



## Article

## Connecting Gaiwan Hipsters and Premium Chinese Tea: The Attitudes, Habits, and Purchasing Behaviour of Boutique Tea Consumers

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## ABSTRACT

Chinese tea production quality is increasingly able to satisfy the needs of the high-value global market, yet product communication remains challenging for producers. Through a literature review and series of econometric tests constructed with novel data from 408 international respondents, we explore consumer attitudes, habits, and purchasing behaviour. We observed that the green tea consumption frequency was negatively correlated with average purchase value and there was no correlation between consideration of organic status and purchasing behaviour. Based on these findings, we offered straightforward and practical suggestions for those tea producers who are interested in accessing the global tea market's high-end segment.

**Keywords:** Food marketing; Consumer behaviour; Organic Status; Boutique tea; China

### 1. Introduction

Chinese tea producers have struggled to communicate the value of higher quality domestic tea. For decades, part of the issue was the objectively low quality of most Chinese tea. Tea production in China's collective era was largely oriented around mass market green tea for domestic consumption and bagged black tea for export. High-cost artisan styles like Enshi Yulu or Huoshan Yellow Bud were largely phased out (Tian 2014; Yang 2015). In the 1990s, technical backwardness, a lack of trained technicians, and bumpy institutional reforms all still conspired to make high-value Chinese tea a rare commodity (Shen 1994). At that time, there were also few regulations defining specific styles or terroir of tea. Consumer attitudes developed accordingly. And so, what little volume of high-quality tea that did exist was not always welcomed by the international market. Excessive pesticide application was also a reality of Chinese tea production that made tea marketing in some countries legally challenging. Scholar Cao

Xinxing likened Western countries' increasingly strict organic regulations to a sort of 'green ramparts' that hindered the export of Chinese tea (Cao 2005).

Indeed, in 2014 there were still some 33 documented incidents of Chinese tea exceeding Japanese or European regulatory limits for pesticide content, leaving exporters with confiscated or returned product in the thousands of tons (Sheng 2017). Communication of product safety and quality has also been a nightmare for Chinese exporters, even when their own product objectively meets consumer or country import standards (Li & Li 2011). Consequently, many Chinese producers have abandoned any hope of exporting high value tea, and focused only on the mass market. Today, the vast majority of tea exported from China can be summarized as 'low-cost, low-quality, and low-value,' even when compared to domestic Chinese market norms (Xu 2018; Xu et al. 2021).

The goal of this paper is to understand the attitudes and preferences of international tea

consumers. Through analyzing the preferences of consumers in different market segments, we especially want to clarify the attitudes, habits, and purchase behaviour of high-value tea consumers. Towards this end, we have conducted a literature review, analysis of real consumer data, and a questionnaire survey. Our sampling and model design includes methodological innovations, while our results offer insights that are directly actionable for Chinese tea sellers and policy makers.

## 2. Methodology

Past research has only somewhat provided a sound theoretical framework to explore the relationship between high value tea consumers and their product preferences. Before we explore this body of work, definitions must be addressed first. The terms 'high value' and 'boutique' both describe a segment of consumers with specific purchase behaviour (Camilleri 2018). The former term implies a consumer's average purchase is higher than the market norm, while the later term describes those who buy from a small fashionable business that sells a particular product or service (Cambridge Dictionary 2023). In the context of tea, such 'small fashionable businesses' most often sell premium whole leaf teas. The 'boutique' consumers who shop at such establishments are usually also 'high-value' in their purchase behavior. Industry materials can use these terms somewhat interchangeably, perhaps even imprecisely, yet both terms are usually referring to one specific market actor: big retail spenders. It is the preferences and purchase behaviour of such 'big spenders' on tea that we seek to understand in this paper.

Methodologically speaking, purchase behaviour is usually measured in one of two ways, willingness-to-pay (WTP) and purchase intention (PI). Generally speaking, in Willingness-To-Pay experiments, respondents are shown several products, asked to indicate whether or not they would purchase such products, and then assign a price. Over the years, various researchers have asked consumers to freely name a price, choose from a preset range, or instead state how much they pay for such a commodity in general (Breidert 2006). Purchase Intention is often measured in a more straightforward manner, with researchers usually just asking experiment participants to indicate their willingness to pay for a specific commodity on a Likert scale (Saeed et al. 2019). Regardless of which of these methods

one uses, the external validity of simulated consumer experiments like these have long been criticized and empirically demonstrated to produce results that are not generalizable to actual consumers with any degree of precision (Steth 1972; Lynch 1982; Al-Ubaydli & List 2015). Simulated consumer experiments often fail to capture the complexity of a real consumer experience and further made problematic by the consistent oversampling of students in lab settings and under sampling of actual consumers in random and untargeted online surveys and mitigates doubts over external validity (Andrade 2020; Wild et al. 2022; Winer 1999; Liefeld 2002; Völckner & Sattler 2007). Such methodological considerations deserve researchers' attention if they wish to be taken seriously by market actors and policy makers.

