenters ³ (247)
Employment				
Seeking employment	5.7	6.3	5.8	5.1
Employed part-time	9.5	8.1	9.7	10.8
Employed full-time	45.8	33.8	45.6	58.2
Student	2.9	3.1	3.9	1.3
Retired	17.6	28.8	14.6	10.1
Other ⁴	18.5	20.0	20.4	14.6
Dependents				
0	47.0	52.5	46.6	41.8
1	20.8	23.8	19.9	19.0
2 to 3	24.8	20.6	25.7	27.9
4 or more	7.4	3.1	7.8	11.4
Marital Status				
Single (never married)	30.7	30.0	31.1	31.0
Married/partner	58.2	56.3	58.3	60.1
Widowed	3.2	4.4	1.5	4.4
Divorced/separated	7.8	9.4	9.2	4.4
Race				
White	76.0	75.6	77.2	74.7
Black	10.1	8.1	9.2	13.3
Native American/Alaskan	1.2	0.6	1.9	0.6
Asian	7.8	8.8	7.3	7.6
Others ⁵	5.0	6.9	4.4	3.8
Ethnicity				
Hispanic/Latino	9.7	8.8	9.2	11.4
Not Hispanic/Latino	90.3	91.3	90.8	88.6
Household Income				
Less than \$25,000	12.5	16.2	13.4	7.7
\$25,000 to 49,999	15.4	13.0	13.9	19.9
\$50,000 to 99,999	38.1	35.7	40.1	37.8
\$100,000 or more	34.0	35.1	32.7	34.6

Note: ¹ Purchased local coffee five times or less per year; ² purchased local coffee six to 12 times per year; ³ purchased local coffee weekly or more; ⁴ Includes Not in workforce/Self-employed/Disability; ⁵ Includes Native Hawaiian/Pacific Islander and Two or more races

Coffee purchase and consumption characteristics are summarized in Table 3. Respondents most often bought Starbucks (31%), Folgers (28%), and Dunkin' (26%); 74% purchased two or more brands. Grocery stores were the dominant purchase source (68%). Medium roast was the most preferred (57%), and taste was the leading reason for drinking coffee (55%), followed by caffeine (23%) and habit (19%). Most respondents (76%) spent \$30 or less per month on bagged coffee.

Table 3: Coffee Consumer Characteristics (n=893)

Characteristic		%		
Top Eight Brands				
Starbucks		30.9		
Folgers		28.3		
Dunkin'		25.6		
Maxwell House		18.9		
Small company's brand		15.7		
Grocery store's generic brand		14.8		
Peet's Coffee		13.9		
Caribou Coffee		7.5		
Coffee source				
Grocery store		67.8		
Local, independent coffee shop		11.2		
National chain coffee shop		8.1		
Regional chain coffee shop		3.6		
Convenience store		2.0		
Other		7.2		
Coffee purchase frequency ¹		Local	Chain	Convenience
Never		8.9	13.0	30.1
One to five times per year		26.6	23.5	24.0
Six to ten times per year		12.5	12.6	11.3
Monthly		24.6	21.9	17.6
Weekly		21.1	20.6	10.7
Multiple times per week		6.4	8.4	6.3
Coffee roast preferred				
Medium		56.9		
Dark/French		26.2		
Light		8.7		
Flavored		6.3		
Top 5 Coffee purchase forms				
Automatic brew/dripped		52.1		
K-cup		35.4		
Espresso		13.0		
French press		11.9		
Instant ²		9.4		
Coffee drinking motivation				
Taste		54.9		
Caffeine		23.3		
Habit of drinking coffee		18.9		
Atmosphere/ people there		0.9		
Other		1.9		
Typical spending amount				
\$10 or less		26.8		
\$11 to 30		48.7		
\$31 to 50		17.2		
More than \$50		5.2		
Don't know		2.2		

Note: ¹ Respondents answered the purchase frequency question for each of the three shown sources: local coffee shops, chain coffee shops, and convenience stores/grocery stores/gas stations.

² Respondents who indicated they only drank instant coffee did not answer the brand or coffee source questions, but still completed the DCE.

Table 4 reports label familiarity, trust, and purchase behavior. Familiarity, trust, and regular-purchase rates followed the same descending order—Organic, Fairtrade, Rainforest Alliance, and Carbon Trust— which was consistent with prior evidence that organic is the

most recognized label, followed by Fairtrade (Abdu & Mutuku, 2021). Carbon Trust was the least familiar (15%) and least trusted (46%); although this may seem to conflict with its observed WTP, prior work has similarly documented limited carbon awareness alongside positive WTP for carbon labeling (Birkenberg et al., 2021). Sustainability or ethical reasons were the most cited motivation for valuing labels (48%). Compared to national chains such as Starbucks or Dunkin', most respondents thought that local coffee shops: had a better atmosphere or sense of community (67%), had better tasting coffee (57%), and were more convenient (51%). This aligns with findings that local food is perceived as more high quality and fits better into consumers' lifestyles than regional or nationally produced food (Pícha et al., 2018).

Table 4: Label Purchase and Motivation

Characteristic	%
Label familiarity	
USDA Organic	69.3
Fairtrade	46.1
Rainforest Alliance	33.3
Carbon Trust	14.7
Label trust ¹	
USDA Organic	72.0
Fairtrade	63.5
Rainforest Alliance	58.2
Carbon Trust	45.7
Regular purchasers ²	
USDA Organic	66.2
Fairtrade	51.9
Rainforest Alliance	40.3
Carbon Trust	27.6
Label primary reasoning	
Sustainable/Ethical reasons	48.3
Health reasons	21.2
Better taste	8.2
No/little benefit	8.0
Don't know	14.4
Local coffee shop	
Atmosphere	67.3
Taste	56.6
Convenience	50.6
Expensive	41.0

Note: ¹ Calculated as those who indicated "Strongly Agree" or "Agree".

² Calculated as those who indicated they would purchase either "sometimes", "often", or "always."

4.2. Model Results

Model results for mixed logit appear in Table 5. Based on a likelihood ratio test, the model fit of the mixed logit models is significantly better than conditional logit models, which appear as Model I in Appendix Table A2.

