Consumers' Willingness-to-pay for Organic and Local Blueberries: A Multi-store BDM Auction Controlling for Purchase Intentions

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Abstract

In this study, we conduct a series of BDM auctions at multiple marketing outlets to elicit consumers' willingness-to-pay (WTP) for organic and local blueberries. We find that consumers' attitudes and their reported valuation of organic and local production of blueberries vary across different types of marketing outlets. Participants' purchase intentions are controlled in the auction process to see how participants' purchase intentions for the auctioned product affect their partial bids (WTP for an additional attribute) as well as full bids (WTP for the auctioned product). The results suggest that purchase intention affects full bids, but not partial bids.

Key words: BDM auction, Multi-store auction, Purchase intention, Willingness-to-pay

Introduction

The Becker-DeGroot-Marschak method (BDM) is well suited for field experimental auctions, and as a result, has been increasingly used by researchers in the area of consumer behavior (Becker, Degroot, and Marschak, 1964) to elicit consumers' valuation of food (Wertenbroch and Skiera, 2002; Carrigan and Rousu, 2008; Silva et al., 2007; Rozan et al., 2004; Rousu et al., 2005 and Lusk et al., 2001 etc.). The most common location for conducting a BDM auction focusing on consumers' valuation of food is grocery stores and the procedure is relatively simple compared with other auction formats. In a typical BDM auction, the participant places a bid for the auctioned product and then draws a random price. If the randomly drawn price is greater than the bid, the participant does not "win" the product and pays nothing. If the randomly drawn price is below the bid, the participant "wins" the product and pays the price he/she draws.

The bidding behavior of participants is affected by many factors. Consumers' cognitive structure is complex and a lot of questions still remain unanswered. Many researchers have accepted the theory that instead of having fixed or previously formed values, consumers often construct different assessment contingent on different spots or choice contexts (Tversky and Simonson 1993; Payne, Bettman, and Johnson 1992; Bettman, Luce, and Payne 1998). Horowitz (2006) argued that people's valuation of an item is correlated with the circumstances in which he/she is going to pay for it.

People go to grocery stores to buy food, so whether they intend to buy the auctioned products when the auction is conducted might be a factor that would affect the participants' bids. Since real money is usually involved in the auction process, if auction participants do not plan to purchase the auctioned products, they may bid less

than they usually pay for the product and use the money for the products that they plan to purchase. Corrigan and Rousu (2008) argued that purchase intention critically determined consumers' willingness-to-pay (WTP) for perishable goods. They found that auction participants who planned to buy the auctioned products that day submitted bids equal to their perceived market prices of the products while participants who did not have such plan submitted bids less than the market prices. People report valuation according to their goals at that time, task environment, description of the task and product information etc. (Bettman et al. 1998). In this regard, it's necessary to control more factors, though many of which might be difficult to measure, that can influence consumers' bidding behavior.

Another important point worth attention for BDM auctions is the choice of auction locations. One of the biggest advantages of BDM auctions over the other auction formats is its point-of-purchase locations, which offer participants a more realistic choice situation (Carson et al. 1994). However, the locations should be chosen with caution and the potential impact of location choices on auction results should be considered. There are many types of marketing outlets that feature different types of food (e.g. organic, local etc.). Food quality, availability and price expectations may differ depending on the location of purchase. The co-existence of different marketing outlets indicates that consumers have different demands and expectations for food. These different attitudes toward food may drive a consumer to select an outlet they believe to satisfy their demand for specific attributes. For example, people who prefer organic food may go to a high-end grocery store that features organic food, or to outlets like farmers' markets. People who prefer locally produced food may shop at a farmers' market.

Differences in prices, food quality or availability of organic or local fruit across different locations may cause differences in people's valuation of food products sold at these locations. Since there are numerous types of marketing outlets that attract different consumer groups, the generalizability of a BDM auction result conducted at only one store, or one store type, is questionable. If a broader, more complete picture of consumer demand for attributes is wanted, reaching more consumer types allows a bigger picture than if we had just selected one store type.

