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Consumer Willingness to Pay for Fair Trade Coffee: A Chinese Case Study

Shang-Ho Yang, Wuyang Hu, Malvern Mupandawana, and Yun Liu

Coffee consumption in China has seen a significant rise in recent years. This study seeks to explore the determinants of coffee consumption in China with a specific focus on fair trade coffee. In a survey of 564 respondents in Wuhan City, consumers' willingness to pay (WTP) for fair trade labeled coffee was measured. This study uses an interval regression to investigate individual demographic and consumption characteristic impacts on WTP. Results show that on average, consumers were willing to pay 22% more for a medium cup of fair trade coffee compared with traditional coffee. In addition, other variables that indicated a higher WTP included female consumers, consumers who made their own coffee, and consumers who planned to consume more coffee in the following year.

Key Words: China, fair trade coffee, interval regression, willingness to pay

JEL Classifications: D12, Q13

According to the coffee consumption data from the World Resources Institute from 1987–2006 (World Resources Institute, 2007), the annual average total consumption of coffee beans in China totaled 6,469 metric tons, ranking 74th in the world. For the top 10 countries, the annual average total consumption of coffee beans totaled 358,812 metric tons from 1987–2006 (Table 1). Thus, when compared with the world's major coffee markets, the coffee market in China

may appear trivial. However, following rapid economic growth, China has the potential to become a major coffee market in the future (Beijing Zeefer Consulting Ltd., 2009). This has important implications to coffee producers, marketers, and retailers worldwide.

Due to historical dietary habits and cultural differences, coffee in China is consumed much less than in western countries, such as the United States, Canada, and European countries. Nevertheless, China has positively increased its coffee imports from the United States over the last two decades (U.S. Department of Agriculture/Foreign Agricultural Service, 2010). Does this mean that Chinese consumers are gradually changing their beverage preferences? What other factors may affect their consumption? This study contributes to the literature as one of the first to examine Chinese coffee consumers and their purchasing behaviors.

In regards to Chinese coffee consumption, at least 70% of coffee was consumed in the form of instant coffee—the most popular form for coffee at the retail level (FriedlNet, 2003).

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Table 1. Average Coffee Consumption, 1987 to 2006

| Countries | Metric Tons | Ranking |
|----------------|-------------|---------|
| United States | 1,135,244 | 1 |
| Brazil | 678,837 | 2 |
| Germany | 578,487 | 3 |
| Japan | 367,525 | 4 |
| France | 319,143 | 5 |
| Italy | 292,071 | 6 |
| Spain | 168,919 | 7 |
| United Kingdom | 143,072 | 8 |
| Canada | 135,495 | 9 |
| Netherlands | 128,135 | 10 |
| Top 10 Average | 358,812 | |
| China | 6,469 | 74 |

Source: World Resources Institute (2007).

Roasted coffee sold in processed or prepackaged form is still rare. However, this trend is starting to change. For example, the Seattle based coffee company Starbucks Co. faced reduced profits in the United States and several other markets in 2008 and 2009, but saw no decline in its China business (Allison, 2009). Furthermore, the number of Starbucks coffee shops in China is expected to grow to over 700 stores within the next 10 years (Allison, 2009). Most of these stores sell brewed coffee. With the strong economic growth in China, consumers do have more options and are more open to sample beverages not traditionally consumed. In this growing market for coffee in China, consumer attitudes are the key to compare factors determining consumers’ purchasing behavior in China to other major coffee markets.

Fair trade coffee may have a niche market in China if consumers are aware of and concerned that coffee producers may not always receive a “fair price” for their coffee beans. Thus, buying coffee that bears the “Fair Trade” label is a way to help coffee producers. To explore the attitudes of Chinese consumers regarding fair trade coffee, we evaluate through their reported willingness to pay (WTP). The objectives of the study are to 1) ascertain Chinese consumers’ WTP for fair trade coffee; 2) examine the determinants of WTP for fair trade coffee, (i.e., outline the specific demand-related characteristics of each consumer group); and 3) add China

to the country analyses of coffee consumption behavior in the literature that is often based on U.S., Canadian, and European data. It is of interest to show how Chinese coffee consumption may differ from that seen in these countries and hence, how the results of this study may differ from previous studies. The result of this research is crucial for coffee traders and marketers to construct their marketing and promotion strategies in sync with consumer demand.

In China, coffee is often not seen as an ordinary beverage. In the 1980s, coffee drinkers were rare and coffee was usually treated as high-priced imported gift items exchanged more for its token value (i.e., as an expensive gift) rather than actual consumption value. Today, more people in China may consume coffee for the same reasons as in most western countries. These different reasons represent different attribute dimensions when a customer purchases coffee, such as brand-orientated, flavor-orientated, ethical-orientated, and price-orientated. Since the behavior of purchasing coffee entails many attribute dimensions and product labeling often conveys information that may not be directly or easily observed by consumers (Caswell and Padberg, 1992), it is necessary to understand how customers choose coffee and on what information they base their choices. Furthermore, information such as social or environmental benefits may affect coffee consumption decisions as well. Fair trade labeling of coffee products caters to the behavior of ethical consumption. Therefore, this study focuses on how Chinese consumers evaluate fair trade coffee in terms of their willingness to pay.