Focusing on Model I in Table 5, many of the signs and the magnitude of attributes are as expected. First, the price and optout variables have significant negative coefficients, indicating that, holding other factors constant, consumers are less likely to choose a bag of coffee if the price is higher and they prefer to buy Dunkin' coffee (the omitted reference category) than to go without, respectively. The parameter estimates for the local coffee purchase source are consistent with those in the literature, which indicates that consumers value locally branded foods (Remar et al., 2016). Relative to Dunkin', Local brand has a positive, significant coefficient, meaning this sample prefers local coffee to Dunkin'. Folgers and Starbucks have a significant negative coefficient, demonstrating that they are less desirable than Dunkin'.

Although research has analyzed Starbucks as a premium-priced brand (Moon et al., 2023), it is unsurprising that our sample of local shop visitors and purchasers prefer local (Haskova, 2015). We can make comparisons between Starbucks, Folgers, and Local given these coefficients. A post-estimation test of the Local coefficient equal to the coefficient for Folgers is rejected (p value < 0.001), indicating that the former is preferred. Similarly, a test of Local equal to Starbucks is rejected (p value < 0.001). Counter to the preferences described in Table 3, consumers are indifferent between dark and medium roast. The significance of standard deviations of variables specified as random denotes preference heterogeneity across respondents.

Upon examination of the four labels, Organic has a significant, positive coefficient, indicating that consumers prefer this label to no label. Based on this study's preliminary results that the majority of the sample purchased Organic labeled products, this result is unsurprising. Fairtrade is not significant, meaning consumers are indifferent to the presence of the Fairtrade label. Our sample is based on local coffee purchasers, meaning their preferences may be slightly different from those of all coffee purchasers, whom research shows have positive WTP for Fairtrade (Yang et al., 2013). Other research has found that Fairtrade is second only to organic labeling in terms of highest WTP (Abdu & Mutuku, 2021;

Fuller et al., 2022; Gallenti et al., 2016; Maaya et al., 2018; Van Loo et al., 2015).

Model II in Table 5 incorporates the interactions of brand with label. Other studies have found positive WTP for labels such as organic and Fairtrade; however, they did not differentiate between specific brands when examining labels (Abdu & Mutuku, 2021; Fuller et al., 2022; Gallenti et al., 2016; Maaya et al., 2018; Van Loo et al., 2015). A likelihood ratio test reveals that this model has a better fit (p -value=0.021) compared to Model I. This indicates that adding the brand*label interaction variables makes a better fit mixed logit model. The model results are largely consistent with those of Model I except that Local and Carbon (for Dunkin') are no longer significant.

Interpretation of the interaction terms requires care: an interaction coefficient measures how a label's effect differs from its effect for the reference brand (Dunkin'), not the label's total effect for that brand. For example, the negative Local*Organic interaction (-0.432) does not imply that the Organic label reduces preference for local coffee; the total Organic effect for the local alternative is $0.423 - 0.432 = -0.009$, essentially zero. The interactions significant at the 5% level are Folgers*Carbon (+0.443) and Starbucks*Carbon (+0.591), while the negative Folgers*Rainforest interaction (-0.434) is borderline ($p = 0.050$). Therefore, the clearest evidence of brand-contingent certification value involves the Carbon Trust label on national brands, together with suggestive evidence of a penalty for the Rainforest Alliance label on Folgers; the remaining brand-label interactions, including all interactions with the local alternative, are not statistically significant at the 5% level.

As robustness checks, we re-estimated the model with a log-normal random price coefficient and with correlated random coefficients (Table A2, Models II-III; WTP comparisons in Table A3). The positive Starbucks*Carbon interaction is significant across all specifications; the Folgers*Carbon and Folgers*Rainforest interactions retain their signs but vary in significance; the negative Local*Organic interaction retains its sign in all specifications and is significant at the 5-10% level in the main and random-price models; and no specification produces a significant positive interaction between the local alternative and any certification.

Table 5: Model Results

	I: Mixed Logit		II: Mixed Logit w/ Interactions	
	Coef	SE	Coef.	SE
Price	-0.258***	0.014	-0.258***	0.014
Optout	-5.948***	0.363	-6.000***	0.403
Local	0.306***	0.098	0.384	0.288
Folgers	-1.195***	0.126	-1.015***	0.292
Starbucks	-0.505***	0.115	-0.860***	0.299
Dark Roast	-0.047	0.067	-0.107	0.070
Organic	0.279***	0.061	0.423***	0.144
Fairtrade	0.078	0.062	0.187	0.143
Rainforest	0.092	0.062	0.114	0.146
Carbon	0.128**	0.061	-0.119	0.144
Local*Organic			-0.432*	0.227
Local*Fairtrade			-0.200	0.210
Local*Rainforest			0.150	0.233
Local*Carbon			0.336	0.226
Folgers*Organic			-0.083	0.238
Folgers*Fairtrade			-0.373	0.237
Folgers*Rainforest			-0.434*	0.222
Folgers*Carbon			0.443**	0.217
Starbucks*Organic			-0.113	0.221
Starbucks*Fairtrade			0.070	0.248
Starbucks*Rainforest			0.107	0.231
Starbucks*Carbon			0.591***	0.221
SD-Optout	3.311***	0.292	3.350***	0.296
SD-Local	1.722***	0.138	1.761***	0.141
SD-Folgers	1.636***	0.166	1.670***	0.170
SD-Starbucks	1.933***	0.159	1.964***	0.161
SD-Dark Roast	1.115***	0.108	1.095***	0.109
SD-Organic	0.456**	0.181	0.496***	0.174
SD-Fairtrade	0.035	0.427	0.017	0.399
SD-Rainforest	0.474**	0.185	0.450**	0.199
SD-Carbon	0.044	0.217	0.038	0.228
# parameter estimates	19		31	
AIC	7601.0		7601.0	
BIC	7744.8		7835.6	
ll	-3781.5		-3769.5	
N respondents	893		893	

Note: ***, **, and * indicate a p-value <0.01, between 0.01 and 0.05, and between 0.05 and 0.1, respectively. Model results are based on 2,000 Halton draws.