WTP or PI experiments are also unsuited to study consumers of boutique tea in another critical way i.e., product homogeneity. Both PI and WTP experiments usually have respondents consider products that are assumed to be basically homogeneous. Examples include Colombian coffee, a certain model of electric vehicle, or an aloe vera ready-to-drink beverage. In all these cases, products are homogeneous both in unit size and basic physical quality (Yang et al. 2014; Hahnel et al. 2015; Castellari et al. 2019). Looking at Chinese produced teas alone, one can see product sold loose in 50-gram, 100 gram and 500-gram bags, or pressed into the form of biscuits, cakes, or bricks that range in weight anywhere from 7 to 2500 grams. Physical appearance, caffeine content, and taste profiles all vary significantly between white tea, green tea, oolong tea, etc., and these factors can be equally varied when comparing even various sub-categories of green or oolong tea. Premium tea, especially Chinese tea, is not a single homogeneous product. It is a category of products. If one tried to achieve homogeneity by only surveying consumers of one of the specific 405 government recognized styles of Chinese tea, it would be very difficult to find a generalizable pool of consumers due to the lack of a single tea with high name recognition or consumption frequency (Bao 2022). The problem of product heterogeneity must be overcome if there is to be any inquiry into premium Chinese tea and the high value tea consumers who drink it.

The existing theoretical framework for identifying consumer attitudes / preferences is much less problematic for our present study. *Richardson et al.* conceptualizes consumer preference as

something that forms around an intrinsic or extrinsic cue, with the former being information one can directly infer from the product and the latter being anything affecting the subjective experience of a product that is not physically present in said product, i.e. information provided in advertising, brand, and packaging (Richardson et al. 1994). In the context of tea, intrinsic cues can include elements such as physical shape, taste, and aroma as subjectively experienced by the consumer (Padamali & Fernando 2016); extrinsic cues include information about the production location and method, as well as certification of social or ecological sustainability. Consumer preferences are thus the concrete and subjective assessments of any such cue. Other researchers have similarly used the term 'attitude.' Attitudes, in such work, have been described as following a pattern of perception, feeling, and action in the context of consumer behaviour (Solomon 2018). For example, when a customer perceives the shape of Dragon well tea, they may feel that the tea is of uniquely high quality, and might then act accordingly by selecting this tea over a generic green tea (Li 2010). This is closely related to Ajzen's TPB Model, which would have one expect a correlation to exist between a consumer's subjective attitudes and their intention to act, namely to buy a given commodity (Ajzen 1991).

Regardless if one is partial to the term 'preference' or 'attitude,' we have invoked all of the formal theoretical expressions above to convey two simple points: 1. consumers respond to information both internal and external to a given product. 2. consumer attitudes / preferences concerning that information affect purchase behaviour. It seems to the authors of this paper that while most of this is intuitively easy to understand, extrinsic cues, i.e. external information about a given product, deserves more exposition. Imagine one is considering purchasing an electronic cigarette. The extrinsic cues that might influence their decision include the brand shown on the packaging, the pitch given to them by the vendor, the testimonials of their friends who vape, and any information they have found online. Extrinsic cues are thus not limited to information explicitly given out by sellers. They include any and all information about a product that can influence a consumer's purchase decision. More isn't necessarily better when it comes to extrinsic cues. Oehler & Wendt opine that product information needs to reach a minimum quality level but not be so excessive that consumers face information and

choice overload (Oehler & Wendt 2016). Time and again, labels have been shown to be more influential than detailed explanations (Yang et al. 2014; Hahnel et al. 2015). It has also been demonstrated in behavioural experiments that consumers' encountering of information unrelated to their desired cue can decrease belief in that product's overall benefit (Meyvis and Janiszewski 2002). That means if a consumer is looking for an organic or socially sustainable tea and finds in a given tea's product description only one pertinent line of information buried within ten paragraphs explaining that tea's historical status, they may be compelled to disregard the product despite its possession of their desired features. Sellers need to provide concise and targeted information if they want to influence purchase behaviour.

Now, dear reader, your attention must be turned to the handful of recent studies that discuss tea consumer behaviour. Surveying middle and high-end consumers in Sri Lanka, the first study in recent literature found that brand name was the cue most positively associated with purchase intention, while no correlation could be demonstrated for intrinsic cues like taste or aroma (Padamali & Fernando 2016). Another study in Bangladesh found that consumers who purchased green tea reportedly did so more often for perceived health benefits than for taste or stimulation (Sumi 2018). Again, extrinsic cues seemed to play a more decisive role in determining purchase intention. Two studies of Chinese consumers explored the relationship between perception of various cues and purchase intention for organic tea. The first of these two studies, *James et al.* found that consumer perceptions of organic tea as healthy or as a status symbol were most positively correlated with purchase intention (James et al. 2018). The latter study, *Bu et al.*, suggests that consumers' purchase intention for a given organic tea was more strongly influenced by extrinsic cues including store innovativeness and store prestige than the physical quality of the tea itself (Bu et al. 2020). Another recent study found that subjective scoring of tea taste and willingness-to-pay was decisively affected by the teaware used in brewing. This implies that the assessment of a given tea's intrinsic quality is somewhat determined by tea ware selection, a consumer habit the authors of that study consider to be an extrinsic factor reflecting cultural transmission (Li et al. 2020). Based on all of these studies, it is safe to say that extrinsic cues can play

a more essential role in tea purchase behaviour and product differentiation than intrinsic cues.

