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Does award and origin labeling influence consumers' willingness-to-pay beyond sensory cues? An experimental auction on improved Philippine tablea (cocoa liquor)

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ABSTRACT

Origin-based identification and awards are used by craft chocolate makers as cues to signify superior quality and more inclusive practices. However, there is a lack of consumer choice and willingness to pay (WTP) literature that explores the impact of sensory and external cues, particularly award and origin labels, of craft chocolates. Thus, this study aims to combine hedonic and WTP measurements through an experimental auction of three Philippine tablea (cocoa liquor) variants from three origins (i.e., Bohol, Bicol, and Davao) in the Philippines. Information was revealed in a four-round second-price auction: blind condition, award or origin label (randomized order), and informed condition. Results indicated that participants were willing to pay a premium to switch their endowed tablea to the three auctioned tablea. Hedonic and WTP measurements resulted in an overall consistency of the hierarchy of preference between tablea variants. Award and origin significantly improved sensory ratings and WTP premiums for the three variants. Econometric analyses revealed that taste positively influenced the propensity to exchange and WTP premiums for all variants. In conclusion, this study found that taste was the most vital factor in choosing tablea, while award and origin labels may be used to further enhance perceived quality and value.

1. Introduction

Consumers' food consumption is more and more linked to quality experience and attributes related to welfare for the society and the environment (Vecchio and Annunziata, 2018). Indeed, in the case of chocolate, consumer choice is influenced not only by sensory quality but also with other quality cues (e.g., sustainability certifications, origin) found in product labels (Silva AR de et al., 2017, Poelmans and Rousseau, 2016, Enax et al., 2015). This is especially relevant for craft chocolate. Craft chocolate refers to "fine, flavor, specialty, artisan, or premium chocolate", which is superior in terms of flavor attributes, quality, and cacao origin specificity (Cadby, 2021). Craft chocolate emerges from the overall chocolate industry as a sustainable alternative business strategy (Cadby et al., 2021), since craft chocolate makers are usually small businesses that prioritize quality, farmer and environmental welfare, and ethical sourcing (Cadby, 2021).

While craft chocolate propels the chocolate industry into more sustainable practices, majority of craft chocolate makers are rejecting sustainable certifications (Brown et al., 2020). Instead, craft chocolate makers use origin-based identification to gain market recognition for their sustainability, taste quality, and flavor diversity (Cadby and Araki, 2021). By putting the cocoa or chocolate origin on the label, they signify transparency that the cocoa beans are directly sourced from farmers of certain locality (Cadby et al., 2021). Aside from this, craft chocolate companies in many parts of the world are keen on participating award competitions and winners stamp award logos in labels, taking this as a strategy to further grow and develop their markets (Great Taste Awards., 2021, Academy of Chocolate., 2021).

Although the sensory experience is known as a primary driver of chocolate consumption (Poelmans and Rousseau, 2016, Perez et al., 2020), it appears that award and origin labels can indeed serve as quality cues. Award labeling and messaging influence consumer

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preference as they provide a sense of credibility, quality assurance, and value for money, however, such evidence is limitedly found on wines (Eustice et al., 2019, Lockshin et al., 2006). However, consumers may not always be willing to pay more for award labels of other products such as tomatoes and apples (Jürkenbeck and Spiller, 2021), as well as cheese (Paula et al., 2017). Nevertheless, taste awards can also enhance perceived taste for various retail food products and eventually improve perceived quality, brand trust, as well as willingness to buy (Konuk, 2021). Despite its growing relevance, there has been no attempts yet to investigate the influence of chocolate awards on perceived sensory quality (e.g., taste, flavor) and consumer preference.

Likewise, there is also a limited number of preference studies with regards to chocolate origin (Del Prete and Samoggia, 2020). These studies investigated the impact of country-of-origin (COO) on consumer acceptability, quality perception, and purchase decision, and they reported a minimal influence (Poelmans and Rousseau, 2016, Del Prete and Samoggia, 2020, Ozretic-Dosen et al., 2007). While most of these studies looked at the importance of origin relative to other extrinsic cues, only Poelmans and Rousseau (Poelmans and Rousseau, 2016) and Sepúlveda et al. (Sepúlveda et al., 2021) tried to elicit preference and assess willingness-to-pay (WTP) for chocolates based on origin, through a choice experiment. As such, there is still a great deal of uncertainty as to the influence of origin to consumer preference and WTP. These issues seem to be of particular importance to craft chocolate companies as they indicate quality differences among competing products precisely by emphasizing awards and/or origin.

This study, therefore, aims to provide a better understanding of consumer choice and WTP based both on sensory cues and extrinsic cues such as award and origin labels of craft chocolates. The focus will be particularly on Philippine tablea (cocoa liquor), which is a traditional craft chocolate made of "fermented or unfermented, dried, roasted, dehulled, ground, and molded mass of pure (100%) cacao beans without added ingredients and additives" (BAFS 2021). Despite being called "cocoa liquor", tablea is purely molded cocoa mass or paste derived from grinding cocoa beans and no alcohol involved during the process of making (Gutiérrez-Maciás et al., 2021). Tablea is traditionally used to prepare a hot chocolate beverage by dissolving it in boiling water, which is similar to how hot chocolate beverages are prepared using block chocolates (Mazo Rivas et al., 2018). The Philippines, known as the cacao pioneer in Asia, has been experiencing a revival of its local chocolate industry. The chocolate category comprised the largest share in its domestic confectionery market, showing an increased revenue of around 32% from 2011 to 2015 (Hamrick et al., 2021). Alongside this, Filipino craft chocolates are gaining international awards for being among the world's best, such is also the case for their tablea (Juntilla, 2020). Similar to wine, cocoa liquor possesses distinct flavors depending on geographic origin and "terroir" (Engeseth and Ac Pangan, 2018), which are likely to be manifested by the archipelagic nature of the Philippines. This further suggests that regional diversity in tablea taste and flavors may exist, which makes the Philippines a highly interesting area for study on consumers' chocolate preference.

Literature on preferences for chocolate beverages is mainly focused on flavored chocolate milk (Brodock et al., 2021, Coutinho et al., 2021, Lima et al., 2019). These studies found out that sensory properties (i.e., taste, aroma, consistency) (Della Lucia et al., 2016) and extrinsic information such as ingredients (i.e., sweetener type, milk fat, sugar) (Brodock et al., 2021) and nutrition labels (Lima et al., 2019) affect consumer acceptance and preference for chocolate milk. However, consumer preference for hot chocolate beverage made of preparations like the tablea and similar products such as block chocolates is less explored (Mazo Rivas et al., 2018).

Thus, the aforementioned knowledge gaps were addressed by conducting an experimental auction designed to allow for the integrated measurement of sensory and extrinsic attributes' (i.e., labels) influence on consumers' preference and decision-making. This is advantageous as this design obtains more reliable information on attribute preference, identifies key drivers of consumer choice more realistically, and accurately identifies individual differences (Asioli et al., 2017). Finally, preference was elicited from participants and WTP premiums were estimated based on the evaluations of sensory properties and award and origin labels of three tablea variants.

2. Conceptual Framework and Literature Review

This study embeds consumers' WTP for tablea in a conceptual framework (Fig. 1), which is based on existing evidence that underpin key factors that are expected to influence chocolate consumers' preference and behavior. The literature indicates that consumers form expectations and perceptions from quality cues represented by the product's intrinsic and extrinsic attributes, which eventually influence preferences and actual choices (Piqueras-Fiszman and Spence, 2015). Intrinsic attributes are those inherent to the product such as sensory, chemical, and physical properties, while extrinsic attributes are product-related information such as brand, price, health claims, and sustainability claims usually seen in product labels (Asioli et al., 2017). Sensory and extrinsic cues induce responses from consumers such as food liking and preference (Teuber et al., 2016, Combris et al., 2009, Symmank, 2019, Gustafson et al., 2016).