Literature Review

Fair trade is an organized social movement and market-based approach to help producers in developing countries obtain better trading conditions and promote sustainability. Among fair trade products, coffee has the largest sales volume and the longest history dating back to 1989 (James, 2000). According to the broad concept of fair trade from Pelsmacker et al. (2005), the fair trade label can be expressed as an alternative approach to aim at sustainable development of excluded and/or disadvantaged producers;

within the narrow sense of fair trade, it is best known as fair prices for the products of farmers in developing countries. Hence, the main feature of the fair trade movement is a product label aimed at informing consumers that growers receive a “fair price” for their product.

Coffee may be seen as a western-style beverage to Chinese consumers. In China, western-style foods are often symbols of modernization of food consumption and it is this idea that triggered the fast expansion of western-style convenience foods in China (Curtis et al., 2007). The McDonalds fast food chain is a successful example of western-style convenience foods entering the Chinese market. Watson (1997) indicates that McDonalds could not have succeeded without appealing to the younger generation of consumers who are eager to reach out to a different culture. There is scant literature on consumer coffee preferences or fair trade labeling in China. However, while China is opening its doors to the world, it is reasonable to anticipate that western-style tastes and preferences will emerge for coffee, especially among its younger citizens.

Fair Trade Labeling Related to Ethical Consumption

What is the motivation for ethical consumption? Doane (2001) described that ethical consumption as a purchasing behavior based on ethical concerns, such as human rights, labor conditions, animal well-being, and the environment. According to Pelsmacker et al. (2005), ethical consumers feel responsible toward society and express these feelings via their purchasing behavior. Hence, if consumers understand what fair trade labeling is, then they may feel responsible for this cause and be willing to pay premiums above standard prices. In essence, fair trade is a concept for coffee consumers that buying fair trade coffee helps growers in developing countries. Like other similar labeling strategies, such as organic or local production labels (Bernard and Bernard, 2009; Darby et al., 2008), consumers who have ethical concerns may have a higher willingness to pay.

Studies such as Greenwald and Banaji (1995) find that people are not always willing to report

their attitudes accurately, especially in the case of socially sensitive issues such as ethical consumption behavior. This implies that the existence of the attitude-behavior gap could bias our WTP results. Shaw and Clarke (1999) use an extended Ajzen's theory of planned behavior to explain belief formation and fair trade product buying intentions. Their results show that both behavioral control (i.e., perceived behavioral control and control-related elements of attitude) and internal reflection (i.e., subjective norms, ethical obligation, self-identity, and attitudes toward fair trade) have about “equal weight” in explaining intention to buy fair trade products.

However, beliefs may play a significant role in actual behavior (Shaw and Clarke, 1999). The gap between attitude and behavior is often referred to as the behavior intention, which can be controlled by influencing factors such as price, availability, ethical issues, convenience, information, and time. There is no guarantee that the results of the WTP estimation eliminate the gap between attitude and behavior. However, Shaw and Clarke showed that the attitude-behavior gap could be controlled or reduced if the economic trade-off principles are set up appropriately. In this study, we assume the attitude-behavior gap is constant through the process of our data collection.

Previous Studies Regarding Consumer WTP for Fair Trade Coffee

By the end of 2007, fair trade certified products were available in more than 60 countries. In 2007, worldwide consumers spent over 2.3 billion Euros for fair trade certified goods (World Fair Trade Organization, 2009). Recent studies have investigated fair trade coffee in countries such as Canada, the United States, and some European countries (Arnot et al., 2006; Basu and Hicks, 2008; Catturani et al., 2008; Cranfield et al., 2010; Galarraga and Markandya, 2004; McCluskey and Loureiro, 2003; Pelsmacker et al., 2005; Wolf and Romberger, 2010). Many of these studies also looked at consumer behavior and consumer perceptions in the context of WTP for coffee labeling.

Pelsmacker et al. (2005) conducted a survey on 808 Belgian respondents to measure their

WTP for fair trade coffee and found that those who preferred fair trade coffee (about 40% of surveyed samples) were more idealistic, but socio-demographically not significantly different from the average consumer. Their findings show that on average Belgian consumers were willing to pay a 10% premium for coffee with a fair trade label. Arnot et al. (2006) also investigated consumers' purchasing behavior with regard to fair trade coffee in Canada and found that buyers of fair trade coffee were much less price sensitive than those who bought conventional coffee.

In a study on label performance and consumer WTP for fair trade coffee in the United States and Germany, Basu and Hicks (2008) concluded that consumers' WTP was positively related to the scope of the fair trade labeling program, but only up to a critical level. Interestingly, the results on consumer reaction toward fair trade coffee were consistent in the two countries. Another U.S. example on fair trade coffee found that the idea of purchasing a branded fair trade coffee was appealing to only a small percentage of coffee consumers (Wolf and Romberger, 2010). Furthermore, Wolf and Romberger found that consumers may perceive the quality of fair trade products to be inferior. Fair trade coffee may be rated lower than

conventionally produced coffee of the same brand on the four most popular characteristics: flavor, rich taste, high quality, and price.

Findings from the above studies show that certain characteristics, including younger age, female gender, higher education, and high income may be positively related to higher WTP for fair trade coffee (Devitiis et al., 2008). These factors are hypothesized to be consistent with the characteristics of Chinese consumers who have newly developed preferences for western-style foods. As a result, this research offers further contribution to the discussion of this new food trend in China.