Table A2 Model IV re-estimates the model on the full sample, adding interactions between an indicator for local coffee purchasers, respondents who purchase local coffee at least six times per year (the Local Purchasers and Local Frequenters defined in Table 2;

64.6% of the sample), and the four certification labels. The label effect for local purchasers is therefore the sum of the label main effect and the corresponding interaction. Linear-combination tests, reported in the notes to Table A2, show that for local purchasers the total effects of USDA Organic (0.333***), Fairtrade (0.180**), and Carbon Trust (0.181**) are positive and statistically significant, with Organic the largest, whereas Rainforest Alliance is not significant (0.094). In WTP terms, these correspond to \$1.29, \$0.69, \$0.70, and \$0.36 per 12-ounce bag, respectively. Fairtrade is the only certification for which valuation differs significantly between local purchasers and non-purchasers (interaction = 0.291**); for non-purchasers, no label effect is significant at the 5% level (the Organic main effect is marginal, $p=0.078$).

The preference for labels across brand types appears in the bottom half of Table 6. At the 5% level, only two brand-specific certification premiums are statistically distinguishable from zero: USDA Organic on Dunkin' bags (\$1.64) and Carbon Trust on Starbucks bags (\$1.83). The latter is the most robust result in the study, remaining significant at the 1% level across all three specifications reported in Table A3. Several additional premiums are significant only at the 10% level: USDA Organic on Folgers (\$1.32) and Starbucks (\$1.20) bags, Carbon Trust on Folgers bags (\$1.25), and Rainforest Alliance on the local alternative (\$1.02). Because the underlying Local*Rainforest interaction is not significant and the equality tests do not reject equal Rainforest WTP between the local alternative and either Dunkin' or Starbucks, the local Rainforest result should be read as suggestive rather than as evidence that local identity enhances certification value. Rainforest Alliance on Folgers bags carries a negative WTP ($-\$1.24$, $p = 0.069$), and the equality tests indicate that this value differs significantly from that of the local alternative ($p = 0.019$) and of Starbucks ($p = 0.039$); the comparison with Dunkin' is borderline ($p = 0.051$). Finally, although Organic WTP is significant within each national-brand context but not for the local alternative, the equality tests do not reject equal Organic WTP across brands at the 5% level (the closest comparison, Local versus Dunkin', has $p = 0.059$); therefore, cross-brand differences in Organic valuation should not be overstated.

Comparable recent studies found that coffee consumers were willing to pay for sustainability labels and were most willing to pay for organic labeling (Abdu & Mutuku, 2021; Maaya et al., 2018; Van Loo et al., 2015). This finding aligns with recent evidence that, even in the absence of brand interactions, consumers are willing to pay for carbon

labeling, particularly for “Carbon Neutral” claims (Birkenberg et al., 2021).

Table 6: WTP Results¹

	Main Effect	Brand-Label WTP				Test of equal WTP ²
		Local	Dunkin'(Reference)	Folgers	Starbucks	
Local	1.49 (1.11)					
Folgers	-3.93*** (1.14)					
Starbucks	-3.33*** (1.17)					
Dark roast	-0.41 (0.27)					
Organic		-0.04 (0.55)	1.64*** (0.56)	1.32* (0.68)	1.20* (0.64)	-
Fairtrade		-0.05 (0.52)	0.72 (0.55)	-0.72 (0.66)	0.99 (0.68)	-
Rainforest		1.02* (0.58)	0.44 (0.56)	-1.24* (0.68)	0.86 (0.66)	D, F
Carbon		0.84 (0.56)	-0.46 (0.56)	1.25* (0.66)	1.83*** (0.58)	B, C

Note: ¹ Results are based on Model II in Table 5. The Dunkin' column reports WTP based on the main label coefficients because Dunkin' is the omitted brand category.

² This column reports cross-brand equality tests, where letters indicate a significant difference ($p < 0.05$) between A: Dunkin' vs Local, B: Dunkin' vs. Folgers, C: Dunkin' vs. Starbucks, D: Local vs Folgers, E: Local vs Starbucks, and F: Folgers vs Starbucks.

Delta-method standard errors in parentheses.

***, **, and * denote a p-value < 0.01 , < 0.05 , and < 0.1 , respectively.

5. Conclusion

Certified labels convey production practices that consumers often value. This matters for coffee because certifications raise costs for retailers (Rueda & Lambin, 2013). Thus, coffee retailers that consumers identify as local must decide whether this additional expense is justifiable in terms of adding value to their clientele, and ultimately the net effect to profitability.

This study measured preferences and WTP for Fairtrade, USDA Organic, Rainforest Alliance, and Carbon Trust coffees, and how these valuations shift across coffee brands. The local category refers to the coffee shop or roaster that respondents themselves identified as local; therefore, the estimates capture the value of this respondent-defined local alternative, which bundles perceived local identity with differences in familiarity, retail channel, and packaging, rather than the pure effect of independent local ownership.

Consumers preferred the local alternative but were not willing to pay significantly more for it than for Dunkin'. This result establishes that the complete local alternative did not command a significant premium over the reference national brand; however, because that alternative is a bundle, it does not isolate the effect of perceived locality alone. In line with prior literature, USDA Organic labeling commanded significant premiums in national-brand contexts, but added no measurable value on local bags.

The value of some certifications differed across brands. The most robust finding is that the Carbon Trust label (the least familiar and least trusted label in our sample) generated a significant premium when paired with Starbucks (\$1.83), a result significant at the 1% level across all three specifications reported in Table A3, with weaker, 10% level evidence of a premium on Folgers bags (\$1.25). By contrast, the Rainforest Alliance label carried a marginally significant (10% level) penalty on Folgers, and no certification generated a premium on local bags at the 5% level; Rainforest Alliance on local bags indicated only weak, 10% level evidence of a premium, and its interaction with the local alternative was not significant. This pattern differs from findings in other food categories, where local designation and Fairtrade labeling reinforced one another (Onozaka & McFadden, 2011). However, negative interactions among value claims (i.e., combined claims worth less than the sum of their parts) are not uncommon in stated-preference studies (Basu et al., 2018; Meas et al., 2015).