With respect to sensory cues, craft dark chocolates are preferred more in terms of aroma, texture, and taste over commercial chocolates (Caponio et al., 2020). In terms of chocolate beverage, high consistency and typical chocolate tastes drive preference (Coutinho et al., 2021). Overall, chocolate and chocolate beverage consumers are taste-driven wherein preference for taste outweighs other attributes (Del Prete and Samoggia, 2020, Lima et al., 2019). Regarding extrinsic cues, labels indicating sustainability (e.g., Fairtrade) seem to be most commonly studied in terms of its impact on perceived taste and consumer preference (Silva AR de et al., 2017, Poelmans and Rousseau, 2016, Enax et al., 2015, Vecchio and Annunziata, 2015). Sustainability labels can improve sensory perceptions (Silva AR de et al., 2017) and WTP for chocolates (Poelmans and Rousseau, 2016, Enax et al., 2015). Chocolate origin is also commonly mentioned in labels (Silva AR de et al., 2017, Poelmans

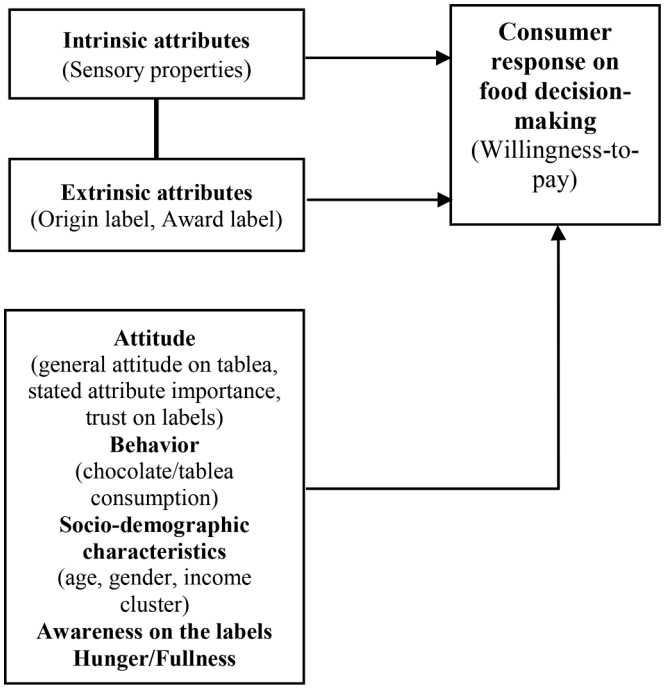

Fig. 1. Conceptual framework of the determinants of the consumers' WTP for tablea.
Source: Own work, modified from the framework of Symmank [34]

and Rousseau, 2016, Merlino et al., 2021). However, studies show contrasting results. The recent ones indicated that COO was important for consumers in choosing which chocolates to buy (Poelmans and Rousseau, 2016, Ozretic-Dosen et al., 2007, Sepúlveda et al., 2021), however, earlier studies often indicated otherwise (Rosenbloom and Haefner, 2009, Ahmed et al., 2012).

Attitude and behavior can also affect chocolate preference. For example, concern for societal and environmental issues are positively influencing WTP for sustainability-labeled chocolates (Vecchio and Annunziata, 2015). Consumers are willing to pay more for artisanal chocolates because they feel that they are healthier than commercial chocolates (Del Prete and Samoggia, 2020, Cirne et al., 2019). Trust in sustainable labels of chocolates also leads to a higher WTP (Vecchio and Annunziata, 2015). Additionally, taking chocolates daily resulted in a change in sensory perception (i.e., decrease in taste pleasantness) and preference for chocolates (Hetherington et al., 2000). Attitude towards price plays a minimal role in preference for chocolates (Poelmans and Rousseau, 2016), for example, price-consciousness generally becomes irrelevant if chocolates have good sensory properties (Del Prete and Samoggia, 2020).

Socio-demographic characteristics (e.g., age, gender, income) also influence consumer preference and behavior. Women and elderly generally have higher WTP for chocolates (Del Prete and Samoggia, 2020). Women are more inclined to sweeter chocolates than men whose preference is related to strong and bitter taste (Merlino et al., 2021). Regarding income, a review shows that income has a positive effect towards consumers' WTP for chocolates (Del Prete and Samoggia, 2020).

3. Materials and Methods

3.1. Study sample

The study was conducted in the province of Camarines Sur, Bicol region, Philippines in April 2021. Participants were mainly university students, faculty and staff of Central Bicol State University (CBSUA), recruited through invitation letters and poster advertisement sent and posted in campus offices. Participants had to meet the following requirements: 1) be 18 to 65 years old, 2) had consumed tablea in the past six months, or chocolate beverage or chocolate products in the past month, 3) had no aversion, health complications, and allergies associated with the intake of chocolates and other cocoa products, and 4) at least partially responsible for grocery shopping at home (i.e., involved in household grocery shopping to some extent other than parents/spouse). The study required participants who were actively engaged in household grocery decision-making (i.e., individuals aged 18 to 65 years in the study area's context (Lucas, 2011, Nielsen 2016) and in line with previous consumer studies on chocolates (Coutinho et al., 2021, Hamada et al., 2020). Moreover, prospect participants were fully informed and reminded of the possible health risks associated with chocolate intake during the recruitment process and at the start of the actual experiments before signing the informed consent. Those with diagnosed medical conditions (e.g., diabetes, hypertension, and allergies) were discouraged to participate.

Overall, 220 individuals were recruited for the study, but the final count was brought down to 204 after excluding 16 individuals with either incomplete or extreme outlier data. The study protocols were approved by CBSUA Research Ethics Review Committee (Approval number EPEF2021VLIR000001). All consumers recruited signed an informed consent before taking part in the study to guarantee anonymity and confidentiality of their data. They received PhP 100 each (USD 2.08; USD 1.00=PhP 48.00) for their time devoted as participants, given at the end of the session deducting the winning bid. This amount as participation fee was set based on the minimum wage rate in Bicol region to compensate a maximum of two hours of the participants' time (i.e., PhP 100 is 129% of a 2-hour rate). Moreover, an endowment (i.e., a pack of tablea valued at PhP 44) was used in the experiments, which was also considered as part of the participation fee.

3.2. Products and labels

Four variants of tablea were used in this study originating from different provinces namely; 1) conventional tablea from Camarines Sur, 2) an improved version of tablea from the Department of Food Science in CBSUA, 3) the award-winning tablea from Bohol ("Academy of Chocolate" award) and 4) from Davao ("Great Taste" award). The four tablea variants were then prepared and evaluated as chocolate beverage samples for the sensory rounds of the auctions.

Each tablea variant was packed in a 10×15 cm kraft-made stand-up pouch containing 90 g of tablea (net weight). The award logos of "Academy of Chocolate" and "Great Taste" and the origins "Bicol", "Bohol", and "Davao" were stamped as labels in the packaging of the corresponding tablea variants. The "Bicol" label represented the tablea produced by CBSUA, but this was not disclosed before and during the experiments to avoid additional bias from participants who came from CBSUA (e.g., affiliation to own product). Fig. 2 shows an example of a packed tablea, both the endowed (Fig. 2a) and Davao tablea with labels indicating origin and award (Fig. 2b). Basic information about the awards were also presented during the auctions apart from the award labels. The criteria for the selection of tablea, details in the chocolate beverage preparation, and the basic award information are found in the accompanying *Data in Brief* article.

3.3. Auction design

This study's experimental auction was designed to measure both consumers' liking (hedonic value) and WTP (economic value), drawing from previous studies on several food products (Teuber et al., 2016, Combris et al., 2009, Gustafson et al., 2016, Ginon et al., 2014, Waldman and Kerr, 2015), including chocolates (Enax et al., 2015, Kechagia and Drichoutis, 2017). The popular second-price auction was employed (Canavari et al., 2019, Kassas et al., 2018, Higgins et al., 2020). The highest bidder (buyer/winner) paid the price of the second-highest bidder, which is said to be incentive compatible (Lusk and Shogren, 2007). The endow-and-upgrade approach was used, by which participants were endowed with the conventional tablea (no origin/award label). The reference price was PhP 44.00 (USD 0.92). Participants were then asked to bid to exchange the endowment with each of the three auctioned products, namely the Bicol tablea, Bohol tablea, and Davao tablea.