In this study, we extend previous literature in two directions. First, we extend the study by Corrigan and Rousu to explore the effect of purchase intentions on partial bids (e.g. for a value-added attribute of the products) in addition to full bids (for the whole products). Researchers are often interested in consumers' WTPs for product attributes instead of the whole product. As such, it is important to understand the impact of purchase intention on consumers' partial bids for product attributes in experimental auctions to provide a recommendation for the need to control for this variable in studies that focus on attributes over whole products.

Second, we conduct BDM auctions in three different types of marketing outlets: grocery stores that focus on delivering products at the lowest price (price-conscious), grocery stores that focus on high quality (quality-focused), and farmers' markets. Although previous literature did explore the impact of conducting auctions at the point of purchase, such as grocery stores (Lust and Fox 2003; Shogren et al. 1999 etc.), the experiment was usually conducted only in one type of location. Although there are studies that determined the difference in consumers' attitudes toward food product attributes in different countries (Lusk et al. 2004; Lusk, Roosen, and Fox 2003), little

research has been conducted using auctions to consider whether such differences also exist across different types of marketing outlets. If such difference does exist, it may be recommended that field auctions be conducted in multiple locations or locations with consumers who are more representative of the population being studied so that the auction results can be generalized.

The study seeks to answer the following questions:

1. How does participants' purchase intention affect their bidding behavior for partial bids and full bids?
2. Will the BDM auction yield different results at different marketing outlets?

Literature Review

Literature has revealed exaggerated willingness-to-pay (WTP) estimates due to the hypothetical nature of some valuation methods. For example, List and Gallet (2001) suggested that on average, preference in the hypothetical setting was inflated by a factor of 3. Therefore, researchers began to rely on non-hypothetical methods, such as experimental auctions (EA), to elicit consumers' WTP for products or additional attributes (Rozan et al. 2004; Jaeger et al. 2004; Melton et al. 1996; Huffman et al. 2003, Hayes et al. 2002, Bernard and Bernard 2009, Hayes et al. 1995, Umberger et al. 2002, Alfnes and Rickertsen 2003 etc.).

Over time, locations of experimental auctions were no longer limited to labs and have been extended to more realistic contexts, such as grocery stores, or other point of purchase locations (Rozan et al. 2004; Rousu et al. 2005; Lusk and Fox, 2003; Lusk et al. 2001; Silva et al. (2007); List 2001 and List and Lucking-Reiley 2000 etc.). While lab auctions have been used widely to elicit people's attitudes toward non-market goods (i.e., environment conservation, food safety and novel good), field auctions have been

gaining popularity in the valuation of market goods and empirical consumer behavior studies. Auctions conducted in a retail context have a number of advantages over lab auctions, such as a more realistic circumstance for participants, a better capture of the target population and reduced compensation and recruiting fees for the investigator (Lust and Fox 2003; Lusk et al. 2001). Carson et al. (1994) argued that the choice context of value elicitation should be as close as possible to the real purchase situation. Wertenbroch and Skiera (2002) found that different from hypothetical methods, there was no overbidding in BDM auctions. Carrigan and Rousu (2008) concluded that participants in the BDM auction understood that the auction was demand revealing, which indicated that their bids were unbiased.

However, literature has reported value elicitation results that are inconsistent with basic preference theories. For example, in a sports card auction conducted in a sports card show, List (2002) found that the superior bundle was preferred when juxtaposed with the inferior bundle. However, when in isolation, the inferior bundle was valued much higher. The paper argued that the dichotomous choice questions might be challenged and various other nonmarket valuation methods should be examined. Thaler (1985) showed that people's stated WTP for the same product (cold beer) differed dramatically across different points of purchase (a run-down grocery store and a fancy hotel). Additionally, despite many studies that concluded with exaggerated WTP estimates in hypothetical context (Lusk and Schroeder 2004; List and Shogren 1998; Shogren et al. 1999 etc.), Lusk and Fox (2003) found that auctions conducted in stores yielded larger bids than lab auctions, given that participants were happy to participate

and were not constrained by cash (not having enough cash to pay for the auctioned product if they win).