One interpretation draws on signaling theory and the cue-diagnostics framework. Brand credibility and third-party certifications can reduce consumers' perceived risk about credence attributes; however, their effects depend on the presence and valence of other cues (Erdem & Swait, 1998, 2004; Janssen & Hamm, 2012; Miyazaki et al., 2005; Purohit & Srivastava, 2001). Because local food is often associated with authenticity, quality, and sustainability, the perceived-local designation may already serve as a diagnostic cue, limiting the incremental value of third-party certification, whereas for national brands certification can provide additional assurance (Feldmann & Hamm, 2015). The negative valuation of the Rainforest Alliance label on Folgers is consistent with consumer skepticism toward sustainability claims perceived as incongruent with a conventional value brand. This is akin to perceived greenwashing, which has been shown to worsen brand evaluations when environmental claims do not fit a firm's image (Nyilasy et al., 2014; Skarmeas & Leonidou, 2013). Because respondents saw concrete descriptions of each certification, the Carbon

Trust premiums reflect informed valuation of the described attribute rather than mere familiarity; indeed, the Carbon Trust main effect for the reference brand is negative and insignificant, indicating that respondents did not indiscriminately reward the label. However, we emphasize that with only two of 12 brand-label interactions significant at the 5% level (and a third, Folgers*Rainforest, borderline at $p = 0.050$), these mechanisms should be treated as hypotheses for future research rather than established explanations.

These results carry cautious implications for local coffee retailers. Because no certification produced a WTP premium on local bags at the 5% level, the results provide little assurance that certification costs can be recovered through label premiums in this setting. Therefore, certification adoption should be evaluated selectively and treated as an investment whose returns may depend on brand context. The weak Rainforest Alliance result offers, at most, tentative grounds for local retailers who already hold this certification to make it visible; however, it does not by itself justify new certification investment. Descriptively, patrons in our sample reported choosing local shops primarily for atmosphere, taste, and convenience (Table 4), suggesting that local retailers' current differentiation rests on these experiential attributes rather than on certification, although our experiment does not estimate the returns to investing in them. For national brands, the results suggest that carbon-oriented labels may be a promising differentiator, particularly for brands with established quality reputations.

Several limitations should be noted. First, the local coffee shop category was based on respondents' self-identification rather than external verification of ownership structure or geographic scope. Although respondents were not allowed to enter Starbucks or Dunkin' as their local shop, some may have reported other national or regional chains that they considered local because of geographic proximity or regular patronage. Therefore, the estimated local coffee premium should be interpreted as the value of a respondent-identified local coffee option, rather than the value of independent local ownership. In addition, the sample skewed older and excluded mobile respondents, which may understate WTP among younger, mobile-using coffee consumers who comprise a growing share of the specialty coffee market. Therefore, the results should be interpreted as most representative of older, desktop-surveyed local coffee shop patrons. Finally, although the survey included a cheap-talk script and comprehension checks, stated-preference estimates are known to overstate real-payment WTP on average

(Haghani et al., 2021; Penn & Hu, 2018); the estimated premiums of roughly \$1.2–\$1.8 should therefore be interpreted as upper bounds. In addition, the experimental design treats certification effects as additive: the design identified label main effects and brand-label interactions, while interactions among the labels themselves were not separately identified; thus, the value of specific label combinations may differ from the sum of their individual effects (Pérez y Pérez et al., 2020).

Future research could delve deeper into the synergistic effects of branding and sustainability labels, specifically focusing on how these interactions influence consumer perceptions and WTP. Additionally, exploring the specific taste, atmospheric, and convenience attributes that drive consumers to prefer local coffee shops and how these factors contribute to their WTP could provide valuable insights for both local coffee retailers and the wider coffee industry. In addition, further studies could aim to address the limitations of the current research, such as expanding the sample size to include a more diverse population.



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References

- Abdu, N., & Mutuku, J. (2021). Willingness to pay for socially responsible products: A meta- analysis of coffee ecolabelling. *Heliyon*, 7(6), e07043. <https://doi.org/10.1016/j.heliyon.2021.e07043>
- Andorfer, V. A., & Liebe, U. (2015). Do information, price, or morals influence ethical consumption? A natural field experiment and customer survey on the purchase of Fair Trade coffee. *Social science research*, 52, 330-350. <https://doi.org/10.1016/j.ssresearch.2015.02.007>
- Auger, P., & Devinney, T. M. (2007). Do what consumers say matter? The misalignment of preferences with unconstrained ethical intentions. *Journal of business ethics*, 76, 361-383. <https://doi.org/10.1007/s10551-006-9287-y>
- Barnes, R. N., Bosworth, R. C., Bailey, D., & Curtis, K. R. (2014). Connecting sensory quality characteristics and local designations to willingness to pay for cheese at the retail level. *International Food and Agribusiness Management Review*, 17(3), 115-138. <https://doi.org/10.22004/ag.econ.183453>
- Barreto Peixoto, J. A., Silva, J. F., Oliveira, M. B. P., & Alves, R. C. (2023). Sustainability issues along the coffee chain: From the field to the cup. *Comprehensive Reviews in Food Science and Food Safety*, 22(1), 287-332. <https://doi.org/10.1111/1541-4337.13069>
- Basu, A. K., Grote, U., Hicks, R., & Stellmacher, T. (2018). Multiple certifications and consumer purchase decisions: a case study of willingness to pay for coffee in Germany. In *Fair Trade and organic agriculture: a winning combination?* (pp. 61-75). CAB International Wallingford UK. <https://doi.org/10.1079/9781786393050.0000>
- Bernard, J. C., Duke, J. M., & Albrecht, S. E. (2019). Do labels that convey minimal, redundant, or no information affect consumer perceptions and willingness to pay? *Food Quality and Preference*, 71, 149-157. <https://doi.org/10.1016/j.foodqual.2018.06.012>
- Birkenberg, A., Narjes, M. E., Weinmann, B., & Birner, R. (2021). The potential of carbon neutral labeling to engage coffee consumers in climate change mitigation. *Journal of Cleaner Production*, 278, 123621. <https://doi.org/10.1016/j.jclepro.2020.123621>
- Broussard, M. O. H. (2024). Exploring consumer value of certified sustainability labels of local, independent versus national coffee brands [Master's thesis, Louisiana State University]. LSU Scholarly Repository.
- Cranfield, J., Henson, S., Northey, J., & Masakure, O. (2010). An assessment of consumer preference for fair trade coffee in Toronto and Vancouver. *Agribusiness*, 26(2), 307-325. <https://doi.org/10.1002/agr.20217>
- Daly, A., Hess, S., & Train, K. (2012). Assuring finite moments for willingness to pay in random coefficient models. *Transportation*, 39(1), 19-31. <https://doi.org/10.1007/s11116-011-9331-3>
- De Pelsmacker, P., Driesen, L., & Rayp, G. (2005). Do consumers care about ethics? Willingness to pay for fair-trade coffee. *Journal of Consumer Affairs*, 39(2), 363-385. <https://doi.org/10.1111/j.1745-6606.2005.00019.x>
- Del Giudice, T., Stranieri, S., Caracciolo, F., Ricci, E. C., Cembalo, L., Banterle, A., & Cicia, G. (2018). Corporate Social Responsibility certifications influence consumer preferences and seafood market price. *Journal of Cleaner Production*, 178, 526-533. <https://doi.org/10.1016/j.jclepro.2017.12.276>
- Dragusanu, R., Giovannucci, D., & Nunn, N. (2014). The economics of fair trade. *Journal of economic perspectives*, 28(3), 217-236. <https://doi.org/10.1257/jep.28.3.217>
- Drichoutis, A. C., Lusk, J. L., & Pappa, V. (2016). Elicitation formats and the WTA/WTP gap: A study of climate neutral foods. *Food Policy*, 61, 141-155. <https://doi.org/10.1016/j.foodpol.2016.03.001>
- Erdem, T., & Swait, J. (1998). Brand equity as a signaling phenomenon. *Journal of Consumer Psychology*,