As for the bidding method, the endow-and-upgrade approach was appropriate for the study's context. First, the study measures the value of improved versions of tablea with upgraded attributes (auctioned

Fig. 2. Overall packaging of (a) the endowment and (b) the auctioned tablea, with Davao tablea as an example.
Note: Label design is own work using assets from Freepik.com.

tablea) (i.e., with awards, reputable origins, etc.) against the conventional tablea (endowed tablea), depicting actual local market scenarios that consumers may face while making choices. Second, close substitutes of tablea (e.g., cocoa powders, block chocolates) were available in the market. In these scenarios, the literature indicates that the endow-and-upgrade is appropriate as it directly derives marginal WTP (i.e., difference between two goods), avoiding external influences to confound the WTP values and focusing on the attributes of interest (Vecchio and Annunziata, 2018, Canavari et al., 2019, Lusk and Shogren, 2007). With respect to the possible occurrence of WTP-WTA (willingness-to-accept) gap (i.e., individuals attach higher value to the good they own than the good they do not own) (Hanemann, 1991), previous studies showed that WTP and WTA tend to converge when a good has very close substitutes in the market (Hanemann, 1991, Shogren et al., 1994). Nevertheless, Plott and Zeiler (Plott and Zeiler, 2005) stated that WTP-WTA gap phenomenon could be 'turned off' when a set of controls against misconceptions during the experiments is in place, such as the use of incentive-compatible mechanism, training and practice rounds, and anonymity. These controls were all implemented in this study.

Overall, the experiment had four auction rounds: first, the "blind condition", participants evaluated the products sequentially under a blind sensory condition meaning no product information was given; second/third, the "award/origin label", participants provided their bid after evaluating the same products with only extrinsic cues available, i.e., either the award or origin label, and without tasting and connection to the previous round(s); fourth, the "informed condition", another sensory round was organized after participants were informed about the award and origin labels of all products. After each round, participants could bid by indicating the maximum price they would be prepared to exchange the endowed product with the auctioned ones (i.e., premium).

For the two auction rounds with sensory evaluation, blind (1st round) and informed conditions (4th round), each participant was given four samples of each chocolate beverage. Each sample was around 30 mL served in a glass carrying a random three-digit number. The order of chocolate beverages was randomized across participants in each session and across the two sensory rounds. As for hedonic measurement, participants were asked to rate the taste, chocolate flavor, texture, and overall liking in the sensory score sheet on a 9-point scale ranging from 1= "dislike extremely" to 9= "like extremely". At the start of these sensory rounds, the distinction between taste and chocolate flavor was explained to the participants. In terms of taste, participants were asked to rate based on their liking of the primary taste qualities normally associated with a chocolate beverage made of tablea, namely, sweetness, sourness, and bitterness. As for flavor, participants were asked to rate specifically for chocolate/cocoa flavor (i.e., the interplay of taste and aroma). This was considered relevant since other flavor notes (e.g., nutty, fruity, coffee-like) would likely exist given the geographic origin differences of tablea and could possibly affect consumer preference (Liu et al., 2017). After tasting each of the four samples, participants were also asked to rinse their palate with water to prevent carrying over any aftertaste to the next sample (Lawless and Heymann, 2010). Fig. 3 shows the flow of the auction procedure, which was elaborated in the accompanying *Data in Brief* article.

A total of 18 experimental auction sessions were conducted with 12 to 13 participants per session. The sessions were conducted twice (9 AM and 2 PM sessions) on Mondays, Wednesdays, and Fridays. During the auctions, the products (i.e., packed Bohol, Bicol, and Davao tablea) carried randomly assigned three-digit code numbers and the order of product presentation was randomized across sessions. Similarly, the order of the two in-between rounds (i.e., award and origin label rounds) were randomized across auction sessions. Randomization was done to avoid "order effects" bias (Vecchio and Annunziata, 2018). More details of the randomization of order of serving and order of product presentation in the auctions can be found in the accompanying *Data in Brief* article.

3.4. The survey

Two sets of survey questionnaires were administered prior to the start of the auction and right after the last bidding round. The pre-

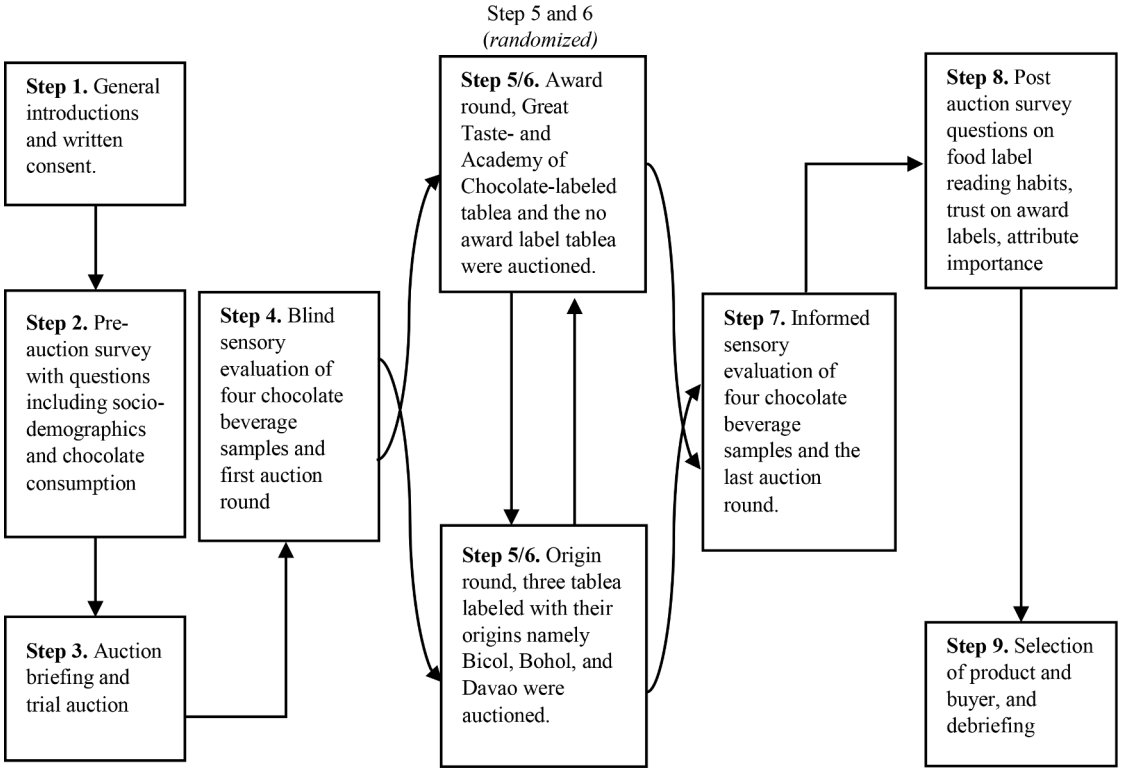

Fig. 3. Schematic of the auction procedure.

auction questionnaire was composed of two parts. The first part collected participants' socio-demographic characteristics such as gender, age, civil status, educational attainment. Participants were also asked to report their degree of hunger and fullness using an 11-point scale from 1= "greatest imaginable hunger" to 11= "greatest imaginable fullness" (My et al., 2018). The second part gathered information on whether the participants had stocks of tablea, chocolates or chocolate products at home (yes/no). Consumption frequency of chocolate products, hot chocolate made of tablea, and *champorado* or chocolate rice porridge (another traditional way of using tablea) was measured using an 8-point scale from 1= "never" to 8= "everyday" (Rousseau, 2015).

As for the post-auction questionnaire, the first part measured the participants' stated importance for tablea attributes using a 5-point scale ranging from 1= "not at all important" to 5= "extremely important". These attributes were purity (100% cocoa beans), price, origin, and being locally-produced, which were based on characteristics that consumers have considered important when buying chocolate (Poelmans and Rousseau, 2016). As such, the stated importance of attributes represents a person's value towards a product attribute based on personal memory, values, and desires (Van Ittersum et al., 2007). In the second part, participants were asked if they check or read food product labels and this was measured using a 5-point scale from 1= "never" to 5= "always". Lastly, they were asked to report whether they had seen the award labels before the auction or not (yes/no) and their perceived trustworthiness of the labels from 1= "completely untrustworthy" to 5= "completely trustworthy".