While the consumer surveys discussed above can serve as a solid foundation for inquiry into tea consumer behaviour, most of them are of limited direct value to Chinese producers (and policy makers). In the first place, all of the studies above focused on consumers in China or South Asia. This is problematic, since Chinese producers who want to do as *Tran & Goto* suggest, namely to raise their income through increasing access to the 'high value' market segment in high income countries, need consumer data sampled in those targeted countries (Tran & Goto 2019). Secondly, certain extrinsic cues like brand are not as relevant for Chinese export market. While in South Asia a handful of British and domestic brands like Tapal, Bigelow, Ekaterra, etc. command dominating market shares, no such brands exist in China. Brand power for Chinese tea is on the whole quite weak, especially abroad (Yang et al. 2018; Cha 2022). Additionally, the studies that focused on organic tea are also not fully generalizable to premium tea or Chinese tea consumers in general. In 2018, organic tea represented around only 7% of Chinese domestic production and 11.6% of consumption in a developed nation like the United States (Grand View Research 2018; Nam et al. 2022). One cannot assume that all or even most of the tea purchased by the high value consumer segment is organic. Finally, the external validity of most of these studies is dubious as they rely on simulated consumer experiments, with only *Bu et al.* specifically sampling at tea stores. The willingness-to-pay and purchase intention reported in these surveys are not independent variables that measure real consumer behaviour. There is still plenty of room for a more targeted study.

### 3. Hypothesis

This paper seeks to do two things: 1. provide a clear profile of international boutique tea consumers' demographic make-up and consumer habits and 2. explore which extrinsic cues most influence purchase behaviour. One hypothesis,  $H_1$ , has been formed to test the relationship between a consumer habit, namely brewing method, and purchase behaviour. The other five hypotheses we have constructed are all related to consumer perception of a specific extrinsic cue. These cues include four that were previously unstudied, as well as one that has already received some treatment in existing literature, namely organic

status. The four previously unstudied cues are all elements common in Chinese tea marketing that have so far not been included in English language consumer research. Such overlooked cues include information about a given tea's growing elevation, processing uniqueness, related social justice efforts, and role in traditional culture.

$H_1$ : Preference for brewing with specialized tea ware is positively correlated with a higher average purchase value.

$H_1$  has been designed in order to expand on the breakthrough work of *Li et al. 2020*. Based on their findings, one might expect consumers' use of specialized brewing instruments instead of conventional mug infusion would be correlated to a higher willingness-to-pay. We have decided to classify this as a consumer habit and not an extrinsic cue. For both *Li et al. 2020* and most of the respondents in our survey, specialized teaware usually meant *gaiwan* or *gongbei* brewing in the Gongfu style. While the selection of such teaware and the application of such a style might be a response to cultural transmission, this brewing style might also be adopted for other reasons. Gongfu brewing is inherently a social event, it simplifies aroma assessment, and it lets consumers more easily perceive nuance in liquor colour, leaf shape, and taste across multiple infusions (Yan & Guo 2017). It seems to the authors of this paper that brewing preferences can be most easily (and scientifically) understood as a consumer habit rather than an attitude towards one specific external cue.

$H_2$ : Consumer consideration of a tea's growing elevation is positively correlated with a higher average purchase value.

Elevation has been found to have an effect on tea's chemical composition, and consequently taste (Sun et al. 2014). This is a fact that has long been reflected in the pricing and promotion of teas within the domestic market (Chen 2000). Green tea and Oolong tea, the two largest categories of Chinese tea exports, are the two perhaps most affected by this. Chinese consumers pay a premium for 'high mountain' teas that are sometimes labeled with a specific growing elevation. Do international consumers pay such a premium? How important is growing elevation to tea consumers outside of China? No study has so far addressed these questions. Additionally, there seems to intuitively be less consumer awareness abroad about the relative elevations of Assam vs.

Bengali tea, but perhaps the boutique market segment is more sensitive to this kind of product information.

H<sub>3</sub>: Consumer consideration of a tea's organic status is positively correlated with a higher average purchase value.

H<sub>3</sub> has been constructed to respond to the conflicting literature that exists around the relationship between purchase behaviour and organic status. More and more tea now crosses the Western market's 'green ramparts' without incident. 11 of the 27 'Model Organic Production Zones' in China included tea by the end of 2017, while another 38 counties or cities had an organic model zone under development that included tea production (Bo 2019). Farmers have good reason to comply with the organic transition promoted in such zones, as one study found that certified organic Chinese tea farmers earned 40 % more than their conventionally growing peers (Fang 2019). None of that however tells us anything about the relationship between purchase behaviour and organic status. One study has suggested that despite consumer self-reported support for organic tea, tea consumers do not consistently choose organic brands or accept a price premium for organic status in practice (Winchester et al. 2015). The increased revenue that organic certification has brought to Chinese tea farmers might be entirely limited to the domestic market and lower market segments abroad. Indeed, just like claims of health benefits, organic status may actually be more useful as a marketing element when targeting the lower purchase value market segments and 'entry-level' tea consumers (Aschemann-Witzel et al. 2013).

H<sub>4</sub>: Consumer consideration of a tea's processing uniqueness is positively correlated with a higher average purchase value.