More research is needed to understand the inconsistencies that have been found. Irwin et al. (1993) argued that people actually do not have an exact monetary value for goods, except for those very simple and familiar. As a way to explain the gap between theory and action, numerous studies have been done to test the generalizability of previous findings by controlling more consumer-side, environment-side, or methodology-side factors that might deviate from theoretical assumptions and affect consumer behavior in research experiments. For example, on the consumer-side, Lusk and Fox (2003) analyzed auction results controlling for "unengaged bidders (participants that bid zero for all the products)". Corrigan and Rousu (2008) analyzed the effect of purchase intentions on consumers' bidding behavior. List (2001) studied the use of "cheap talk" (an explicit warning or explanation why it is important to bid the true WTP value) on reducing hypothetical bias in elicitation procedures. The results were shown to depend on participants' experience with the auctioned good. Additionally, List and Gallet (2001) argued that the extent of over-statement of preferences was related to the distinction between public and private goods, WTP and willingness-to-accept (WTA) and different elicitation methods. Such empirical findings serve as useful warnings for researchers that unobserved factors might impact consumers' reported valuation of products, and should be controlled for when possible in experimental auctions.

Auction Procedure

A series of BDM auctions were conducted in July and August 2011 in Pittsburgh, Pennsylvania and Orlando, Florida. In each city, two grocery stores (one price-conscious and one quality-focused) and a farmers' market were selected.

Approximately 70 observations were collected in each location, with a total number of qualified observations of 356. The auctions were set up at the entrance to the stores and near the beginning of the farmers' markets. Consumers to the outlets were randomly stopped and asked whether they would like to participate in an experiment about food consumption. Qualified consumers (adult, blueberry consumers without food allergies) were asked to fill out a questionnaire about purchase intention, demographics etc.

Four types of blueberries (organic and locally produced blueberries, conventional and locally produced blueberries, organic blueberries produced in the U.S. and conventional blueberries produced in the U.S.) were auctioned. Before the auction, each participant was given a sheet explaining the auction procedure. The auctioneer then explained the auction procedure to the participants and answered questions from the participants about the procedure.

The auction procedure had four steps:

1. Each participant was endowed with $7 cash, which they were told could be used to purchase the blueberries if they won the auction or was theirs to keep if they did not win. The participants were asked to bid simultaneously for four types of blueberries in one-pint clamshell packages. The auctioneer explained to the participant that it was his/her best interest to bid exactly what he/she was willing to pay for each blueberry package.

2. After the participants placed the bids, they randomly drew a letter to determine which blueberry was actually auctioned. Therefore, they only had the opportunity to buy one type of blueberries.

3. Once the auctioned blueberry type was determined, participants were asked to draw a random price.

4. If a participant's bid for the randomly selected blueberries was higher than the price drawn for those blueberries, the participant purchased the blueberries at the randomly drawn price. If a participant's bid for the blueberries was lower than the drawn price, the participant did not purchase the blueberries.

Results

A demographic summary of participants at each marketing outlet is shown in Table 1. Demographics does differ by location, with the price-conscious marketing outlet featuring consumers who tended to be younger, had lower income, had a lower education level, and were more likely to be Black or African American. They also tended to have more children than consumers at the other two marketing outlets. The participants at the farmers' markets have the highest average income and education level. The variation in demographics at different marketing outlets indicates that the auctions may produce different full bids and partial bids at different locations.

Summary statistics for the four bids for the four types of blueberries at each marketing outlet are shown in Table 2. The bids for organic, local blueberries (bid1); conventional, local blueberries (bid2); and conventional, U.S. produced blueberries (bid4) are the highest in the farmers' markets and the lowest in the price-conscious stores. The bids for organic, U.S. produced blueberries (bid3) are the highest in the quality-focused stores and the lowest in the price-conscious stores.