3.5. Statistical analyses

Friedman test was first used to determine overall differences in mean WTP values and sensory ratings between tablea variants and auction rounds, followed by Wilcoxon test with Bonferroni correction to determine specific paired differences (e.g., conventional versus Bohol tablea) using IBM SPSS Statistics 26. These non-parametric tests were used, since the data were dependent, censored, and not normally distributed (Teuber et al., 2016, De Steur et al., 2013). The participants submitted bids for three products in four rounds, which resulted in a total of 12 bids per person. Considering the censored and panel nature of the data, robustness to heteroscedasticity and serial correlation, and analytical approach of previous studies (Teuber et al., 2016, Waldman and Kerr, 2015), random effects Tobit model (i.e., trimmed estimator) was found to be most appropriate to estimate the relationship between the response variable (WTP bids) and the predictor variables (Croissant and Millo, 2019). A binomial logit model was also used to predict the observation that would fall into either a zero bid (0) and a positive bid (1), which estimated the impact of predictor variables on the propensity to exchange the endowed conventional tablea with the three auctioned tablea variants. Econometric analyses were carried out in R Studio. The analytical approach was elaborated in the accompanying *Data in Brief* article.

4. Results

4.1. Consumer descriptives

Table 1 profiles the 204 consumers who participated in the experimental auctions. The sample was 71% female and 29% male, with an average age of 34 years. Around 62% of the sample had a bachelor's degree or higher. Half (50%) of the sample came from low-income class and the other from middle- to high-income class. Majority (63%) were employed while the rest were unemployed, including students and housewives. Furthermore, 52% were primarily tasked to shop for household groceries or food.

Table 2 shows the attitudinal and behavioral characteristics of the participants. When evaluating the tablea attributes, on average, participants attached high importance to purity, followed by price, local production, and origin. They consumed regular chocolates (e.g., milk chocolates, compound chocolates) and chocolate beverages more frequently than the other chocolate products. Half of them (50%) had reported they had a stock of chocolate products and/or tablea at home. Moreover, most of the participants (>80%) had not seen the awards' logos before the auction. Despite this, most of them rated the award labels from "can't say either way (3)" to "completely trustworthy (5)", with an average rating of 3.93 to 4.19. Results also show that participants read or check food labels at an average frequency rating of 4.04 which means "most of the time."

Table 1
Characteristics of the participants (n=204)

Variable	Freq (%)	Variable	Freq (%)
Gender		**Living together with family**	
Female	70.60	Yes	81.90
Male	29.40	No	18.10
Civil status		**Main household grocery/food shopper**	
Single	54.44	Yes	52.00
Married	38.20	No	48.00
Separated	2.50	**Has shopped for grocery for this week's consumption**	
Widow/er	4.40		
Single parent	0.50	Yes	77.00
Educational attainment		No	23.00
<High school	0.50	**If household head**	
High school Level	1.50	Yes	28.40
High school Graduate	1.50	No	71.60
Vocational Training Graduate	0.50		
College Level	34.30	**Socioeconomic category**	
College Graduate	44.10	Low to lower income class	50.00
Graduate degree	17.60	Lower-middle income class	34.30
Presence of <18 years old in the household		Middle-middle income class	11.80
		Upper-middle to higher income class	3.90
Yes	67.60		
No	32.40		
Employment			**Mean (Std.)**
Employed	62.70	**Age**	33.61 (2.99)
Not Working (e.g. students, housewife, unemployed)	37.30	**Hunger/Fullness**	7.03 (1.17)

Note: Level of hunger/fullness was measured from 1=greatest imaginable hunger to 11=greatest imaginable fullness

4.2. The impact of award and origin labels on sensory perception

Fig. 4 illustrates the hedonic sensory ratings of the four chocolate beverage samples made from the four tablea variants under the blind (1st round) and informed conditions (4th round). In the blind sensory evaluation, significant differences between the samples can be observed. Davao chocolate beverage was liked the least while the chocolate beverages made from conventional and Bohol tablea were rated the highest in taste, chocolate flavor, and overall liking. Bicol chocolate beverage was liked second-best in taste and overall liking and was comparable with the conventional and Bohol chocolate beverages in terms of chocolate flavor. There were also significant differences between the chocolate beverages in the sensory attributes and overall liking in the informed condition, except for texture.

However, comparing the results of the blind and informed conditions shows that the "Academy of Chocolate" award label (Bohol tablea) and "Great Taste" award label (Bicol tablea) as well as the origin labels of the three tablea variants had only caused minor changes in the ranking of the chocolate beverages. Bohol chocolate beverage remained to be the most liked in terms of taste, chocolate flavor, and overall liking. Bicol

Table 2
Attitudinal, behavioral characteristics, and award awareness of participants (n=204)

	Freq (%)	Mean	Std.
Importance of the attributes of tablea for hot chocolate beverage preparation			
Purity (100% cacao)		4.37	0.76
Price		3.96	0.86
Locally-produced		3.88	1.02
Origin		3.39	1.14
Consumption frequency			
Regular chocolate		5.26	1.70
Chocolate beverage		5.16	1.77
Champorado (chocolate rice porridge)		4.18	1.38
Dark chocolate		4.14	1.65
Hot chocolate beverage made of tablea		3.60	1.66
Has stocks of chocolate products/tablea at home			
Yes	50		
No	50		
Has seen the Great Taste logo before the auction			
Yes	18.60		
No	81.40		
Has seen the Academy of Chocolate logo before the auction			
Yes	10.30		
No	89.70		
Trustworthiness of the "Great Taste" award label		3.93	1.01
Trustworthiness of the "Academy of Chocolate" award label		4.13	0.87
Reading food label		4.04	0.91

Note: The importance of attributes was measured from 1= not at all important to 5= extremely important. Consumption frequency was measured from 1= never to 8= every day; Trustworthiness of the food award labels was measured from 1= completely untrustworthy to 5= completely trustworthy; Reading food label was measured from 1= never to 5= always.

was still liked second-best in taste only since its chocolate flavor became comparable with both the Bohol (first) and conventional tablea (second). Overall liking for the Bicol also became comparable with both the conventional tablea (second) and the Davao (third).

The sensory ratings from the blind condition as compared with the informed condition improved substantially (i.e., expressed by percentage change Δ% of means), ranging from 6.4 % to 12.16 % ($p<0.01$) increase upon introduction of origin and award labels. The impact of the extrinsic cues was most pronounced in the Davao chocolate beverage in all aspects (i.e., highest Δ% mean sensory ratings from 7.10% to 12.16%, $p<0.001$). More details of the results can be found in Appendix A (Table A.1.).

4.3. WTP for the tablea variants

Fig. 5 shows percentage share of zero bids (i.e., not willing to pay more to exchange), and Fig. 6 illustrates an overview of WTP bids (i.e., premium or the price difference between an auctioned tablea and the conventional tablea) for all rounds across the three auctioned tablea variants (i.e., Bohol, Bicol, and Davao). Award and origin had an impact on the number of zero bids. In general, zero bids accounted for 10% to 22% of the total bids across the three tablea variants in all rounds. The introduction of "Academy of Chocolate" award label and "Great Taste" award label encouraged an additional number of participants (i.e., zero bids decreased) to exchange the endowment (i.e., conventional tablea) for Bohol and Davao tablea, respectively, but discouraged the exchange for no award Bicol tablea (i.e., zero bids increased). Whereas, origin labels drove more participants to bid to exchange for Bicol and Davao tablea but not for Bohol tablea.