Processing uniqueness is another common component of Chinese tea marketing that is critical in the country that has the greatest variety and range of tea production styles. The flavor, aroma, and shape of conventional baked green tea bears almost no resemblance to *heicha* bricks or white tea biscuits, yet these differences are almost exclusively the result of distinct processing styles rather than divergent cultivars. It is thus not surprising that the central role of processing uniqueness in tea product differentiation has already been documented in Chinese literature (Li 2010). Chinese teas with officially recognized and

protected 'geo-indicators' grew from 21 in 2005 to 405 in 2017 (Bao 2022). These indicators specify where a certain tea can be grown and how it must be processed. Chinese consumers are increasingly aware of these labels and the importance of processing in a given tea's ultimate appearance, aroma, and flavor. International consumers, however, may not be as aware.

H<sub>5</sub>: Consumer consideration of a social justice cause related to a given tea is positively correlated with a higher average purchase value.

The importance of information about social justice is perhaps more readily obvious. While conventional tea production largely stagnated between 2008 and 2016, tea compliant with voluntary sustainability standards (VSS), including Fair Trade, is estimated to have grown substantially, with a global market share growing from 2.8% to 19.4% in this period (Voora et al. 2019). *Tran & Goto 2019* also found that adoption of such certification granted Vietnamese tea farmers access to higher value market segments abroad and consequently better returns overall (Tran & Goto 2019). Fair trade and other related labels imply social sustainability and appeal to consumer guilt over unequal value chains. Just like with organic status, however, it is possible that information about a related social justice cause plays a bigger role in the purchase decisions of lower or entry level market segments than the highest spending consumers.

H<sub>6</sub>: Consumer consideration of a tea's related traditional history is positively correlated with a higher average purchase value.

As early as the 1970's, Mainland Chinese teas were once again being promoted with legendary accounts of their origins and allusions from famous authors (Zhuang 1979). More recent Chinese research also indicates that marketing tied to traditional history only strengthens a tea's claim on geographic or processing uniqueness (Li 2010). Chinese consumers can and do perceive historical information about Wuyi Rock Oolong's status as a tribute tea of the Imperial Court and longtime export staple as validation of the associated processing methods and growing environment (Chen 2019). Are international consumers as considerate of a tea's traditional history? There are certainly Western tea companies that advertise their affiliation with royal institutions and corporate longevity. Yet, one has reason to be skeptical that international consumers are as

interested than their Chinese counterparts. Due to a very recent (and brutal) colonial past, historical pedigree is not a selling point that South Asian and East African producers are always as keen on highlighting (Liu 2020). There is also simply a shorter history of tea consumption (and production) outside of East Asia. Traditional history simply may not be a cue that registers on international tea consumers' radar enough to be considered in purchase decisions.

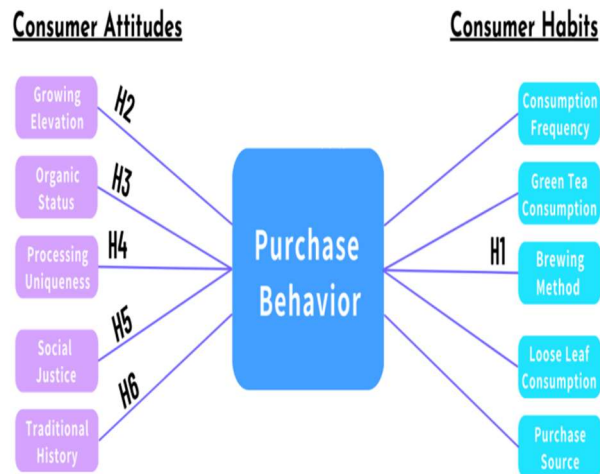


Figure 1. Research model

## 4. Methodology

### 4.1. Questionnaire Construction

The survey instrument had 14 questions. These questions included five questions about consumer attitudes, three on demographic factors, and six further questions about consumer habits. In the consumer attitude questions, respondents rated the importance of various extrinsic cues in their decision to purchase a given tea. On a 5-point Likert scale, respondents could select a value from 1 representing 'least important' to 5 representing 'most important.' These variables are listed in Table 1. The three demographic questions, age, nationality, and gender were all open-ended prompts. Two consumer habit questions, preferred brewing method and purchase source, were also free response prompts. Tea and green tea consumption frequency were measured on a 1-4 scale, with 1 representing 'rarely / never' and 4 representing 'daily' consumption. Loose leaf tea consumption was a forked question: consumers could state their average volume of loose leaf bought per purchase or opt out if they do not usually buy loose leaf tea. These questions are fairly straightforward, but the question we use to measure purchase behaviour deserves more exposition.

This study tries to understand tea consumers actual purchase behaviour, not simulated behaviour. Rather than having respondents choose between different price points for a specific unit size to measure willingness-to-pay or mark purchase intention on a Likert scale, we, instead, had respondents select one of three price ranges for their average tea purchase value. This was done due to the aforementioned heterogeneity of unit sizes among Chinese teas. Purchase value per order is the only single metric that is applicable for consumers of green tea, oolong tea, Puer tea, and white tea. We chose the three price ranges '\$0-50', '\$50-100,' and '\$100+', based on a preliminary examination of consumer data purchased from two boutique tea shops. The average order value of the 580 consumers included in this data set was \$88.31 USD, with 25.9%, 44.0%, and 30.1% of consumers respectively falling into the 0-50, 50-100, and 100+ price ranges. See Appendix I for more details.