Partial Bids for Organic and Local Blueberries at Different Marketing Outlets

In the survey before the auction, information on attitudes toward organic and local fruits was collected. Significant differences are found among the answers from

participants at different locations. Specifically, participants at the quality-focused grocery stores demonstrate more trust in organic fruits than participants at the price-conscious grocery stores. They are more likely to agree to a statement that they will pay more for fruits with an organic label than participants at the price-conscious grocery stores (on a 5-point Likert scale). Participants from the two farmers' markets are generally more likely to indicate that they will purchase local blueberries than those from the other two locations (on a 5-point Likert scale).

The means and standard deviations of bids for organic and local blueberries at different marketing outlets are shown in Table 3. According to the Bonferroni multiple comparison test, participants at the quality-focused stores, which are known for selling organic food, have higher bids for organic blueberries than participants at the price-conscious grocery stores. For local blueberries, the farmers' markets have the highest bids among the three marketing outlets. The results are consistent with our expectation that the experiment will yield higher bids for organic blueberries in quality-focused grocery stores and higher bids for local blueberries in farmers' market. Additionally, the bids for organic blueberries are larger than the bids for local blueberries, no matter where the auction was conducted. This indicates that consumers generally consider the organic production of blueberries a more important attribute than production location. However, the standard deviations of bids for organic blueberries are all bigger than those for local blueberries. Therefore, more divergence exists in consumers' attitudes toward the organic production of blueberries.

Impact of Purchase Intention

Since fresh blueberry is a highly perishable fruit, it's reasonable to expect that people will bid differently if they plan to buy blueberries on the day of auction. To

control for such impact, participants were asked to indicate if they planned on purchasing fresh blueberries at the store/market. Participants from different marketing outlets but with the same purchase intentions are grouped together to test if purchase intentions impact bids. The Bonferroni multiple comparison test is used to detect pairwise differences for full bids as well as partial bids between different groups. The results are summarized in Table 4.

Significant differences exist between the full bids of participants with purchase intentions and the full bids of participants without purchase intension for all the four types of blueberries. The differences in the full bids between participants without purchase intention and those who are not sure if they planned to purchase are not all significant (Only the differences for bid3 and bid4 are significant). This result is consistent with previous findings that consumers who plan to buy the auctioned products tend to have higher bids than those who do not intend to buy the auctioned products. However, the partial bids for local or organic blueberries are not significantly different across groups with different purchase intentions. Therefore, although purchase intention has effects on the full bids in the auction, it does not affect the revelation of the relative values among multiple auctioned products. This indicates that the impacts of purchase intention on products are in same direction and with similar scale such that the partial bids calculated as the difference between the full bids for various products do not vary among consumers with different purchase intentions.

The Tobit Model for Full Bids

To investigate the relationship between reported full bids and participants' demographics, attitudes, auction location and auctioned blueberry type, a Tobit model is

used since the dependent variable (reported bids) is left censored at zero. The model is specified as follows:

If $Bid_i^* > 0$,

$$Bid_i = Bid_i^* = \alpha_0 + \alpha_1 X_i + \alpha_2 FM_i + \alpha_3 Qualityfocused_i + \alpha_4 Florida_i + \alpha_5 Organic + \alpha_6 Local + \alpha_6 Organic\_local + \mu_i > 0 \quad (1)$$

If $Bid_i^* \le 0, Bid_i = 0$

Bid_i^* is the latent dependent variable and Bid_i is the observed dependent variable. X_i is the vector of demographic and attitude independent variables that include age, gender, income, race, education level, number of children in the household, how well participants like fresh blueberries, whether they had purchased fresh blueberries before and whether they intended to buy fresh blueberries that day. FM_i and $Qualityfocused_i$ are the dummy variables for the farmers' markets and the quality-focused stores respectively. $Florida$ is the dummy variable for Florida auction participants. $Organic$, $Local$ and $Organic\_local$ indicate the blueberry types. The dummy variables for price-conscious stores and Pennsylvania are omitted for identification purpose. μ_i is the error term. The regression results are shown in Table 5.