In terms of WTP, significant differences among the average WTP premiums (with zero bids) for the three tablea variants was observed throughout the rounds, except for the informed condition. Between 80 to 90% of the participants were willing to pay a premium for a 90-gram Bohol, Bicol, and Davao tablea; and generally, participants were willing to pay a higher premium for Bohol and Davao tablea than Bicol tablea. To get a clearer picture of the extrinsic cues' impact on WTP premiums, each round is dissected. First, in the blind condition, the WTP premium to give up a 90-gram endowed conventional tablea and switch to a 90-gram Bohol, Bicol, and Davao tablea was approximately 53% (PhP 23.44), 56% (PhP 24.67), and 50% (PhP 21.96), respectively. Second, the WTP premiums increased in the award label round for "Academy of Chocolate"-labeled Bohol tablea and "Great Taste"-labeled Davao tablea and were significantly higher than for no award Bicol tablea. On average, the participants were willing to pay a premium of 78% (PhP 34.42) and 74% (PhP 32.62) for Bohol and Davao tablea, respectively. Third, in the origin label round, the WTP premium for Bicol tablea (63%; PhP 27.55) was comparable with Davao tablea (65%; PhP 28.39) and was significantly higher than Bohol tablea (61%; PhP 26.79). Lastly, participants were on average willing to pay a premium for Bohol (67%; PhP 29.60), Bicol (66%; PhP 28.96), and Davao tablea (64%); PhP 28.26) in the informed condition. These results can also be presented by comparing the mean WTP premiums between rounds within each tablea variant. WTP premiums for all tablea variants in the informed condition were higher than in the blind condition, which was similar to what occurred in the hedonic sensory evaluation. Results are also summarized in Appendix A (Table A.2).

4.4. Factors influencing WTP for the tablea in different scenarios

Tables 3 presents the results the random effects Tobit model for each round. This section shows how WTP premium was affected by taste perception, award labels, origin labels, and other factors (e.g., socio-demographic, attitude, and behavior). Some predictor variables found to be consistently not statistically significant in the analyses of all rounds were removed to improve the overall readability of the table.

4.4.1. Blind condition

In this round, WTP premium for tablea was first analyzed to examine how WTP is influenced in the absence of extrinsic information, based on their sensory perception and consumer characteristics (Model 1). Taste rating and participants' age positively influenced WTP premium for tablea. As for taste, when the rating (score) increased by one point, WTP premium would increase by PhP 2.92 (12.5%) ($p<0.001$). As age increased by a year, WTP premium increased by PhP 0.74 (3.17%) ($p<0.001$) for tablea. Meanwhile, middle- to high-income participants had significantly ($p<0.01$) lower WTP premium than low-income participants.

4.4.2. Award label

This round's analysis was aimed at determining how award labels would influence WTP for the tablea variants (Model 2). Results show that WTP premium was significantly lower (PhP 3.93) ($p<0.001$) for "no award" Bicol tablea than for the "Great Taste"-labeled Davao tablea. The "Academy of Chocolate" label of Bohol tablea also had a positive influence on WTP premium, though not statistically significant. This could mean that participants were willing to pay a premium for Bohol tablea but not more than for Davao tablea. These results affirmed earlier findings that awards and basic information detailing the recognition process (i.e., "judged by a panel of experts") probably suggested higher product value and external credibility which raised the amount that participants were willing to pay (Eustice et al., 2019, Konuk, 2021). Furthermore, gender (female) had a significant ($p=0.006$) negative influence on WTP. In terms of perceived trustworthiness of the award labels, results show that putting more trust in the award labels had a negative marginal effect on WTP premium, though not statistically significant.

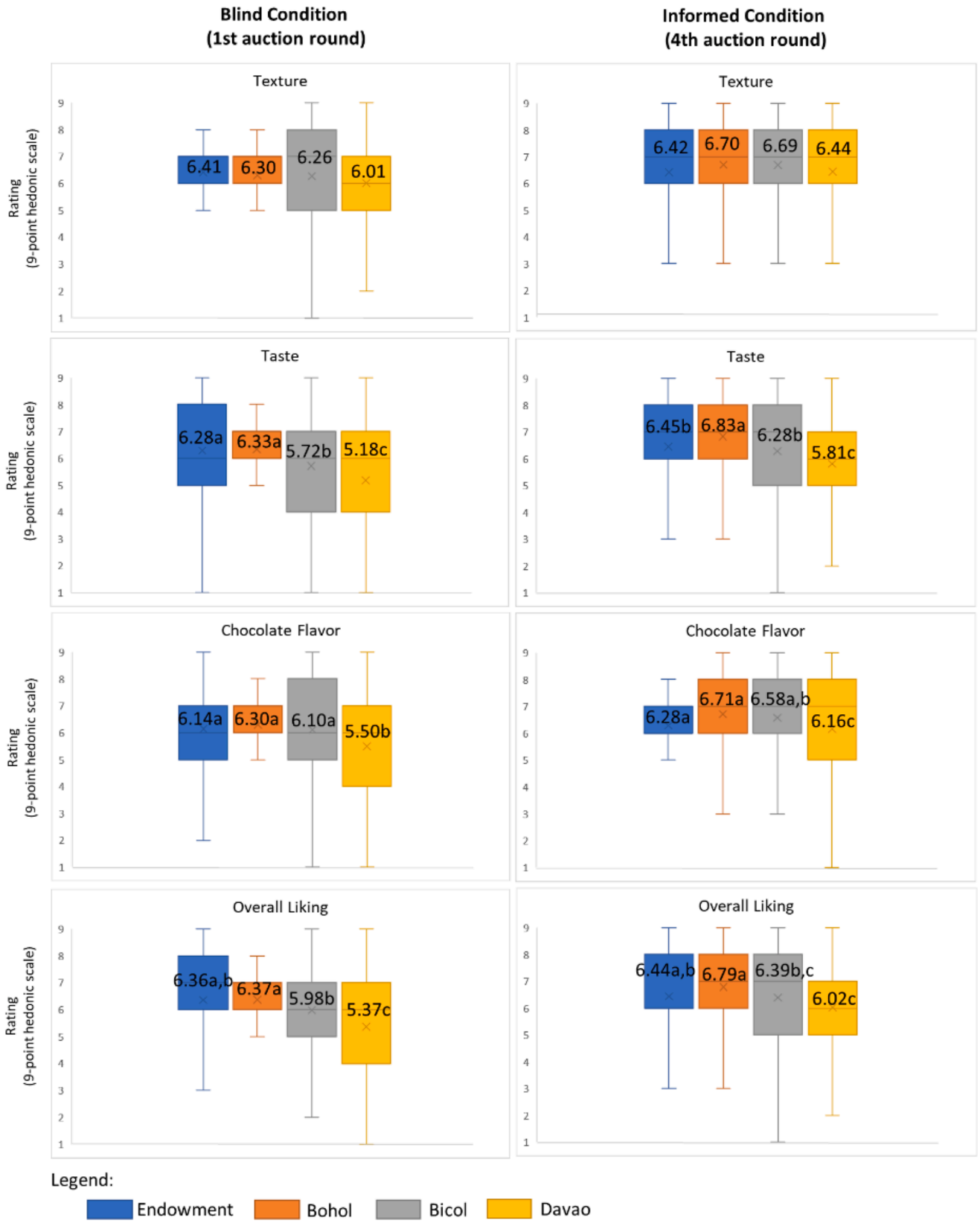

Fig. 4. Sensory ratings and change in sensory ratings across samples of chocolate beverages under blind (1st column) and informed conditions (2nd column) (n=204). The legend indicates which chocolate beverage is made of a certain tablea based on color (i.e., endowment, Bohol, Bicol, Davao tablea). Mean sensory ratings with different letters (across products) are significantly different according to Wilcoxon test for paired samples with Bonferroni correction ($p<0.008$). No letters mean no statistically significant differences between the mean ratings of the products.

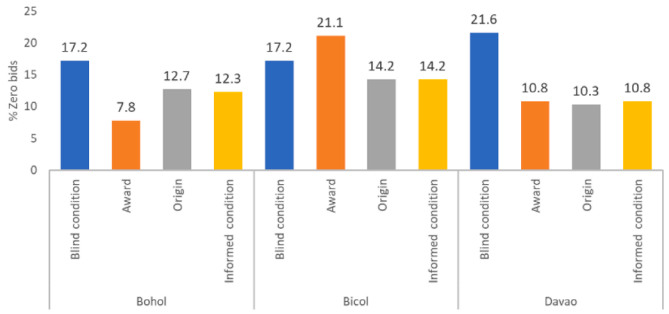

Fig. 5. Percentage (%) share of zero bids for each tablea in all four rounds (n=204).