Data and Methods

The data used in this analysis were collected by a face-to-face survey in the city of Wuhan in Hubei province of China (Figure 1). Wuhan is one of the 10 most populous cities in the People's Republic of China. The city is recognized as the political, economic, financial, cultural, educational, and transportation center of central China. For many Chinese consumers, coffee is no longer an unknown beverage. Although it may be possible to examine consumers in cities such as Beijing and Shanghai, the consumers who are often considered as the front-runners setting new

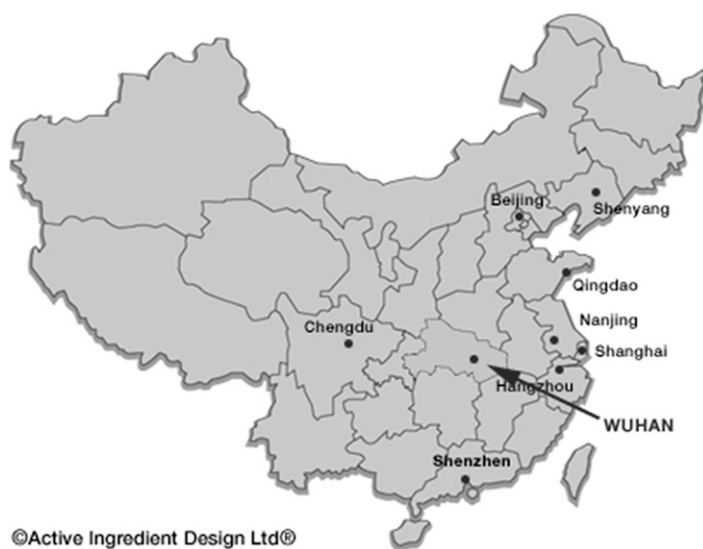


Figure 1. The map of China and location of Wuhan city (Source: The figure is adapted from <http://www.chinaarray.com/yangtze.html>)

consumption trends in China, it will be of more interest to understand how a less “adventurous” consumer group may respond to coffee. On the other hand, actual coffee consumption may still be low for most Chinese consumers, especially for those in remote or largely rural areas. Thus, it will be more descriptive to study consumers in an urban environment. Although many of its residents follow consumption styles of those in mega-cities such as Beijing and Shanghai, Wuhan also offers a strong representation of the more interior China, making it an appropriate candidate for study. Nevertheless, readers are reminded that results of this study are from a specific city in China and may or may not be representative of the entire body of Chinese consumers.

A total of 564 completed questionnaires were collected during October and November of 2008. Surveyors were students and faculty members from a local university in Wuhan. Prior to implementing the survey, the questionnaire was pre-tested to improve clarity and reduce hypothetical bias. Individuals near coffee shops and cafés were randomly approached. Since instant coffee is still a large component of the Chinese coffee market and it is mostly sold in grocery stores, the survey group also randomly intercepted consumers at grocery stores. To reduce sampling bias, surveys were conducted on different days of the week and different times of the day. Potential respondents were first asked whether they would like to participate in a study about coffee. Generic wording was used during this process to ensure that respondents would not be encouraged or discouraged to participate because of the particular product being considered. It is worthy to point out that despite the effort we took to reduce sampling bias, caution must be taken when generalizing the results to a larger consumer group.

Not surprisingly, the participation rate among younger individuals was significantly higher than that among the older group (roughly age 50 and above). This is consistent with the profile of Chinese coffee consumers—a consumer group mostly composed of young and white-collar individuals (Beijing Zeefer Consulting Ltd., 2009). Besides information about general coffee purchasing and consumption behavior

and demographic questions, the key variable in this analysis was the Chinese consumers’ WTP for fair trade coffee. Each respondent was given the price of a regular (non fair trade) medium cup of coffee of ¥20. (At the time of the study, ¥20 was about \$3 in U.S. dollars.) The respondent was then presented a logo of fair trade coffee with its definition: “coffee bearing this label means that traders have agreed to pay a fair price to marginalized coffee farmers who are organized in cooperatives around the world, particularly developing countries in Asia, Africa, Latin America, and the Caribbean.” The logo that was presented to respondents was the official seal used by the Fair Trade Labeling Organizations International (Figure 2) and the definition was translated into Chinese.

After allowing respondents to read the information related to fair trade, a payment card contingent valuation question was adopted to elicit consumers’ willingness to pay. In the past, conjoint methods have been used when estimating WTP for fair trade products (Basu and Hicks, 2008; Pelsmacker et al., 2005). Nevertheless, Stevens et al. (2000) concluded that in many cases, results from a contingent valuation



Figure 2. International Fair Trade Certification Mark by the Fair Trade Labeling Organizations International (Source: The figure is adapted from <http://www.fairtrade.net/?id=361&L=0>)

(CV) approach yield consistent interpretations with those generated by a conjoint analysis and, under certain situations, the conjoint estimates of WTP could be biased upwards. Thus, this study applies a payment card CV method similar to Hu et al. (2011). It is possible that an attitude-behavior gap may exist, especially for a product that contains ethical attributes (Greenwald and Banaji, 1995). Such an investigation remains an interesting future research venue in the context of fair trade coffee.