- 7(2), 131-157. https://doi.org/10.1207/s15327663jcp0702_02
- Erdem, T., & Swait, J. (2004). Brand credibility, brand consideration, and choice. *Journal of Consumer Research*, 31(1), 191-198. <https://doi.org/10.1086/383434>
- Feldmann, C., & Hamm, U. (2015). Consumers' perceptions and preferences for local food: A review. *Food Quality and Preference*, 40, 152-164. <https://doi.org/10.1016/j.foodqual.2014.09.014>
- Fuller, K., & Grebitus, C. (2023). Consumers' preferences and willingness to pay for coffee sustainability labels. *Agribusiness*, 39(4), 1007-1025. <https://doi.org/10.1002/agr.21810>
- Fuller, K., Grebitus, C., & Schmitz, T. G. (2022). The effects of values and information on the willingness to pay for sustainability credence attributes for coffee. *Agricultural Economics*, 53(5), 775-791. <https://doi.org/10.1111/agec.12706>
- Gallenti, G., Troiano, S., Cosmina, M., & Marangon, F. (2016). Ethical and sustainable consumption in the Italian coffee market: A choice experiment to analyse consumers' willingness to pay. *Italian Review of Agricultural Economics*, 71(2), 153-176. <https://doi.org/10.13128/REA-20077>
- Giovannucci, D., Byers, A., & Liu, P. (2008). Adding value: Certified coffee trade in North America. In P. Liu (Ed.), *Value-adding standards in the North American food market: Trade opportunities in certified products for developing countries*, 33-49.
- Griffith, A. P., McKay, L. C., DeLong, K. L., Jensen, K. L., Boyer, C. N., & Lambert, D. M. (2019). Estimating Restaurant Willingness to Pay for Local Beef. <https://doi.org/10.22004/ageconsearch.umn.edu/record/302735>
- Grunert, K. G. (2011). Sustainability in the food sector: A consumer behaviour perspective. *International Journal on Food System Dynamics*, 2(3), 207-218. <https://doi.org/10.18461/ijfsd.v2i3.232>
- Grunert, K. G., Hieke, S., & Wills, J. (2014). Sustainability labels on food products: Consumer motivation, understanding and use. *Food Policy*, 44, 177-189. <https://doi.org/10.1016/j.foodpol.2013.12.001>
- Haghani, M., Bliemer, M. C., Rose, J. M., Oppewal, H., & Lancsar, E. (2021). Hypothetical bias in stated choice experiments: Part I. Macro-scale analysis of literature and integrative synthesis of empirical evidence from applied economics, experimental psychology and neuroimaging. *Journal of choice modelling*, 41, 100309. <https://doi.org/10.1016/j.jocm.2021.100309>
- Hamilton, K., & Wagner, B. A. (2014). Commercialised nostalgia: Staging consumer experiences in small businesses. *European Journal of Marketing*, 48(5/6), 813-832. <https://doi.org/10.1108/EJM-05-2012-0325>
- Harrison, K. L. (2008). Organic Plus: Regulating Beyond the Current Organic Standards. *Pace Envtl. L. Rev.*, 25, 211.
- Haskova, K. (2015). Starbucks marketing analysis. *CRIS-Bulletin of the Centre for Research and Interdisciplinary Study*, 2015(11), 11-29. <https://doi.org/10.1515/cris-2015-0002>
- Hicks, A. L. (2018). Environmental implications of consumer convenience: coffee as a case study. *Journal of Industrial Ecology*, 22(1), 79-91. <https://doi.org/10.1111/jiec.12487>
- Hu, W., Woods, T., & Bastin, S. (2009). Consumer acceptance and willingness to pay for blueberry products with nonconventional attributes. *Journal of Agricultural and Applied Economics*, 41(1), 47-60. <https://doi.org/10.1017/S1074070800002546>
- Huang, Z. (2022, December). A Comparative Analysis between Chain Coffee Shops and Independent Coffee Shops from Consumer Satisfaction Perspective. In 2022 4th International Conference on Economic Management and Cultural Industry (ICEMCI 2022) (pp. 1438-1444). Atlantis Press. https://doi.org/10.2991/978-94-6463-098-5_163
- Janssen, M., & Hamm, U. (2012). Product labelling in the market for organic food: Consumer preferences and willingness-to-pay for different organic certification logos. *Food Quality and Preference*, 25(1),