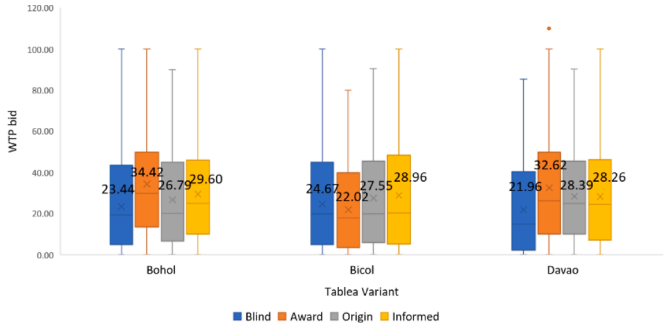

Fig. 6. Mean WTP bid (premium) for each tablea in all four rounds (n=204).

4.4.3. Origin label

The analysis in this round showed that providing information on tablea's origin had no significant marginal effect on consumers' WTP premium, noting that Davao tablea was the reference category, which had the highest WTP premium in the origin label round (Model 3). It cannot be said directly that origin labeling had no impact; participants might not just be willing to pay a higher premium for Bicol and Bohol tablea labels than their premium for Davao tablea label.

Nevertheless, the participants' stated importance for price ($p<0.001$), origin ($p=0.001$), and "made of 100% cocoa" (purity) ($p=0.01$) attributes when deciding to buy tablea had a significant positive influence on WTP. Participants who placed more importance (one point higher in rating) to these attributes, were willing to pay more than those who placed less importance to these attributes. In contrast, giving one point more in the importance rating for locally-produced attribute led to a decrease in WTP premium by PhP 0.34 (1.23%) ($p=0.001$). It is important to emphasize again that the response variable in the model was the WTP values for all the three tablea variants. As such, if the participants who were from Bicol considered locally-produced as an important attribute, they would likely bid less for tablea variants that came from other origins. The case was such with Bohol tablea but not with Davao tablea, which might be attributed to Davao's good reputation on producing quality cocoa products.

Additionally, frequent consumption of dark chocolates (one point more in frequency rating) led to a significant ($p<0.001$) increase in WTP (PhP 2.02; 7.32%), while frequent consumption of hot chocolate beverages resulted in a significantly ($p=0.007$) lower WTP (PhP 0.46; 1.67%). Regarding socio-demographic characteristics, older consumers and women attached more importance to origin (Del Prete and Samoggia, 2020). However, our results corresponded with the former, but were opposite to the latter. The model estimates indeed indicated that age had a significant ($p<0.001$) positive marginal effect, WTP premium would increase by PhP 0.41 (1.49%); but a significant ($p<0.001$) negative marginal effect was associated with being female. Furthermore, being single and being the household's main food shopper also had a positive impact on WTP premium only in this round. Finally, the degree of hunger or fullness also positively influenced WTP but only in this round, which provides less conclusive evidence to state that it had an impact on WTP.

4.4.4. Informed condition

Taste remained a significant ($p<0.001$) factor that influenced WTP in this round (Model 4). As taste rating increases by one more point, WTP premium would increase by PhP 4.67 (16.14%). After controlling for taste and other variables, results indicated that Bohol tablea negatively influenced WTP ($p=0.01$). Participants were willing to pay less for Bohol tablea, as compared to Davao tablea.

Similar to the origin label round, more frequent consumption of dark chocolate would lead to an increase in WTP. Furthermore, perceived importance of the origin attribute and being the main household food shopper also had a positive influence on WTP. Female participants, again, were more likely to bid less than male participants. Results, unexpectedly, showed that more trust in the "Great Taste" award label of Davao tablea led to a decrease in WTP (PhP 0.35; 1.21%) ($p=0.03$), though the effect was marginal. As for control variables, WTP differences between study areas and two auctioneers were observed in most instances.

4.5. The propensity to exchange the endowed tablea to the auctioned tablea variants

Table 4 presents the estimation of consumers' propensity to switch from their endowed tablea to more improved tablea variants under the informed condition. Similar to Table 3, predictor variables found not significant for the three table variants were removed in the table. Each tablea variant was analyzed separately (Model 5 to 7) and results showed that taste was consistent in all tablea variants, positively influencing the propensity to a more improved tablea. With a one-point increase in taste rating, the odds of exchanging the endowed conventional tablea to Bicol, Bohol, and Davao tablea were, respectively, 2.02 ($p<0.001$), 1.91 ($p=0.004$), and 1.44 ($p=0.018$) times the odds of those who gave one-point less in taste rating. This means that participants who liked more the taste of chocolate beverage made from Bicol, Bohol, and Davao tablea would be more likely exchange and bid for these tablea variants.

5. Discussion and Conclusion

This study showed that both intrinsic (taste) and extrinsic cues (award and origin labels) influenced consumers' WTP for the different tablea variants. Similar to previous studies on other food products (Vecchio and Annunziata, 2018, Ginon et al., 2014), hedonic sensory and WTP measurements in this study resulted in relatively consistent ranking of the three tablea variants. WTP premiums increased with sensory ratings from blind condition (sensory evaluation without extrinsic information) to informed condition for the three tablea products, which affirms previous findings that consumers' WTP and hedonic values for food products generally move in the same direction (Teuber et al., 2016, Ginon et al., 2014). Award and origin labels could have therefore enhanced the participants' sensory perception for the chocolate beverages, which in turn increased their WTP for all auctioned tablea. However, this did not translate into major changes in the hierarchy of preference between variants based on sensory perception. Chocolate beverage made from Bohol tablea was generally most preferred, while the chocolate beverage made from Davao tablea was least preferred, and the Bicol tablea placed somewhere between these two, in both blind and informed conditions.

The most interesting case is that of Davao tablea. Despite being generally at the bottom of the ranking, Davao tablea had the highest increase in sensory ratings in the informed condition. It is likely that the "Great Taste" award and Davao origin reputation created positive sensory expectations for Davao chocolate beverage, and the expectation

Table 3
Predictors of latent (y*) and observed (y) WTP premium in the blind condition (model 1) to informed condition (model 4), by random effects Tobit regression (n=204)

	Blind Condition (Model 1)			Award Label (Model 2)			Origin Label (Model 3)			Informed Condition (Model 3)		
	y* dy/dx	(SE)	y dy/dx	y* dy/dx	(SE)	y dy/dx	y* dy/dx	(SE)	y dy/dx	y* dy/dx	(SE)	y dy/dx
Intercept	-19.41	(19.48)		-4.98	(23.58)		-29.16	(10.49)**		-18.23	(19.92)	
Sensory Perception												
Taste	3.13	(0.38)***	2.92							4.71	(0.41)***	4.67
Type of Tablea *(ref: Davao tablea)*												
Bohol	-1.45	(1.32)	-0.69	2.1	(1.27)	1.12	-1.92	(1.01)	-0.89	-3.43	(1.34)*	-1.53
Bicol	1.8	(1.26)	0.96	-12.3	(1.30)***	-3.93	-1.11	(1.01)	-0.53	-1.93	(1.30)	-0.90
Socio-demographic variables												
Female	-4.43	(3.72)	-1.89	-10.3	(3.71)**	-3.56	-9.3	(1.79)***	-3.02	-8.9	(3.57)*	-3.24
Age	0.75	(0.18)***	0.74	0.36	(0.18)	0.30	0.44	(0.11)***	0.41	0.31	(0.16)	0.24
Single	9.92	(5.21)	6.52	1.18	(5.33)	-0.56	10.3	(2.71)***	7.12	1.74	(4.71)	0.92
Middle to high income cluster	-9.66	(3.23)**	-3.35	-5.72	(3.75)	-2.35	-4.06	(2.03)	1.70	-3.94	(3.27)	-1.72
Main food shopper	1.07	(3.65)	0.55	3.01	(3.63)	1.65	8.35	(2.12)***	5.50	5.73	(3.45)**	3.38
Behavioral variables												
Tablea/Chocolate Consumption												
Dark chocolate	1.73	(1.07)	1.26	1.47	(1.10)	1.01	2.4	(0.53)***	2.02	2.66	(1.01)**	2.16
Hot chocolate	-0.81	(1.16)	-0.33	-0.59	(1.04)	-0.26	-1.74	(0.64)**	-0.46	-1.7	(1.12)	-0.53
Attitudinal variables												
100% cocoa (pure)				2.8	(2.76)	2.34	3.3	(1.06)**	3.06	2.66	(2.28)	2.19
Price				3.11	(2.01)	2.6	3.49	(0.99)***	3.21	1.61	(1.86)	1.11
Origin							2.6	(0.79)**	2.12	3.59	(1.80)*	3.00
Locally-produced							-3.17	(0.98)**	-0.34	-3.21	(1.96)	-0.51
Trust in Great Taste label				-2.16	(2.24)	-0.54				-4.56	(2.05)*	-0.35
Trust in Academy of Chocolate label				-0.23	(2.75)	-0.11				1.12	(2.36)	0.72
Awareness												
Great Taste logo				0.18	(6.25)	0.09				5.29	(4.36)	3.08
Academy of Chocolate logo				2.77	(6.47)	1.5				5.91	(5.60)	3.5
Hunger/Fullness	1.72	(1.42)	1.45	1.58	(1.40)	1.29	1.59	(0.62)*	1.39	1.19	(1.33)	0.89
Control variables												
CBSUA campus	7.1	(4.28)	4.37	13.76	(4.37)***	9.61	7.25	(2.17)***	4.64	10.22	(3.96)**	6.69
Auctioneer A	-14.81	(3.85)***	-4.14	-14.22	(3.99)***	-4.21	-19.18	(1.72)***	-3.84	-13.77	(3.56)***	-4.14
sd.nu	11.86	(0.47)***		12.58	(0.5)***		9.87	(0.39)***		12.52	(0.49)***	
sd.eta	19.68	(1.36)***		21.09	(1.37)***		22.29	(1.10)***		19.3	(1.25)***	
Maximum Likelihood estimation												
BFGS maximization, no. of iterations	55			72			77			54		
Log-Likelihood	-2208.06			-2371.44			-2304.77			-2370.91		
Bera, Sosa-Escudero and Yoon locally robust test for serial correlation												
Chi-square (*p*-value)	154.31	(<0.001)		91.41	(<0.001)		107.82	(<0.001)		157.83	(<0.001)	
Breusch-Pagan test for the heteroscedasticity												
BP value (*p*-value)	36.439	(0.006)		57.488	(<0.001)		57.034	(<0.001)		59.874	<0.001)	