Respondents were asked how much more they would be willing to pay for a cup of fair trade coffee (of the same size) above the regular price. The survey presented them with 16 categories from 1: (¥0), 2: (¥0–¥0.99; \$0–\$0.14), 3: (¥1–¥1.99; \$0.15–\$0.29), and up to 16: (¥14 or more; \$2.10 or more). Respondents could mark one category as an indication of their willingness to pay. Figure 3 shows the distribution of those reported WTP for a cup of fair trade coffee. About 11% of the respondents were not willing to pay anything above zero; in other words, about 89% of the respondents were willing to pay a price premium for fair trade coffee. The range for the mode in WTP was (¥1–¥1.99; \$0.15–\$0.29). And the majority of the respondents were willing to pay less than ¥5.99 (\$0.89) above the regular price (¥20; \$3). In addition to the low WTP categories, that

is, ¥0–¥5.99; \$0–\$0.89, both categories ¥10–¥10.99; \$1.5–\$1.64 and ¥14 or more; \$2.10 or more also received a notable share of consumers.

In this case, the choice variable indicating the WTP is observed in interval ranges. If y is used to indicate respondents' discrete choices of intervals, given x (the explanatory variables), a conventional ordered probit or logit model can be estimated. However, Alberini (1995) suggested that based on Monte Carlo simulations, an interval-data model is often more efficient than a discrete choice model. Cameron and Huppert (1991) also outlined the benefit of the interval-regression specification. The main difference between interval regression and ordered probit/logit models is the interval regression assumes known WTP cut points rather than unknown cut points given only by ordinal category indicators.

As in most ordered probit, ordered logit, interval regression, and other models dealing with ranges, maximum likelihood estimation is employed. Although the analysis of an ordinary least square (OLS) regression would not reflect the uncertainty concerning the nature of the exact WTP values within each interval, nor would it deal adequately with the left- and right-censoring issues in the tails, it would provide a baseline estimate for relevant parameters. Hence,

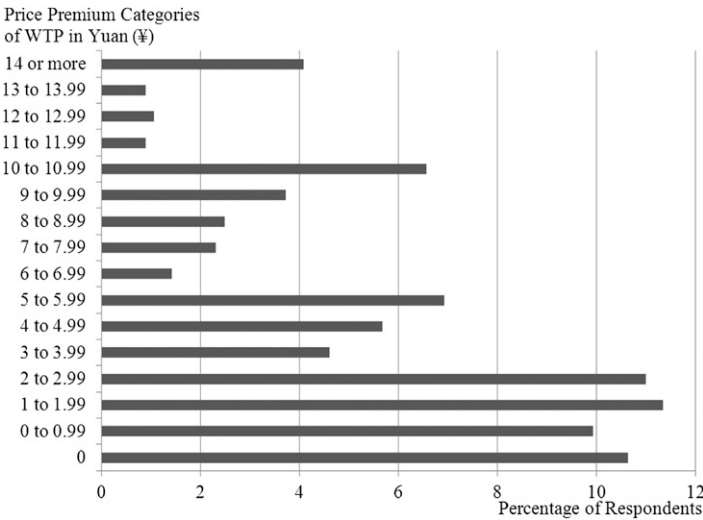


Figure 3. Distribution of Chinese Consumers' Willingness to Pay (WTP) Price Premium for Fair Trade Coffee

a linear OLS regression is applied as well. In the OLS model, the dependent variable must be a precise measured value, so the midpoint of each interval category for the given WTP categories in the questionnaire is used.

Normality is assumed for the interval regression. If normality was clearly incorrect, the estimated coefficients would likely differ significantly between OLS and interval regression. This can serve as an ad hoc check of the normality assumption. The model set-up for ordered probit/logit is:

$$(1) \quad y_i^* = x_i' \beta + u_i$$

$$(1.1) \quad y_i = j, \text{ if } \alpha_{j-1} < y_i^* \leq \alpha_j, \text{ and } \alpha_0 = -\infty, \alpha_m = \infty$$

$$(2) \quad \begin{aligned} \Pr[y_i = j] &= \Pr[\alpha_{j-1} < y_i^* \leq \alpha_j] \\ &= F(\alpha_j - x_i' \beta) - F(\alpha_{j-1} - x_i' \beta), \end{aligned}$$

where y_i^* is the true latent (or unobserved) WTP known only to the respondents; values $\alpha_1, \alpha_2, \dots, \alpha_J$ are unknown boundaries; x are a set of independent variables; and β are unknown coefficients to be estimated. The ordered logit model u has a logistic cdf: $F(z) = e^z / (1 + e^z)$. For the ordered probit model, F is the standard normal cdf. In the interval regression, the model set-up is similar to Equation (1) except that the interval boundaries are known:

$$(3) \quad \begin{aligned} \Pr[a_j < y^* \leq a_{j+1}] &= \Pr[y^* \leq a_{j+1}] \\ &- \Pr[y^* \leq a_j] = F^*(a_{j+1}) - F^*(a_j), \end{aligned}$$

where y_i^* is only observed to lie in the $(J + 1)$ mutually exclusive intervals $(-\infty, a_1), (a_1, a_2), \dots, (a_J, \infty)$. Given the answers individuals gave in the survey, y^* lies in corresponding intervals, that is $y^* \leq 0, 0 < y^* \leq 0.99, \dots$, and $14 \leq y^*$. The interval regression is more efficient than an ordered probit model, since the estimation procedure uses information on the scale of y^* to produce an estimate of σ , instead of requiring σ to be normalized to one.