Table 1. Consumer attitude variables

Variable	Explanation	Source
Growing Elevation	Information about the relative or absolute elevation at which a given tea is grown.	<i>Chen 2000</i>
Organic Status	Labeling that indicates which organic standard a given tea meets.	<i>Gatti et al. 2022</i>
Processing Uniqueness	Information about the unique way in which tea is cooked and dried.	<i>Li 2010</i>
Social Justice Cause	Information or labeling about a social cause that is associated with a given tea.	<i>Voora et al. 2019</i>
Traditional History	Information about a given tea's status as a historically important product.	<i>Bao 2022</i>

### 4.2. Sampling Procedure

In sampling, our goal was to give the most accurate picture of the international high-end market. Surveying took place in two phases, one online and one offline. We first shared our questionnaire online in the Fall of 2021 and Winter 2022 on several tea-centered online communities. This online questionnaire was

conducted using Google Forms and yielded 340 responses. We chose to target only such specific communities in response to recent literature that indicates random online surveys can generate results ungeneralizable to a specific population (Andrade 2020). We also made sure to avoid the 'convenience sampling' of university students that has long been known to bias behavioural research (Wild et al. 2022). Once Corona-19 restrictions were loosened in China, we were also able to conduct an additional 64 interviews offline at tea shops and farmer's markets in Seattle and Sacramento, USA. The majority of respondents we interviewed reported brewing tea using specialized equipment, drank tea at least once a week, and bought tea from boutique specialty vendors. In other words, most were genuine boutique consumers. 84.5% of consumers reported their nationality to be American, British, or of another country classified by the World Bank as high income (World Bank 2023). Our total sample size of 408 valid responses is one of the largest in all recent related literature and is the first to specifically target high value international consumers.

#### 4.3. Model

This paper's unique method of investigation has been adapted from existing literature. Most authors have opted to construct Pearson correlation tables wherein the correlations between willing-to-pay (or purchase intention) and consumer attitudes are generated and treated as a main means of hypothesis testing (Padamali & Fernando 2016; James et al. 2019; Bu et al. 2020). We have done this as well, and following *James et al.* we have additionally included means tables and used Cronbach's Alpha to examine the reliability of our measures (James et al. 2019). Tables 4 and 5 include the relevant results for consumer habit and consumer attitude questions. To this basic, rather simple model, we have added another test: ordinal regression. The clear natural ordering combined with unequal intervals between the three ranges of average purchase value, our independent variable, make it an optimal fit for an ordinal logistic regression (Berkner & Vourrer 2019). It is impossible to assume there is a continuous or normal distribution for such an independent variable, and there is thus no way to responsibly conduct a traditional linear regression. Our ordinal logistic regression has been adapted from one co-author's past work (Wu et al. 2017).

$$Y_i^* = \begin{cases} 1 & \text{if } Y_i^* \leq PB_1 \\ 2 & \text{if } PB_1 < Y_i^* \leq PB_2 \\ 3 & \text{if } PB_2 < Y_i^* \leq PB_3 \\ 4 & \text{if } PB_3 < Y_i^* \end{cases}$$

$Y^*$  represents an exact but unobserved independent variable. PB represents consumers' average purchase value per order of tea. Using this model, the probability (Pr) of different values or outcomes occurring for each dependent variable (X) can be calculated based on respondents' answers. Our dependent variables include both consumer habits and consumer attitudes.

$$\Pr(Y = 1 | X) = \Pr(Y^* \leq PB_1) = \varphi_1$$

$$\Pr(Y = 2 | X) = \Pr(PB_1 < Y^* \leq PB_2) = \varphi_2$$

$$\Pr(Y = 3 | X) = \Pr(PB_2 < Y^* \leq PB_3) = \varphi_3$$

$$\Pr(Y = 4 | X) = \Pr(PB_3 < Y^*) = \varphi_4$$

If ran correctly, the probability estimates can be shown for each dependent variable relative to increases in the independent variable. The P value for each variable is further used to verify close correlation between a given dependent variable and  $Y^*$ . We performed three regressions using version 0.17.1 of JASP. One regression included all respondents, another excluded those who reported usually buying from specialty vendors, and a third regression excluded those that bought from non-boutique sources. Our six hypotheses will be validated or rejected based on the results of the related variables in the ordinal logistic regressions (table 5) and aforementioned mean tests and Pearson tables (see tables 3 & 4).

#### 5. Data analysis and results

Breaking down the basic distribution of respondents' demographic information and tea consumption habits says a lot about our sampling. Relative to the actual consumer data of boutique tea vendors (Appendix I), our sample included slightly more individuals from developing countries. Table 2 shows demographic information and consumption habits of respondents. The average order value was also relatively lower than what is seen in the real consumer data. This second discrepancy may be related to the high sampling of individuals under the age of 35, which in itself is likely a reflection of the relatively younger user base of online tea forums. Nonetheless, the majority of respondents appear to be high-value, boutique consumers. More than 58% used specialized teaware



including gaiwans or gongbeis, roughly 66% usually purchase tea through boutique vendors, 82% of respondents purchase loose leaf tea in some quantity, some 84% self-report a high-income nationality, and 85% drink tea at least once a week.