Note: Level of significance
* p<0.05,
** p<0.01,
*** p<0.001. Bera, Sosa-Escudero and Yoon locally robust test and Breusch-Pagan test for the heteroscedasticity indicate the presence serial correlation and heteroscedasticity. For these reasons, the random effects Tobit model was used which is more appropriate to handle censored data with panel nature.

could have differed from the actual sensory experience that eventually resulted in disconfirmation. One of the effects of disconfirmation is cognitive dissonance (assimilation) when consumers adjust their perception in favor of their prior expectation to minimize the difference between the expected and actual experience (Piqueras-Fiszman and Spence, 2015). Thus, such cognitive dissonance probably occurred for Davao chocolate beverage due to the award and origin label information, increasing the sensory ratings despite the disparity between the blind and informed experience. Indeed, award and origin labels could influence perceived taste (Konuk, 2021, Berry et al., 2015). However, their impacts appear not to be sufficient to change Davao chocolate beverage's position in the ranking of alternatives in terms of sensory perception. Overall, these findings resemble the results found in review articles, which mentioned that traditional products (Piqueras-Fiszman and Spence, 2015) and products of local origins (Fernqvist and Ekelund, 2014), such as this tablea, are more susceptible to expectation effects reflected in increased consumer liking after the provision of origin information. With respect to award labels, their specific impact on sensory perception has yet to be explored, but previous works show that they could aid consumers in their choice decision (Lockshin et al., 2006, Konuk, 2021).

Furthermore, award and origin labels induced a preference change among tablea variants based on WTP. The award labels could have signaled quality, when introduced to participants, a prominent increase in WTP premium was observed for "Academy of Chocolate"-labeled Bohol and "Great Taste"-labeled Davao tablea, making them equally more preferred than unawarded Bicol tablea, whose WTP premium declined. Konuk's (Konuk, 2021) study seems to support this result, as he reported that consumers were encouraged to buy products with taste awards since they appeared to be of superior quality. It is also worth noting that WTP largely increased for Bicol tablea when Bicol participants learned of its origin. The premium was at par with Davao tablea

Table 4
Determinants of consumers' propensity to upgrade, informed condition round, by logistic regression (n=204)

	Bicol Tablea (Model 5)			Bohol Tablea (Model 6)			Davao Tablea (Model 7)		
	Coef.	(SE)	Odds Ratio	Coef.	(SE)	Odds Ratio	Coef.	(SE)	Odds Ratio
Intercept	3.4	(3.48)		-10.17	(5.37)		-3.17	(4.12)	
Sensory Perception									
Taste	0.7	(0.16)***	2.02	0.65	(0.23)**	1.91	0.37	(0.16)*	1.44
Socio-demographic variables									
Age	0.07	(0.04)	1.07	0.14	(0.07)*	1.15	0.03	(0.04)	1.03
Behavioral variables									
Tablea/Chocolate Consumption									
Chocolate stocks at home	-0.8	(0.56)	1.02	-1.04	(0.73)	0.36	-1.41	(0.67)*	0.24
Attitudinal Variables									
Trust in Great Taste label	-1.06	(0.52)*	0.35	-0.70	(0.49)	0.50	-0.03	(0.39)	0.98
Awareness									
Great Taste logo	2.47	(1.09)*	11.88	1.9	(1.52)	6.70	1.06	(1.02)	2.89
Control variables									
Auctioneer				-3.07	(1.35)*	0.05	-1.59	(0.98)	0.20
Null deviance	166.81	203 df		151.77	203 df		139.53	203 df	
Residual deviance	116.69	179 df		87.09	178 df		100.35	178 df	
1-pchisq (*p*-value)	0.0014			0.00002			0.0622		
McFadden R^2	0.30			0.43			0.28		
Hosmer and Lemeshow goodness of fit (GOF) test									
Chi-square	3.63	8 df		2.76	2.33		4.25	8df	
p-value	0.89			0.95	0.97		0.83		

Note: Level of significance
* $p<0.05$,
** $p<0.01$,
*** $p<0.001$. The null deviance shows how well a model predicts the response using only the intercept, while the residual deviance shows how well the model predicts using the intercept and independent variables. In each model, the deviance decreases indicating that it has improved, and the goodness of fit has increased. The p-value is less than 0.05 indicating that the deviance of the residual-deviance model is significantly different from the constant (intercept)-term model. Moreover, Hosmer and Lemeshow test indicates that the models fit well because there are no significant differences between the models' predicted values and the observed data ($p>0.05$).

which earned the top spot in the origin round. As Bicol region is not yet as reputable as Davao in terms of quality cocoa products, Bicol participants could have exhibited altruistic motives such as supporting own's local economy and community (Feldmann and Hamm, 2015).

Regarding consumers' propensity to shift to improved tablea variants, taste was a key factor in the decision to exchange the endowed tablea for the auctioned tablea. Likewise, taste was consistent in positively influencing consumers' WTP, which reinforced previous findings that it is a primary motivator for chocolate purchase and consumption behavior (Poelmans and Rousseau, 2016, Brown et al., 2020, Del Prete and Samoggia, 2020). While award and origin stimulate changes over preferences, chocolate consumers would more likely prioritize taste in their decision to buy and the amount they want to pay.

Apart from the impact of taste, this study presented key findings on determinants of WTP. On the one hand, in the absence of sensory cues, award labeling positively impacts WTP for tablea. Davao and Bohol tablea's award labels induced expectations that raised their value beyond the unlabeled Bicol tablea. Lockshin et al. (Lockshin et al., 2006) and Eustice et al. (Eustice et al., 2019) found similar findings in the case of local wines, wherein consumers considered awards as easy cues to determine the wines' quality and they significantly increased their WTP for it. It is, however, surprising that this study found that the expected positive impact on WTP disappeared when having more trust in labels, which deviates from previous WTP studies indicating positive impact of trust (Vecchio and Annunziata, 2015, My et al., 2018). This finding gives an insight that a higher trust rating together with a low degree of familiarity for award labels could have jointly resulted in the negative impact on WTP. On the other hand, tablea variants' origins did not have a significant impact on WTP. This substantiates the previous result in the origin round showing no clear-cut difference between the premiums of the tablea variants, except that Davao tablea became first in the ranking. While in some instances, knowledge of chocolate origin has a strong influence on consumer decision because they possibly associate the origin with product quality (Del Prete and Samoggia, 2020), but consumers could still consider origin to be less relevant than other chocolate attributes (Ahmed et al., 2012). But what did matter in the origin round is that consumers' attitude of considering origin as important when purchasing tablea led to a higher premium.