Negative WTP suggests that consumers may require compensation to consume fair trade coffee. There could be several reasons for this behavior. For example, consumers may believe that fair trade growers may have hired children in the production process, the way fair trade coffee was produced is not sustainable for the environment, or that farmers would not actually

gain from various associations of fair trade. These reasons are plausible, but given widespread positive WTP discovered in the relevant literature, it is reasonable to set the lower bound to zero. The questionnaire does not apply a WTP category for less than ¥0; the amount less than zero is treated as the zero category. The maximum likelihood estimation is constructed from terms such as $\Pr[0 < y^* \leq 0.99]$, $\Pr[1 < y^* \leq 1.99]$, etc., under the assumption of normality of disturbances.

The empirical specification for Equation (1) is:

$$(4) \quad \begin{aligned} WTP = y^* &= \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots \\ &+ \beta_{17} X_{17} + \varepsilon, \end{aligned}$$

where the dependent variable (WTP) is explained by 17 independent variables (X_s), while the β_s are parameters to be estimated. The explanatory variables consist of demographic, consumption, and ethical concern characteristics variables. Robust estimators are used for all four models (OLS regression, interval regression, ordered probit, and ordered logit). The definition and statistical summary for each variable is shown in Table 2.

The demographic independent variables included in this study are *male*, *age*, *income*, *full_time*, *size*, and *marry*. The consumption characteristic independent variables included in this study are *bghtcofe*, *madecofe*, *buy_cofeshop*, *flavor*, *amtcons*, *five_years*, *over_fiveyears*, *expeccons_in*, and *expeccons_de*. The consumption patterns of coffee consumers capture their drinking habits and past coffee purchasing behaviors. Variables related to drinking habits are *madecofe*, *flavor*, *amtcons*, *five_years*, and *over_fiveyears*; and variables related to purchasing behaviors are *bghtcofe* and *buy_cofeshop*.

Variables describing the length of time as a coffee consumer, *five_years* and *over_fiveyears*, are both included to examine respondents' experience on their fair trade coffee willingness to pay. During the pre-tests, consumers exhibited difficulty recalling the exact number of years during which they have been drinking coffee. As a result, several ranges were used in the survey and the two dummy variables reflect the range included in the survey. Besides coffee consumption habits and purchasing behaviors, we

Table 2. Definitions and Sample Statistics of Variables (N = 564)

| Variable | Description of Variable | Standard | | | |
|-----------------------|---|----------|-----------|---------|---------|
| | | Mean | Deviation | Minimum | Maximum |
| <i>WTP</i> | The mid-point price for each chosen interval of willingness to pay | 4.49 | 4.26 | 0 | 14.50 |
| <i>male</i> | Discrete variable = 1 if respondent is male | 0.59 | 0.48 | 0 | 1 |
| <i>age</i> | The age of the respondent (continuous variable) | 24.41 | 5.68 | 18 | 54 |
| <i>income</i> | Total household income (Yuan) earned per month before tax (continuous variable) | 5,805 | 4,347 | 500 | 17,500 |
| <i>full_time</i> | Discrete variable = 1 if respondent is employed full time | 0.38 | 0.47 | 0 | 1 |
| <i>marry</i> | Discrete variable = 1 if respondent is married | 0.17 | 0.36 | 0 | 1 |
| <i>size</i> | Total number of family members in a household (continuous variable) | 3.10 | 1.05 | 1 | 10 |
| <i>bghtcofe</i> | Discrete variable = 1 if respondent purchased at least one cup of coffee in last month | 0.68 | 0.46 | 0 | 1 |
| <i>madecofe</i> | Discrete variable = 1 if respondent made a cup of coffee in last 30 days | 0.72 | 0.44 | 0 | 1 |
| <i>buy_cofeshop</i> | Discrete variable = 1 if respondent buys coffee in a coffee shop | 0.66 | 0.46 | 0 | 1 |
| <i>flavor</i> | Discrete variable = 1 if respondent usually buys a regular black coffee or black coffee with creamer or sugar | 0.62 | 0.47 | 0 | 1 |
| <i>amtcons</i> | The amount of coffee consumption in terms of number of small cups for 1 week (continuous variable) | 4.59 | 5.14 | 0 | 52 |
| <i>five_years</i> | Discrete variable = 1 if respondent has been a regular coffee drinker for up to 5 years | 0.56 | 0.49 | 0 | 1 |
| <i>over_fiveyears</i> | Discrete variable = 1 if respondent has been a regular coffee drinker for over 5 years | 0.09 | 0.29 | 0 | 1 |
| <i>expecons_in</i> | Discrete variable = 1 if respondent expects that next year coffee consumption will increase | 0.33 | 0.47 | 0 | 1 |
| <i>expecons_de</i> | Discrete variable = 1 if respondent expects that next year coffee consumption will decrease | 0.10 | 0.31 | 0 | 1 |
| <i>FTknown</i> | Discrete variable = 1 if respondent has at least some level of prior knowledge of fair trade coffee | 0.34 | 0.46 | 0 | 1 |
| <i>org_known</i> | Discrete variable = 1 if respondent has at least some level of prior knowledge of organic coffee | 0.45 | 0.48 | 0 | 1 |

also consider the expectation for future coffee consumption, that is, an expected increase in coffee consumption, *expecons_in*, and an expected decrease, *expecons_de*.