It must be noted that responses for the five open ended questions regarding nationality, age,

Responses describing bagged & strained mug infusions were grouped as 'conventional.' Finally, purchase sources like Amazon, Alibaba, and grocery stores were grouped as 'non-boutique' as opposed to 'boutique' sources such as specialty web stores, farmer's market stalls, and tea import shops.

The Cronbach alphas and mean tests were the first

Table 2. Demographic Information & Consumption Habits

Item	n	%	Item	n	%
<i>Nationality</i>			<i>Loose Leaf Order Volume</i>		
Low Income Country	15	3.68	None	74	18.14
Lower Middle Income Country	29	7.11	>50 Grams	130	31.86
Upper Middle Income Country	18	4.41	50-100 Grams	120	29.41
High Income Country	346	84.80	100-500 Grams	70	17.16
			500+ Grams	14	3.43
<i>Age</i>			<i>Green Tea Consumption</i>		
>24	144	35.29	Rarely or never	45	11.03
25-34	160	39.22	Monthly	86	21.08
35-45	64	15.69	Weekly	136	33.33
45+	40	9.80	Daily	141	34.56
<i>Gender</i>			<i>Average Order Value</i>		
Male	233	57.11	\$0-50	258	63.24
Female	123	30.15	\$51-100	88	21.57
Other	52	12.75	\$100+	62	15.20
<i>Tea Consumption Frequency</i>			<i>Preferred Brewing Method</i>		
Rarely or never	6	1.47	Conventional Infusion	164	40.20
Monthly	53	12.99	Specialized Infusion	244	59.80
Weekly	75	18.38			
Daily	274	67.16			
<i>Loose Leaf Consumption</i>			<i>Purchase Source</i>		
Yes	334	81.86	Non-Boutique Vendor	138	33.82
No	74	18.14	Boutique Vendor	270	66.18

gender, preferred brewing method, and purchase source were all categorized into the scales and binaries you see below. We grouped nationalities according to the World Bank's per capita income categories; age groups were divided as such due to the high preponderance of young adults; while gender has been simplified into three categories, with 'other' including non-binary, two spirit, gender queer and all other responses that did not self-report as male or female. This response pool's tendency to be male and young is perhaps a reflection of niche online forum communities' actual social composition. Preferred brewing methods categorized as 'specialized infusion' included gaiwan and gongbei *Gongfu* brewing, Japanese metal pot infusions, specialized loose leaf glassware, french press, and cold brew.

results we examined. Following Kline, we use the Cronbach alpha values to validate the reliability of our measurement parameters (Kline 2011). The alpha values for both consumer habits and consumer attitudes both well exceed the 0.60 minimum. As one might expect, the questions that were formed as a 5-point Likert scale yielded better results than binary variables. In retrospect, a 7-point Likert scale would have likely yielded even better results (Bu et al. 2020). Regardless, the measurement parameters appear to be robust. As for the mean values, it would appear for the sampled respondents overall that the most important extrinsic cue in our questionnaire was processing uniqueness, followed by traditional history, organic status, social justice, and finally growing elevation.



Additionally, it seems that consumers' green tea consumption frequency lags well behind their

with each consumer habit and attitude, it is clear that some variables are more significant than

Table 3. Variable means & Cronbach Alphas

Item	Symbol	Range	Mean	SD	Cronbach's $\alpha$
<i>Consumer Habits</i>					(0.708)
Purchase behaviour	PB	1-3	1.520	0.745	
Preferred Brewing Method	BR	0-1	0.598	0.491	
Purchase Source	SO	0-1	0.662	0.474	
Loose Leaf Consumption	LL	0-1	0.819	0.386	
Loose Leaf Consumption Quantity	LL-Q	1-5	2.559	1.078	
Tea Consumption	T-FRQ	1-4	3.512	0.774	
Green Tea Consumption (1-4)	GT-FRQ	1-4	2.914	0.996	
<i>Consumer Attitudes</i>					(0.752)
Growing Elevation Info.	GE	1-5	2.473	1.206	
Organic Status Info.	OS	1-5	3.154	1.276	
Processing Uniqueness Info.	PU	1-5	3.510	1.377	
Social Justice Info	SJ	1-5	3.037	1.350	
Traditional History Info	TH	1-5	3.321	1.251	

overall tea consumption frequency. All of these observations should be kept in mind as we assess

others. Increased average order values are most positively correlated with brewing method,

Table 4. Pearson correlation results

Variable	1	2	3	4	5	6	7	8	9	10	11
1. PB	—										
2. BR	0.431 ***	—									
3. SO	0.346 ***	0.544 ***	—								
4. LLQ	0.005	0.427 ***	0.069	—							
5. T-FRQ	0.300 ***	0.336 ***	0.427 ***	0.283 ***	—						
6. GT-FRQ	-0.152 **	0.005	0.069	0.129 **	0.446 ***	—					
7. GE	0.377 ***	0.434 ***	0.410 ***	0.284 ***	0.279 ***	0.034	—				
8. SJ	0.096	0.051	0.053	0.076	0.115 *	0.026	0.241 ***	—			
9. PU	0.349 ***	0.456 ***	0.517 ***	0.304 ***	0.503 ***	0.234 ***	0.538 ***	0.231 ***	—		
10. OS	-0.009	0.053	0.063	0.104 *	0.018	-0.005	0.228	0.302	0.203	—	
11. TH	0.166 ***	0.299 ***	0.233 ***	0.202 ***	0.274 ***	0.119 *	0.453 ***	0.347 ***	0.514 ***	0.253 ***	—

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

each of our hypotheses.