Besides sensory and extrinsic cues, consumer characteristics had a role in determining WTP for tablea alternatives. In most instances, female consumers had a lower WTP premium than male consumers. This is an unanticipated result since women tend to consume more chocolates and generally have higher WTP than men (Del Prete and Samoggia, 2020). Then it could be possible that since women usually shop chocolates more than men, they know more of prices of existing cheaper alternatives and somehow anchored their WTP values to these prices (Holst et al., 2015). Besides, women tend to have more prominent habits and traits as food shoppers such as information-seeking, price-consciousness, and ensuring the best value for money (Kuruvilla et al., 2009). Conversely, age generally had a positive influence on WTP. This study's participants were mainly millennials (34 years on average); and it could be that older millennials were more responsive to extrinsic quality cues of chocolates (Poelmans and Rousseau, 2016, Young and McCoy, 2016).

Meanwhile, a lower WTP premium was observed among consumers who belonged to middle-to high-income instead of the low-income cluster in the blind condition, though this was not consistent in succeeding rounds when extrinsic cues were available. Extrinsic cues, therefore, could have changed perceptions towards the three tablea variants by raising expectations. This is a relevant insight, especially that the growing Filipino middle class is a prospect market for tablea, as they are typically willing to pay more for value-for-money products (The World Bank., 2020). With this knowledge, it would be important to offer tablea with ensured sensory quality that would match the signaled quality through clear extrinsic cues in order to improve satisfaction.

Regarding the differences in WTP across auctioneers and auction locations, our study suggest the presence of heterogeneity between auctioneers, which in turn can influence bids similarly as in real-world

auctions (Lacetera et al., 2016). Even with the same procedure and standardized briefings, auctioneers could still exhibit differences in their performance and delivery (e.g., tone, gestures, words) that might have affected participants' impression, comfort, and understanding of the activity (Lacetera et al., 2016). Moreover, differences in auction settings and nature of participants (i.e., participants in the campus were mainly university staff and students) can affect WTP (Vecchio and Annunziata, 2018). If these variables were not taken into account and controlled for, they could have led into distorted estimates (over- or underestimation) of the effect of independent variables that this study has measured (Li, 2021). Furthermore, the varying number of participants across sessions (12 vs 13 participants) could have led into variations in product valuations. However, after controlling for the variable 'session size' in the regression analyses, it was found out that it has no significant impact on WTP, except only on the propensity to exchange the endowed tablea for the Bicol tablea but was not consistent with the logit models for the other two tablea (see Appendix B, Tables B.1 and B.2).

Our experimental auction research has some limitations to take into account when interpreting the findings. First, our subjects were drawn from convenience sample and limited to mainly students and university staff. To adhere to legal restrictions (e.g., people movement) that came with the Covid-19 pandemic, it was not possible to conduct (similar) experimental auction sessions in locations outside the campus, restricting our participant selection to people entering the campus. While cocoa and chocolate products (e.g. tablea liquor) reach a wide market, and are a popularly consumed food for people of all ages, it is important to acknowledge the sample's limited representativeness of the cocoa consuming population. Nevertheless, most participants in the study were millennials, a primarily relevant target market for chocolates. Valuable insights can still therefore be derived from the study as with previous consumer studies on chocolates that drew their samples from students and university staff (Vecchio and Annunziata, 2015, Torres-Moreno et al., 2012, Norton et al., 2013, Havermans et al., 2009). Moreover, student or non-student sample do not necessarily have significant differences in their WTP elicited through experimental auctions, as shown in rice auctions in the Philippines (Depositario et al., 2009). Notwithstanding this, online surveys or experiments might also offer an alternative solution to enlarge the sample in situations where in-person data collection is limited due to movement restrictions (Peyton et al., 2021, Onderstal, 2020, Arechar et al., 2018, Angeliki et al., 2016), taking into account potential sampling biases due to internet availability or access (Angeliki et al., 2016).

Second, the WTP values might have been affected by endow-and-upgrade approach through the endowment effect (e.g., loss aversion), a status quo bias, which could have distorted WTP values, even though controls were in place during the experiments (Fehr et al., 2015). Moreover, WTP values might also be dependent to the reference price of the endowed tablea. For instance, the previously discussed case for women whose WTP for tablea was surprisingly lower than men's WTP could be attributed to women anchoring their WTP on existing market prices, which they were normally more familiar with than men. The full bidding approach is therefore generally more preferred than the endow-and-upgrade approach to rule out the endowment effect. Full bidding approach is particularly recommended in cases where few outside options (i.e., close substitutes of the auctioned product) exist and there are less opportunities to gather more information in the future about the value of the good, as these situations may also confound consumers' WTP values (Canavari et al., 2019, Lusk and Shogren, 2007).

Third, the absence of a control group could have resulted in confounding the treatment effect, through a time or learning effect. This implies that change in WTP after treatment rounds cannot be solely attributed to the treatments, because the participants might have learned more about the auction mechanics as they progressed along the auction rounds. In this case, having a control group or using between-subject design would have further contributed to the value of our research design, and would be recommended in similar studies in the future (Lusk and Shogren, 2007).

Fourth, we opted not to fully randomize the treatment rounds (i.e., blind and informed conditions were always 1st and 4th rounds, respectively) in order to measure the change of sensory perception without influence from any product information (i.e., award and origin labels), besides measuring the change of WTP values. However, this approach could have resulted into an order effect that might also confound the treatment effect. Nevertheless, the independence of the treatments was maintained in our experiments by using a different set of product codes (three-digit codes) for each round, which improved the design by preventing the participants to associate the products back to the ones in previous rounds (Charness et al., 2012). The integration of hedonic sensory evaluation into experimental auctions using a within-subject design was based on a protocol adopted in past food choice and valuation studies (Silva AR de et al., 2017, Piqueras-Fiszman and Spence, 2015, Teuber et al., 2016, Hamada et al., 2020, Shogren et al., 1994). It enabled us to assess sensory cues' influence without information effects (blind), disclose information piece by piece and determine how consumers value each product's attributes based on expectations (expected), and determine how consumers make trade-offs between attributes when all products' information of interest is available (informed) (Teuber et al., 2016, Hamada et al., 2020).

This study also presents some avenues for future research. An interesting research direction is to verify if the results (i.e., impact of award, origin, taste) remain the same for consumers who are more exposed to quality chocolates, especially those residing in other regions and countries with established chocolate quality reputation, or by using other types of chocolates (e.g., chocolate bars). Another aspect that merits a closer look to better explain the important role of sensory cues lies on investigating the taste/flavor profile of different tablea. This would render better understanding of consumer preference when only sensory cues are present, and no extrinsic cues are available. Nonetheless, our study is able to contribute to existing literature as it provides empirical evidence on the rarely examined impact of chocolate awards and origins, as well as sensory cues on consumers' WTP, particularly taking the case of tablea.

Overall, significant insights are gathered out this study's findings relevant for strategy formulation for craft chocolate makers and tablea processors. This study shows that award and origin labels undoubtedly enhance consumer liking and product valuation, with taste as a dominant factor of valuation. On the one hand, awards play a significant role to stir consumer preferences by visibly putting the awards on chocolate packages; and this can be maximized by supplementing award information. Using award labels as a communication strategy may build up product/brand image to potential customers and may elicit preference towards craft chocolates. Therefore, craft chocolate makers and tablea processors keen on joining cocoa product competitions should see that as a profitable investment to further raise product value. On the other hand, chocolate origin labels can also be an effective marketing strategy to raise product value, given that a certain origin has been attached to quality and good-tasting chocolates. In other words, highlighting awards, followed by origin, and most importantly ensuring taste quality could be important keys for achieving product affection and greatest valuation.

Declaration of Competing Interest

None.

Data Availability

Data will be made available on request.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.socec.2022.101965.

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