Two variables are used as proxies for consumers' ethical and environmental concerns: prior awareness of free trade and organic coffee, *FTknown* and *org_known*. Consumer ethical

concern has been greatly discussed by many previous studies, and ethical concerns have been shown to partially affect respondents' WTP for fair trade coffee. There could be many different ways to gather this type of information. Our study here simply asked if respondents know about fair trade and organic foods. Although these are not questions designed specifically to gauge Chinese consumer ethical and environmental concerns, many issues related to fair trade and organic production directly involve issues with ethical and environmental nature. Thus, we use these two variables to approximate these concerns consumers may have. Future work may expand this study by explicitly including variables representing consumer ethical and environmental concerns on food together with the other variables in this study. Focusing on drinking habits, purchasing behaviors, expectation on coffee consumption, and ethical/environmental concerns, these factors do enable us to determine the consumption patterns for Chinese consumers.

After conducting the interval regression, marginal impacts of explanatory variables can be estimated. Following Cameron and Huppert (1991), the marginal impacts are $\partial WTP / \partial x$. Given Equation (4), the dependent variable represents true monetary values. For instance, ¥2 to ¥2.99; \$0.3–\$0.44 means a specific range of actual prices for willingness to pay. Given this nature, the marginal impacts in the interval regression are actually marginal values and can be interpreted similarly as in an OLS model. In ordered probit or ordered logit models however, the dependent variables are ordinal category indicators; therefore, the coefficients cannot be interpreted directly. One way to assist interpretation is to calculate the marginal effects based on the estimated coefficients but these marginal effects do not represent monetary values associated with fair trade coffee willingness to pay. On the other hand, although the observed interval data do not show the exact WTP for anyone, the average increase or decrease in WTP is still estimable, and the exact WTP can be estimated for individual or groups of consumers.

Empirical Results and Discussions

As a case study, our results set an example of how Chinese consumers may treat and react toward fair trade coffee through their willingness to pay. Table 2 shows that males comprised about 59% of the respondents. Only 17% of the respondents were married. About 38% of the respondents were employed full-time during the survey period. One can easily argue that the average age (about 24-years-old) of the respondents is too young; however, most coffee consumers in China are younger than in other traditionally coffee-drinking countries. Preliminary pilot studies confirm that individuals over 40 years of age are rarely coffee drinkers in China and only a small percentage of coffee consumers are over 30 years of age.

On average, family size was about three people per household in the sample. In addition, about 68% of our respondents had *bought* a cup of coffee, and 72% had *made* a cup of coffee in the last 30 days before the survey. About 62% of the respondents showed that they were used to drinking regular black coffee (or black coffee with only creamer or sugar). For the quantity consumed, on average our respondents drank about 4.6 small cups of coffee per week. However, 56% said they had been regular coffee drinkers for up to 5 years, and only 9% of the respondents had been regular coffee drinkers for over 5 years. In terms of future coffee consumption, 33% answered they would increase consumption, 10% expected to decrease future consumption, and the rest would likely remain at the same consumption level next year. The survey also included a set of knowledge questions on how much consumers knew about organic and fair trade coffee. About 45% of the respondents knew at least something about organic coffee, but only about 34% knew relevant information about fair trade coffee. This result shows the potential importance of future product education if producers wish to make fair trade (or organic) coffee more visible to the consumers.

The results of OLS regression, interval regression, and ordered probit/logit models for WTP are shown in Table 3. Overall, these four models are well behaved and present consistent estimation results. All but four coefficients were

Table 3. Results for WTP: OLS, Interval Regression, and Ordered Probit/Logit Models