For the demographic independent variables, age, Asian and college education are significant. Age and Asian are significantly negative, indicating that older participants bid less than younger participants and Asian participants bid less than African-American participants (African-American is omitted for identification purpose). Participants with college degrees bid significantly higher than those without a college degree.

Surprisingly, no significant difference is found between the bids of postgraduates and participants without college education.

The coefficients of the variables indicating blueberry types are all significantly positive. Therefore, both value-added attributes (organic and local) of blueberries attract some price premiums from the auction participants. The result also shows that consumers are willing to pay more for organic blueberries than for locally produced blueberries.

Dummy variables for the marketing outlets are significant with the bids at the farmers' markets and the quality-focused stores significantly higher than those at the price-conscious stores. This result is as expected since these two stores are intended to attract more consumers who seek high-quality food and thus are relatively less price-conscious. Importantly, this holds after controlling for the demographic differences among marketing outlets and blueberry types, implying that participants' full bids do differ among different types of stores. In addition to marketing outlets, the location of the auctions was significant. Participants from Florida bid significantly lower than those from Pennsylvania.

As expected, how well the participants like fresh blueberries has a significant positive effect on the reported full bids. However, the purchase history (whether the participant had purchased fresh blueberries before) is not significant, which indicates that familiarity with blueberries does not affect participants' full bids. For purchase intention, participants planning to buy fresh blueberries on the day of auction bid significantly higher than those who did not have such plans. This is also consistent with the results in Table 2.

The OLS Regression for Partial Bids

To investigate how the independent variables in Equation (1) affect the partial bids, the same set of independent variables, with the exception of the dummy variables for blueberry types are regressed on partial bids for organic and local blueberries.

The partial bids for organic are calculated as the difference between bids for organic, U.S. produced blueberries and conventional, U.S. produced blueberries and the partial bids for local are calculated as the difference between bids for conventional, local blueberries and conventional, U.S. produced blueberries. In both cases, there are both positive and negative signs, thus, we use a robust OLS regression. The models are specified as follow:

$$WTP_{iorg} = \beta_0 + \beta_1 X_i + \beta_2 FM_i + \beta_3 Qualityfocused_i + \beta_4 Florida_i + \varepsilon_i \quad (2)$$

$$WTP_{ilocal} = \gamma_0 + \gamma_1 X_i + \gamma_2 FM_i + \gamma_3 Qualityfocused_i + \gamma_4 Florida_i + \tau_i \quad (3)$$

WTP_{iorg} and WTP_{ilocal} are observed dependent variables. The regression results are illustrated in Table 6. Many variables that were significant in the model for full bids become insignificant in the model for partial bids. In the model for local blueberries, only age and the two store dummy variables are significant. As expected, the coefficients for the two store dummy variables are significantly positive, which is a reasonable result since participants from these two types of marketing outlets are more quality-focused or more likely to care about place of origin of food. This result also holds when demographic differences among the stores are controlled for. For organic blueberries, only age, female and the dummy for quality-focused store are significant. Female consumers are more willing to pay premiums for organic blueberries than males, which suggests that females are paying more attention to food quality than males. The

significance of the coefficient for the quality-focused stores indicates that consumers in this type of store place more emphasis on the organic production of blueberries than consumers from the other two types of stores.

Purchase intentions are insignificant in both models. This also confirms our previous results that purchase intentions have no effect on partial bids. Additionally, purchase history does not affect participants' partial bids for the value-added attribute of "organic" or "local" either.

Conclusion

In this study, a series of BDM auctions were conducted to elicit consumers' valuation of organic and locally produced blueberries. We argue that the purchase intention of auction participants and the choice of auction location could impact participants' bidding behavior. We extend the study of Corrigan and Rousu (2008) by analyzing the effect of purchase intentions on partial bids as well as full bids. In addition, the auctions were conducted at three types of marketing outlets: price-conscious grocery stores, farmers' markets and quality-focused grocery stores to capture a more diverse sample of consumers.