- 9-22. <https://doi.org/10.1016/j.foodqual.2011.12.004>
- Korhonen, V. (2023). Educational attainment distribution in the United States from 1960 to 2022. Statista. Retrieved October 12, 2023, from <https://www.statista.com/statistics/184260/educational-attainment-in-the-us/>
- Lancsar, E., Fiebig, D. G., & Hole, A. R. (2017). Discrete choice experiments: a guide to model specification, estimation and software. *Pharmacoeconomics*, 35(7), 697-716. <https://doi.org/10.1007/s40273-017-0506-4>
- Lange, C., Combris, P., Issanchou, S., & Schlich, P. (2015). Impact of information and in-home sensory exposure on liking and willingness to pay: The beginning of Fairtrade labeled coffee in France. *Food Research International*, 76, 317-324. <https://doi.org/10.1016/j.foodres.2015.06.017>
- Lee, Y., & Bateman, A. (2021). The competitiveness of fair trade and organic versus conventional coffee based on consumer panel data. *Ecological Economics*, 184, 106986. <https://doi.org/10.1016/j.ecolecon.2021.106986>
- Lingnau, V., Fuchs, F., & Beham, F. (2019). The impact of sustainability in coffee production on consumers' willingness to pay-new evidence from the field of ethical consumption. *Journal of Management Control*, 30(1), 65-93. <https://doi.org/10.1007/s00187-019-00276-x>
- Liu, C. C., Chen, C. W., & Chen, H. S. (2019). Measuring consumer preferences and willingness to pay for coffee certification labels in Taiwan. *Sustainability*, 11(5), 1297. <https://doi.org/10.3390/su11051297>
- Lombardi, G. V., Berni, R., & Rocchi, B. (2017). Environmental friendly food. Choice experiment to assess consumer's attitude toward "climate neutral" milk: the role of communication. *Journal of Cleaner Production*, 142, 257-262. <https://doi.org/10.1016/j.jclepro.2016.05.125>
- Loureiro, M. L., & Lotade, J. (2005). Do fair trade and eco-labels in coffee wake up the consumer conscience? *Ecological Economics*, 53(1), 129-138. <https://doi.org/10.1016/j.ecolecon.2004.11.002>
- Maaya, L., Meulders, M., Surmont, N., & Vandebroek, M. (2018). Effect of environmental and altruistic attitudes on willingness-to-pay for organic and fair trade coffee in Flanders. *Sustainability*, 10(12), 4496. <https://doi.org/10.3390/su10124496>
- McFadden, D. (1974). Conditional logit analysis of qualitative choice behavior. In P. Zarembka (Ed.), *Frontiers in econometrics* (pp. 105-142). Academic Press.
- McFadden, D., & Train, K. (2000). Mixed MNL models for discrete response. *Journal of applied Econometrics*, 15(5), 447-470. [https://doi.org/10.1002/1099-1255\(200009/10\)15:5<447::AID-JAE570>3.0.CO;2-1](https://doi.org/10.1002/1099-1255(200009/10)15:5<447::AID-JAE570>3.0.CO;2-1)
- Meas, T., Hu, W., Batte, M. T., Woods, T. A., & Ernst, S. (2015). Substitutes or complements? Consumer preference for local and organic food attributes. *American Journal of Agricultural Economics*, 97(4), 1044-1071. <https://doi.org/10.1093/ajae/aau108>
- Miyazaki, A. D., Grewal, D., & Goodstein, R. C. (2005). The effect of multiple extrinsic cues on quality perceptions: A matter of consistency. *Journal of Consumer Research*, 32(1), 146-153. <https://doi.org/10.1086/429606>
- Moon, J., Song, M., Lee, W. S., & Shim, J. M. (2023). Structural relationship between food quality, usefulness, ease of use, convenience, brand trust and willingness to pay: the case of Starbucks. *British Food Journal*, 125(1), 65-81. <https://doi.org/10.1108/BFJ-07-2021-0772>
- National Coffee Association of the United States. (2014). National Coffee Association's Annual Drinking Trends Study.
- National Coffee Association of the United States. (2023). National Coffee Data Trends Specialty Coffee Report. 48.
- Norwood, F. B., & Lusk, J. L. (2011). Social desirability bias in real, hypothetical, and inferred valuation experiments. *American Journal of Agricultural Economics*, 93(2), 528-534.

- <https://doi.org/10.1093/ajae/aaq142>
- Nyilasy, G., Gangadharbatla, H., & Paladino, A. (2014). Perceived greenwashing: The interactive effects of green advertising and corporate environmental performance on consumer reactions. *Journal of Business Ethics*, 125(4), 693-707. <https://doi.org/10.1007/s10551-013-1944-3>.
- Obermiller, C., Burke, C., Talbott, E., & Green, G. P. (2009). 'Taste great or more fulfilling': The effect of brand reputation on consumer social responsibility advertising for fair trade coffee. *Corporate reputation review*, 12(2), 159-176. <https://doi.org/10.1057/crr.2009.11>
- Onozaka, Y., & McFadden, D. T. (2011). Does local labeling complement or compete with other sustainable labels? A conjoint analysis of direct and joint values for fresh produce claim. *American Journal of Agricultural Economics*, 93(3), 693-706. <https://doi.org/10.1093/ajae/aar005>
- Partzsch, L., Hartung, K., Lümme, J., & Zickgraf, C. (2021). Water in your coffee? Accelerating SDG 6 through voluntary certification programs. *Journal of Cleaner Production*, 324, 129252. <https://doi.org/10.1016/j.jclepro.2021.129252>
- Penn, J. M., & Hu, W. (2018). Understanding hypothetical bias: An enhanced meta-analysis. *American Journal of Agricultural Economics*, 100(4), 1186-1206. <https://doi.org/10.1093/ajae/aay021>
- Penn, J., & Hu, W. (2019). Cheap talk efficacy under potential and actual Hypothetical Bias: A meta-analysis. *Journal of environmental economics and management*, 96, 22-35. <https://doi.org/10.1016/j.jeem.2019.02.005>
- Pérez y Pérez, L., Gracia, A., & Barreiro-Hurlé, J. (2020). Not seeing the forest for the trees: The impact of multiple labelling on consumer choices for olive oil. *Foods*, 9(2), 186. <https://doi.org/10.3390/foods9020186>
- Pícha, K., Navrátil, J., & Švec, R. (2018). Preference to local food vs. Preference to "national" and regional food. *Journal of Food Products Marketing*, 24(2), 125-145. <https://doi.org/10.1080/10454446.2016.1266549>
- Purohit, D., & Srivastava, J. (2001). Effect of manufacturer reputation, retailer reputation, and product warranty on consumer judgments of product quality: A cue diagnosticity framework. *Journal of Consumer Psychology*, 10(3), 123-134. https://doi.org/10.1207/s15327663jcp1003_1
- Rainforest Alliance. (n.d.). UTZ certification (now part of the Rainforest Alliance). Rainforest Alliance.
- Raynolds, L. T., Murray, D., & Heller, A. (2007). Regulating sustainability in the coffee sector: A comparative analysis of third-party environmental and social certification initiatives. *Agriculture and Human Values*, 24(2), 147-163. <https://doi.org/10.1007/s10460-006-9047-8>
- Reinecke, J., Manning, S., & Von Hagen, O. (2012). The emergence of a standards market: Multiplicity of sustainability standards in the global coffee industry. *Organization studies*, 33(5-6), 791-814. <https://doi.org/10.1177/0170840612443629>
- Remar, D., Campbell, J., & DiPietro, R. B. (2016). The impact of local food marketing on purchase decision and willingness to pay in a foodservice setting. *Journal of Foodservice Business Research*, 19(1), 89-108. <https://doi.org/10.1080/15378020.2016.1129224>
- Ridder, M. (2023, August 30). *Coffee shops and cafes in the US - statistics & facts*. Statista Research Department. Retrieved October 13, 2023, from <https://www.statista.com/topics/1670/coffeehouse-chain-market/#topicOverview>
- Rueda, X., & Lambin, E. F. (2013). Responding to globalization: impacts of certification on Colombian small-scale coffee growers. *Ecology and Society*, 18(3). <https://doi.org/10.5751/ES-05595-180321>
- Samoggia, A., & Riedel, B. (2018). Coffee consumption and purchasing behavior review: Insights for further research. *Appetite*, 129, 70-81. <https://doi.org/10.1016/j.appet.2018.07.002>
- Sepúlveda, W. S., Chekmam, L., Maza, M. T., & Mancilla, N. O. (2016). Consumers' preference for the origin