| Variable | OLS Coefficients | Interval Coefficients | Ordered Probit Coefficients | Ordered Logit Coefficients |
|-------------------------|---------------------|--------------------------|--------------------------------|-------------------------------|
| <i>male</i> | −0.87** (−2.41) | −0.82** (−2.00) | −0.18* (−1.85) | −0.31* (−1.84) |
| <i>age</i> | −0.06 (−1.47) | −0.06 (−1.43) | −0.02* (−1.65) | −0.03 (−1.60) |
| <i>income</i> | −8.8e−07 (−0.02) | −6.9e−07 (−0.01) | −2.4e−06 (−0.22) | −3.3e−06 (−0.17) |
| <i>full_time</i> | 0.38 (0.91) | 0.57 (1.22) | 0.15 (1.38) | 0.20 (1.04) |
| <i>marry</i> | 0.99* (1.85) | 0.96 (1.61) | 0.23* (1.70) | 0.49** (2.14) |
| <i>size</i> | 0.26 (1.52) | 0.28 (1.48) | 0.05 (1.29) | 0.09 (1.22) |
| <i>bghtcofe</i> | −0.35 (−0.83) | −0.24 (−0.51) | −0.06 (−0.54) | −0.14 (−0.75) |
| <i>madecofe</i> | 0.98** (2.46) | 1.36*** (2.94) | 0.34*** (3.11) | 0.56*** (2.89) |
| <i>buy_cofeshop</i> | 0.60 (1.58) | 0.55 (1.30) | 0.13 (1.30) | 0.23 (1.30) |
| <i>flavor</i> | −0.45 (−1.27) | −0.54 (−1.35) | −0.16* (−1.71) | −0.27* (−1.65) |
| <i>amtcons</i> | 0.02 (0.49) | 0.02 (0.39) | 0.01 (0.36) | 0.01 (0.12) |
| <i>five_years</i> | −0.98*** (−2.68) | −1.28*** (−3.14) | −0.31*** (−3.20) | −0.57*** (−3.31) |
| <i>over_fivyears</i> | −0.24 (−0.36) | −0.42 (−0.56) | −0.14 (−0.81) | −0.31 (−1.03) |
| <i>expeccons_in</i> | 1.05*** (2.76) | 1.15*** (2.74) | 0.27*** (2.83) | 0.44*** (2.66) |
| <i>expeccons_de</i> | −0.96* (−1.90) | −1.55** (−2.41) | −0.44*** (−2.61) | −0.76** (−2.35) |
| <i>FTknown</i> | −0.07 (−0.18) | 0.20 (0.48) | 0.11 (1.18) | 0.15 (0.91) |
| <i>org_known</i> | −0.50 (−1.46) | −0.64 (−1.62) | −0.18* (−1.93) | −0.28* (−1.70) |
| Constant | 4.91*** (4.03) | 4.53*** (3.40) | Not reported | Not reported |
| F (17, 546) | 3.06 | | | |
| Log pseudo-likelihood | | −1475.79 | −1300.62 | −1302.19 |
| Wald χ^2 | | 56.64 | 63.04 | 54.57 |
| Adjusted R ² | 0.05 | | | |
| Pseudo R ² | | 0.02 | 0.02 | 0.02 |

* 10% significance, ** 5% significance, and *** 1% significance ($n = 564$); t-Ratios are reported in parentheses.

estimated with consistent signs and significance levels across these models. The four coefficients are associated with variables *age*, *marry*, *flavor*, and *org_known*. Although variables *marry* and *flavor* are significant in the ordered probit/logit models, they are mostly marginally significant.

In addition, since the coefficients in these models do not represent monetary values directly, they offer less information in interpretation. The demographic and consumption variables for WTP were generally consistent with *a priori* expectations. Results from the OLS and the

interval regression resembled each other closely indicating the assumption of normality was well maintained by the data. It is noteworthy that the estimated intercepts of the ordered probit/logit models included 15 cut points. They are not reported in Table 3 but are available from the corresponding author. Since the dependent variables for ordered probit/logit models were ordinal category indicators, the magnitude of coefficients in these two models would also be different up to a scale. Furthermore, due to the nonlinearity of these two models, we cannot interpret the magnitude of the coefficients directly. However, it is still possible to interpret the estimated signs and compare them to the other two models.

Since the interval regression offers the most intuitive interpretation of the data, the following discussion is focused on the interval regression results. Of the demographic variables in the interval regression model, only the variable *male* was statistically different from zero at the 5% significance level. It has a negative sign, implying that female respondents were willing to pay more for fair trade coffee than male respondents. This result is consistent with fair trade proponents among Belgian consumers (Pelsmacker et al., 2005). As compared with female respondents, male respondents would like to pay about ¥0.8 (\$0.12) less for a medium cup of coffee. The higher WTP by female consumers for fair trade coffee thus benefiting disadvantaged producers may be related to the fact that females are often a disadvantaged group in many societies in the world whether developing or developed countries.

Among variables capturing respondents' general coffee consumption patterns, four variables were significant (most of which were significant at the 1% level) and were consistent across all four estimated models. These variables are *made-cofe*, *five_years*, *expecons_in*, and *expecons_de*. Results for the variable *made-cofe* suggest that compared with those who did not make coffee by themselves, respondents who made coffee by themselves would be willing to pay about ¥1.4 (\$0.21) more for a medium cup of fair trade coffee. This observation may be due to the fact that respondents who made their own coffee could be in a better position to control the

quality of their coffee, thus were more willing to pay for the additional ethical attribute of fair trade, knowing these results could have important implications for coffee marketers in China. For instance, they may consider concentrating their fair trade labeling effort on grocery store coffee products that will likely be consumed at home, rather than those in coffee shops and restaurants.

One interesting finding relates to the variable *five_years*. This is a dummy variable indicating that the respondents have been a regular coffee drinker for up to 5 years, while the variable *over_fiveyears* is a dummy variable indicating those with a longer than 5-year history as a regular coffee drinker. The result of the variable *five_years* indicates that compared with both occasional coffee drinkers (the omitted category) and the long term coffee drinkers (represented by variable *over_fiveyears*), respondents who had regularly drank coffee for up to 5 years were willing to pay about ¥1.3 (\$0.20) less for a medium cup of fair trade coffee. This may suggest that compared with inexperienced coffee drinkers—who may still be excited about their new taste, thus may favor additional features of their coffee—individuals who have been consuming coffee for a few years may be more composed and less excited about these features. Yet, for long-term coffee consumers, their experience may enable them to form preferences for features they truly prefer, such as fair trade, in addition to the price factor.