The Pearson Correlation is one of the main tools we use to validate or reject our hypotheses (see table 4). Looking at the coefficients yielded when crossing average purchase value per order (PB)'s

consideration of growing elevation, consideration of processing uniqueness, and purchase source. As one might expect, strong correlations between the volume of loose-leaf tea consumption and tea consumption existed. Information about traditional history and social justice causes appear

to be less significantly correlated with increased purchase intention. Interestingly, increased frequency of green tea consumption seems to be negatively correlated with purchase value per order, while organic status had no meaningful correlation with PB.

In table 5 are the results from three regressions. Each column shows the probability estimates for each variable in the respective regressions. Looking at the 'All Respondents' regression, it appears that the negative and positive correlations observed in Table 5 are generally affirmed, with the exception of traditional history information (TH). Consideration of growing elevation and production uniqueness again seems to be positively correlated with higher order values, while organic status and social justice seem to still be relatively uncorrelated with purchase behaviour. Comparing the results of these three regressions offers even deeper insights.

Table 5. Ordinal regression results

Variables	All Respondents	Non-Boutique Buyers	Boutique Buyers
GE	0.386***	1.135***	0.276*
SJ	0.158	-0.348	0.197
PU	0.266*	0.687	0.170
OS	-0.189	-0.837***	-0.086
TH	-0.176	-0.296	-0.163
T-FRQ	1.137***	0.101	1.974***
GT-FRQ	-0.936***	-1.594***	-0.833***
BR	1.265***	1.524	1.342***
LLQ	0.344***	0.728***	0.213

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Purchase behaviour's positive correlation with growing elevation information and negative correlation with green tea consumption frequency are the most consistent across all regressions. Production Uniqueness is curiously only moderately significant when looking at all respondents. Organic Status seems to be negatively correlated with purchase behaviour across the board, but it is only very significant when looking at non-boutique buyers. As one might expect, the quantity of loose leaf purchased

per order only affects the order value of non-boutique buyers. This could be expected, as boutique retail buyers who spend more are paying for higher quality rather than a greater quantity. Finally, preference for specialized infusion in brewing method seems to also be significantly correlated with higher purchase values only among boutique consumers.

## 6. Discussion

### 6.1. Hypothesis assessment

Starting with brewing method, we will discuss the results' implications for each of our hypotheses one by one. Implications for producers and policy makers will be provided in 6.2 section.

Table 6. Hypothesis results

Hypothesis	Prediction	Result
H <sub>1</sub>	BR → PB	Validated
H <sub>2</sub>	GE → PB	Validated
H <sub>3</sub>	OS → PB	Rejected
H <sub>4</sub>	PU → PB	Validated
H <sub>5</sub>	SJ → PB	Rejected
H <sub>6</sub>	TH → PB	Rejected

Whether or not consumers preferred to use specialized teaware in brewing appears to be among the most significant factors influencing purchase value per order. In both Tables 5 and 6, the positive correlation between specialized teaware use and higher order value is clear, especially for boutique consumers. This validates the findings of *Li et al. 2020* which suggested that using specialized Chinese teaware could improve consumer perceptions and assessment of a given tea (*Li et al. 2020*). Whereas conventional bagged tea infusion comprises usually just one steeping and minimal opportunity to interact with tea's aroma and dregs, infusing with a Gaiwan or Gongbei allows consumers more opportunities to develop a nuanced appreciation of a given tea. Using this teaware seems to heighten a hobbyist's consumer experience and increase willingness to spend more on teas they can thoroughly explore and savor.

The results for growing elevation are even more compelling. Respondents with a higher average order value do indeed seem to give more consideration to growing elevation. A positive correlation is clear in both Table 5 and Table 6,

and that goes for both boutique and non-boutique consumers. This makes sense, given the recent published literature that validates the traditional association between higher elevation with higher quality tea. Interestingly, according to the mean test, it is also clear that growing elevation is the single least considered piece of information for consumers over all. It would seem that knowledge of growing elevation's role in tea quality is limited to only a small section of the market. Even though it is true that those who know and consider growing elevation in purchase decisions tend to spend more per order, these very same consumers might still say that production uniqueness is a more important factor.

No positive correlation between organic status and order value could be demonstrated in any of the tests we performed. Labeling tea as organic does not appear to significantly influence willingness to pay. Although some consumers do seem to be willing to pay a premium for organic coffee, like-minded tea drinkers might be even rarer (Gatti et al. 2021). There is also evidence that tea consumers in practice do not tend to consistently pay such premiums (Winchester et al. 2015). The results of our survey lend more credence to *Winchester and his companions* conclusions. Even as the market for organic tea ostensibly grows, organic labeling in itself is not a critical factor in the purchase decisions of high-value tea consumers. This is a fact that international consumers don't seem to mind very much.