- and quality attributes associated with production of specialty coffees: Results from a cross-cultural study. *Food Research International*, 89, 997-1003. <https://doi.org/10.1016/j.foodres.2016.03.039>
- Skarmetas, D., & Leonidou, C. N. (2013). When consumers doubt, watch out! The role of CSR skepticism. *Journal of Business Research*, 66(10), 1831-1838. <https://doi.org/10.1016/j.jbusres.2013.02.004>
- Steiner, B. E., Peschel, A. O., & Grebitus, C. (2017). Multi-product category choices labeled for ecological footprints: exploring psychographics and evolved psychological biases for characterizing latent consumer classes. *Ecological Economics*, 140, 251-264. <https://doi.org/10.1016/j.ecolecon.2017.05.009>
- Train, K., & Weeks, M. (2005). Discrete choice models in preference space and willingness-to-pay space. In R. Scarpa & A. Alberini (Eds.), *Applications of simulation methods in environmental and resource economics* (pp. 1-16). Springer. https://doi.org/10.1007/1-4020-3684-1_1
- Valenciano-Salazar, J. A., André, F. J., & Soliño, M. (2021). Paying for Sustainable Coffee in a Developing Country: Consumers' Profile in Costa Rica. *Sustainability*, 13(16), 9360. <https://doi.org/10.3390/su13169360>
- Van Bussel, L., Kuijsten, A., Mars, M., & Van't Veer, P. (2022). Consumers' perceptions on food-related sustainability: A systematic review. *Journal of Cleaner Production*, 341, 130904. <https://doi.org/10.1016/j.jclepro.2022.130904>
- Van Loo, E. J., Caputo, V., Nayga Jr, R. M., Seo, H.-S., Zhang, B., & Verbeke, W. (2015). Sustainability labels on coffee: Consumer preferences, willingness-to-pay and visual attention to attributes. *Ecological Economics*, 118, 215-225. <https://doi.org/10.1016/j.ecolecon.2015.07.011>
- Vanclay, J. K., Shortiss, J., Aulsebrook, S., Gillespie, A. M., Howell, B. C., Johanni, R., Maher, M. J., Mitchell, K. M., Stewart, M. D., & Yates, J. (2011). Customer response to carbon labelling of groceries. *Journal of Consumer Policy*, 34, 153-160. <https://doi.org/10.1007/s10603-010-9140-7>
- Verbeke, W. (2008). Impact of communication on consumers' food choices: Plenary lecture. *Proceedings of the Nutrition Society*, 67(3), 281-288. <https://doi.org/10.1017/S0029665108007179>
- Yang, S.-H., Hu, W., Mupandawana, M., & Liu, Y. (2012). Consumer willingness to pay for fair trade coffee: a Chinese case study. *Journal of Agricultural and Applied Economics*, 44(1), 21-34. <https://doi.org/10.1017/S1074070800000146>
- Yang, S. H., Qing, P., Hu, W., & Liu, Y. (2013). Using a modified payment card survey to measure Chinese consumers' willingness to pay for fair trade coffee: Considering starting points. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie*, 61(1), 119-139. <https://doi.org/10.1111/j.1744-7976.2012.01266.x>

Appendix

Table A1: List of Studies Related to Consumer Preferences for Coffee Sustainability Labels

Author	WTP Outcome
Abdu and Mutuku (2021)	Meta-analysis; Positive WTP for Fairtrade and organic coffee.
Basu et al. (2018)	Positive WTP for Fairtrade coffee.
Birkenberg et al. (2021)	Positive WTP for Carbon Neutral labeled coffee.
Cranfield et al. (2010)	Positive WTP for Fairtrade coffee.
De Pelsmacker et al. (2005)	Positive WTP for Fairtrade for 'coffee-lovers' but not for entire sample.
Fuller et al. (2022)	Positive WTP for Fairtrade, organic, and Rainforest Alliance coffee.
Fuller and Grebitus (2023)	Labeling significantly increased WTP, and highest premium was for Fairtrade and organic labels.
Gallenti et al. (2016)	Heterogeneous preferences for labels among Italian consumers More interest in organic than Fairtrade label
Lange et al. (2015)	Positive WTP for Fairtrade, increased with an information treatment.
Lee and Bateman (2021)	Demand for Fairtrade and organic- labeled coffees was more elastic than conventional coffee, and WTP was positive for labels.
Lingnau et al. (2019)	Non-sustainability had a larger (negative) effect on willingness to pay than sustainability labeling, which had a positive effect.
Liu et al. (2019)	From highest to lowest, consumers valued traceability, organic certification, grading, environmental friendliness, and fair-trade certification.
Loureiro and Lotade (2005)	WTP higher for Fairtrade and shade-grown coffee than for organic, and all elicited a positive premium.
Maaya et al. (2018)	Comparable, high WTP was found for Fairtrade and organic labels, and altruistic attitudes significantly affect WTP for labels.
Obermiller et al. (2009)	Small firms should focus on quality first, while large firms, who already have a reputation for high quality, should promote the social responsibility of Fair Trade.
Sepúlveda et al. (2016)	Fairtrade label was most valued by all coffee consumers and Rainforest Alliance least.
Valenciano-Salazar et al. (2021)	Controlling for socioeconomic factors, higher WTP for carbon-neutral labeling than Fairtrade or ISO.
Van Loo et al. (2015)	WTP for certified-organic coffee was higher than Rainforest Alliance and Fair-Trade USA coffee for US consumers.
Yang et al. (2012)	Positive WTP for Fairtrade coffee, higher WTP among females.