In regards to future consumption expectations, respondents who would like to increase their coffee consumption (variable *expecons_in*) would be willing to pay about ¥1.2 (\$0.18) more of a price premium for a medium cup of fair trade coffee compared with those who decided to stay at the same coffee consumption level in the following year. However, for those respondents who would like to decrease their coffee consumption (variable *expecons_de*) in the following year, their WTP would be about ¥1.6 (\$0.24) less than those who would remain at the same level. The effects of these two variables show that consumers' WTP for fair trade coffee is closely related to the volume of coffee consumption. Moreover, the WTP associated with the variable *expecons_de* represents the highest

absolute magnitude of WTP measure among all significant variables in the interval regression result, suggesting that how much coffee consumers would like to purchase in the following year was likely one of the most important determinants on their WTP for fair trade coffee.

None of the variables related to prior knowledge, *FTknown* and *org_known*, were significant in the interval regression. Since fair trade coffee incorporates information that may not be familiar to everyone, one would expect that if consumers were aware of this product, they would likely be willing to pay more. Similarly, both organic and fair trade coffee might be correlated to ethical and environmentally sustainable consumption behavior, and one would expect that if consumers knew about organic coffee, they would be willing to pay more for fair trade coffee due to similar ethical/sustainable concerns. The result from the interval regression, however, did not support these hypotheses.

There might be several reasons for this outcome. One of the most important causes could be that unlike in many western countries, fair trade coffee (in fact, even coffee in general) is still a very new product in China. Many consumers may not have formed a well-established purchasing preference for this product and as a result, their WTP does not necessarily incorporate all concepts included in fair trade coffee. We expect this result to change over the years when consumers have become more stable in their preferences. Nevertheless, the fact that the majority of the sampled consumers indicated positive WTP for fair trade coffee suggests by itself that ethical consumption may take a sizeable share of the total demand in the near future. Another reason to support this likely outcome includes the fact that China, as a developing country, produces many types of products that could benefit from the rising domestic and international consumer support of the notion of fair trade.

Conclusions

This study investigated Chinese consumers' coffee consumption and willingness to pay for fair trade coffee using a survey implemented in Wuhan City, China. The key objective was not

just to ascertain Chinese consumers' willingness to pay for fair trade coffee, but also to contribute to the general literature on fair trade products and to offer grounds for comparison with other countries, particularly to consumers in western countries. Although the independent variables related to ethical and environmental concerns were not significant in this study, many demographic and consumption variables did show significant impact to fair trade coffee WTP and were mostly consistent with previous studies.

Our initial results do recognize that Chinese consumers are willing to show their appreciation of fair trade coffee through their stated WTP: about 89% of respondents would like to pay some additional amount for a cup of fair trade coffee above the price of ¥20 (\$3) for a medium cup of regular coffee. On average, respondents were willing to pay about ¥4.5 (\$0.68) more for a medium cup of fair trade coffee. This translates into about a 22% price premium. This result is also consistent with Belgian consumers found in Pelsmacker et al. (2005). Note that an average Belgian consumer consumes 10 times more coffee than an average Chinese consumer. If Chinese consumers resemble the taste and WTP of Belgian consumers, results not only suggest an expanding market for the coffee business, but a growing market for fair trade coffee as well.

Data were further analyzed using four different econometric models: OLS regression, interval regression, and ordered probit/logit models. All models gave consistent results regarding the signs and significance of coefficients. In terms of factors affecting consumers' WTP, results found that women would most likely pay price premiums for fair trade coffee. A straightforward message for coffee marketers is to target female consumers to profit through this potentially lucrative niche market. In terms of consumption habits, whether the respondent had made a cup of coffee in the past, whether they had been a regular coffee drinker, and how they would change their coffee consumption in the following year, all had an important impact on their WTP for fair trade coffee. Combining with the result that consumers' prior knowledge of fair trade or organic coffee did not have a significant impact on their WTP, this study shows that consumers' WTP is more related to their consumption habits.

As pointed out previously, the coffee market in China is a potentially high growth market, yet there have been no significant studies addressing Chinese consumers' preference and WTP for coffee. Although coffee, including fair trade coffee, is not a primary commodity in China yet, this study gives an idea of how firms can approach the Chinese coffee market. First, this study shows that like many other countries, fair trade coffee will likely incur a price premium. In addition, Figure 3 shows that not only were the majority of consumers willing to pay extra for fair trade coffee, there was also a sizeable portion of consumers willing to pay a significant premium (¥10 (\$1.5) or higher) over the regular price. Coffee marketers should recognize this price premium and adjust their marketing strategies to capture the most profit.

Second, the results show that not all consumers would be willing to pay the same amount of price premium for fair trade coffee. Depending on their demographic features and past experience with coffee, consumers may be classified into different groups; each may have a different range of willingness to pay. Marketers can also adopt corresponding marketing strategies to focus on the target groups, while relevant policy makers can use proper management tools to facilitate this rapidly expanding market. An extension of the current study may be to conduct a cluster analysis of consumers to determine market segmentation.

Finally, the survey sample consisted primarily of young adults, who currently make up the majority of coffee consumers in China. As this young generation grows older and has more disposable income at hand, it will not be difficult to imagine a strong growth in Chinese coffee consumption.

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