Despite not being covered in past English language literature, interest in processing uniqueness does seem to be correlated with higher average order values. Consumers who spend more, think more about how their tea is made. The findings of *Wang et al 2022* that geo-labelling has a positive effect on tea consumer's purchase intention support such a conclusion. This may reflect high value consumers' knowledge that the fundamental difference between green tea and black tea, curly green tea and straight green tea, raw puer and ripe puer, etc. all stem from distinct processing techniques, and not from different tea plant cultivars or terroirs. This positive correlation is demonstrated both in Table 5 and Table 6. However, given that there is only a significant correlation in the first ordinal regression and a relatively weaker one at that, this conclusion merits some skepticism.

We could not verify a positive correlation between purchase behaviour and consideration of either of

social justice information or traditional history. That does not mean that these cues are unimportant to international consumers, or even the big spenders among them. Indeed, looking just at the mean tests, these two cues seem to be relatively more important in purchase decisions than growing elevation or organic status, at least for international tea consumers overall. However, while the results shown in Table 5 indicate a relative strong correlation between traditional history and purchase behaviour, the lack of any significant correlation for either variable in Table 6's three ordinal regressions is reason enough to not validate either hypothesis. We are not convinced a correlation has been proven.

## 7. Conclusion

As utilized in this study, targeted sampling, consultation of real consumer data, and application of ordinal regression are methodological improvements that can be more widely used in consumer research. Critically, we observed that green tea consumption frequency was negatively correlated with average purchase value and no correlation found between consideration of organic status and purchase behaviour. Chinese tea producers and marketers should consider these and the observations made above to optimize their international retail marketing strategies.

### *Theoretical implications*

This study has greater value for scholars not immediately interested in tea export, lays in its methodology. Our study design offers a straightforward and easily replaceable way to study consumers' behavior. We mitigate concerns of external validity by building the survey instrument on the basis of real consumer data, and targeting our sampling on online and offline communities of related consumers. The use of an ordinal regression rather than a classic linear regression should also be considered more in consumer research and economic work overall that analyzes data which violates linear regression's basic assumptions about equal intervals and normal distribution. The need for such improved methods has long been commented on, but often ignored in practice.

A few observations in our study also contribute to specific academic discussions. Our results indicate that there is reason to doubt that big spenders on tea are paying a premium specifically for organic status. No positive correlation between organic

status and purchase value could be found. Perhaps organic status is not considered because all the tea high end consumers buy is presumed to be organic; perhaps consumers do not trust related labeling. More research is needed before any speculation can be made. Moreover, brewing preference does seem to really have an effect on consumer habits and purchase intention. Scholars interested in the marketing of food and beverage products should consider examining the relationship between consumption mode, accessories, and purchase behavior. For example, perhaps beer drinkers' preference for can or bottle, poured or straight, chilled or room-temperature, etc. can all affect average purchase value.

### ***Practical implications***

Turning away from more theoretical consideration, one must recognize an unexpected observation: a strong negative correlation between green tea consumption and purchase behaviour, average order value. This is significant in the first place as green tea is still the most widely exported category of Chinese tea. Its appeal to high value spenders appears to be limited. We have an idea why that might be the case. In the first place, black tea remains the most popular production style among all consumer segments in high income Western Countries like Poland (Czarniecka-Skubina et al. 2022). Green tea also cannot produce sustained or nuanced flavor over multiple infusions, nor is there much meaningful diversity in green tea aromas. This makes green tea intrinsically unattractive to hobbyists that are accustomed to *gongfu* brewing. Producers targeting the international high-end market should thus put more emphasis on the teas that are well suited to this kind of brewing: namely black tea, oolong tea, white tea, and certain dark teas.

Reflecting back on our hypotheses, it is clear what kinds of information producers should focus on for the high-end market. All producers should emphasize information about their tea's production uniqueness. Information about traditional history, social justice, and growing elevation are all less essential, but not necessarily problematic. Consideration of organic status appears to be negatively correlated with higher average purchase values. Cooperatives and private factories should thus think twice about an expensive transition to organic certification if their goal in doing so is better access to the high-end market. Finally, Chinese local governments that host tea expositions and marketing training for tea producers should encourage producers to adjust

their marketing to meet the attitudes of the high-value international market where appropriate.

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### **Conflict of interest**

The authors have no conflict of interest to report.

### **Ethical statement**

Not Applicable.

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## Appendix I

**Table 7:** Real Consumer Data Breakdown

Nationality		
Low Income Country	0	-
Lower Middle Income Country	3	0.52%
Upper Middle Income Country	22	3.79%
High Income Country	556	95.86%
Average Order Value		
\$0-50	150	25.9%
\$51-100	255	44.0%
\$100+	175	30.1%

This data was purchased from two China-based tea vendors that exclusively sell Chinese tea to the international market. Both vendors self-describe as boutique and have agreed to let this anonymized consumer data be used in this study. Consumer data covers orders logged between 2018 and 2021.