Table A2: Model Results with Alternative Specifications

	I: Conditional Logit	II: Random Price	III: Correlation	IV: Full Sample with Local Purchasers x Label Interaction ¹
Price	-0.168***	-1.364***	-0.289***	-0.259***
Optout	-2.695***	-6.986***	-5.832***	-5.862***
Local	0.386**	0.425	0.787**	0.305***
Folgers	-0.656***	-1.113***	-0.585	-1.199***
Starbucks	-0.163	-0.893***	-0.595	-0.503***
Dark Roast	-0.023	-0.156**	-0.076	-0.046
Organic	0.276***	0.403***	0.511***	0.180*
Fairtrade	0.066	0.186	0.309*	-0.112
Rainforest	0.103	0.124	0.149	0.084
Carbon	-0.070	-0.173	-0.061	0.031
Localpur*Organic				0.152
Localpur*Fairtrade				0.291**
Localpur*Rainforest				0.010
Localpur*Carbon				0.150
Local*Organic	-0.313**	-0.410*	-0.443	
Local*Fairtrade	-0.122	-0.245	-0.381	
Local*Rainforest	0.072	0.154	0.113	
Local*Carbon	0.252*	0.370	0.328	
Folgers*Organic	0.036	-0.096	-0.316	
Folgers*Fairtrade	-0.089	-0.343	-0.693**	
Folgers*Rainforest	-0.175	-0.372	-0.251	
Folgers*Carbon	0.228	0.370	0.315	
Starbucks*Organic	-0.154	-0.097	-0.221	
Starbucks*Fairtrade	0.036	0.029	-0.010	
Starbucks*Rainforest	-0.058	0.087	0.119	
Starbucks*Carbon	0.328**	0.714***	0.602**	
SD-Optout		3.112***	3.864***	3.208***
SD-Local		1.845***	2.448***	1.729***
SD-Folgers		1.726***	2.049***	1.644***
SD-Starbucks		2.033***	2.594***	1.934***
SD-Dark Roast		1.087***	1.247***	1.115***
SD-Organic		0.515***	0.562***	0.456**
SD-Fairtrade		0.111	0.782***	0.042
SD-Rainforest		0.245	0.789***	0.475**
SD-Carbon		0.005	0.576***	0.044
SD-Price		0.746***		
# parameter estimates	22	32	67	23
AIC	8443.4	7519.9	7554.6	7601.4
BIC	8609.9	7762.0	8061.6	7775.5
ll	-4199.7	-3727.9	-3710.3	-3777.7
N respondents	893	893	893	893

Note: ¹ Full sample with Local-purchase * Label interactions.

Linear combinations (label + Local purchaser × label): Organic 0.333*** (0.075), Fairtrade 0.180** (0.076), Rainforest 0.094 (0.076), Carbon 0.181** (0.075). Models II-IV are estimated with 2,000 Halton draws; Model I is a conditional logit.

***, **, and * indicate a p-value < 0.01, < 0.05, and < 0.1, respectively.

Table A3: WTP Results from Three Models

	I: Main Model	II: Random Price	III: Correlation
Local: Organic	-0.04	-0.03	0.23
Dunkin': Organic	1.64***	1.58***	1.77***
Folgers: Organic	1.32*	1.20*	0.67
Starbucks: Organic	1.20*	1.20*	1.00
Local: Fairtrade	-0.05	-0.23	-0.25
Dunkin': Fairtrade	0.72	0.73	1.07*
Folgers: Fairtrade	-0.72	-0.61	-1.33*
Starbucks: Fairtrade	0.99	0.84	1.03
Local: Rainforest	1.02*	1.09*	0.90
Dunkin': Rainforest	0.44	0.49	0.51
Folgers: Rainforest	-1.24*	-0.97	-0.35
Starbucks: Rainforest	0.86	0.83	0.93
Local: Carbon	0.84	0.77	0.92
Dunkin': Carbon	-0.46	-0.68	-0.21
Folgers: Carbon	1.25*	0.77	0.88
Starbucks: Carbon	1.83***	2.12***	1.87***

Note: Column 1 reproduces Table 6 (Table 5, Model II). Column 2 is based on Table A2 Model II and uses the median of the log-normal price-coefficient distribution; mean-based WTP would be approximately 32% higher given the estimated dispersion ($\sigma = 0.746$). Column 3 is based on Table A2 Model III. Each entry is the brand-specific total WTP for the label shown, computed as in Table 6 (the label main effect plus the corresponding brand-label interaction, divided by the negative of the price coefficient); entries are not interaction coefficients. ***, **, and * indicate a p-value < 0.01 , < 0.05 , and < 0.1 , respectively.

Figure A1: Certification Information Presented to Respondents in the Survey

Text-based description

Please read about the following labels sometimes seen on coffee before answering the next few questions:

Label	Label Information
USDA Organic	 Adheres to regulations like being grown on soil that had no prohibited substances applied for three years prior to harvest
Rainforest Alliance	 Meets requirements on the ethicality of farmers, sustainability of practices, and sustainability in supply chain
Fairtrade	 Provides ethical and environmental sustainability regulations at farm origin and along the supply chain of a variety of foods and ingredients
Carbon Trust	 greenhouse gas emissions from production are reduced and/or offset by carbon credit, meaning minimal impact to global climate change

Video-based instruction

Labels

Feature several labels or certifications that signify their use of certain production practices.