Our results show that purchase intention on the day of the auction only affects full bids, but not partial bids (e.g. bids for a value-added attribute). Auction participants who planned to purchase the auctioned product reported higher bids than those who did not plan to purchase. However, the partial bids were consistent among participants with different purchase intentions. Therefore, future research on partial bids might be less dependent on participants' purchase intentions. However, the results might only hold for perishable goods.

It was also found that there are differences in demographics among consumers, as well as their attitudes toward organic and local production of fruits at different marketing outlets. Even after controlling for the demographics and attitudes difference, bids for “organic” and “local” were significantly different at different marketing outlets. Specifically, consumers in the farmers’ markets had the highest partial bids for local blueberries while consumers in the quality-focused stores had the highest partial bids for organic blueberries. Therefore, if the auction was conducted at only one type of marketing outlet, the bids might be underestimated or overestimated. Our study also indicates that consumers’ attitudes toward organic production of blueberries demonstrate more variation than their attitudes toward locally produced blueberries.

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Table 1. Demographics of participants at each marketing outlet

Independent Variables	Price-conscious	Farmers' Market	Quality-focused
Female	79.41%	69.05%	78.13%
Age	40	45	50
Caucasian	38.24%	80.16%	82.81%
Hispanic	3.92%	2.38%	4.69%
Asian	1.96%	3.17%	2.34%
Black or African American	49.02%	5.56%	7.81%
Other races	6.86%	8.73%	2.34%
Income($34,999 or below)	46.08%	23.02%	18.75%
Income($35,000-$99,999)	44.12%	43.65%	47.66%
Income($100,000 or above)	6.86%	30.95%	28.91%
Income(don't know)	2.94%	2.38%	4.69%
Postgraduate	4.90%	26.19%	20.31%
College	50%	56.35%	60.16%
High school	33.33%	9.52%	12.50%
Other education level	11.76%	7.94%	7.03%
No child at home	43.14%	69.84%	69.53%
One or two children	42.16%	25.40%	25.00%
More than two children	14.71%	4.76%	5.47%

Note: The median of age is used.

Table 2. Summary statistics of bids for blueberries

Store types	Organic, local ($)	Conventional, Local ($)	Organic, U.S. produced ($)	Conventional, U.S. produced ($)
Price-conscious stores	2.934 (1.710)	2.639 (1.252)	2.845 (1.669)	2.590 (1.266)
Farmers' market	4.131 (1.725)	3.390 (1.352)	3.426 (1.538)	2.787 (1.299)
Quality-focused stores	3.894 (1.514)	3.037 (1.261)	3.634 (1.502)	2.612 (1.294)

Note: The numbers in the parenthesis are standard errors.

Table 3. Partial bids at different locations

Store Type	Partial bids for organic		Partial bids for local	
	Mean($)	Std. Dev	Mean($)	Std. Dev
Price-conscious (1)	0.255	1.572	0.049	0.924
Quality-focused (2)	1.022	1.640	0.424	0.911
Farmers' market(3)	0.639	1.343	0.603	1.061
Significant Difference of means (Bonferroni test)	2>1		2>1,3>1	

Table 4. Difference of mean bids across purchase intentions

Bids	Purchase Intention			Mean Difference		
	Yes	No	Not sure	Yes-No	Yes-Not sure	No-Not sure
Bid1($): organic, locally produced	4.26 (1.79)	3.46 (1.84)	3.81 (1.45)	0.80** (0.25)	0.45 (0.27)	-0.35 (0.20)
Bid2($): conventional, locally produced	3.41 (1.42)	2.94 (1.39)	3.04 (1.16)	0.47** (0.20)	0.37 (0.21)	-0.10 (0.16)
Bid3($): organic, U.S. produced	3.94 (1.49)	3.12 (1.70)	3.36 (1.44)	0.82** (0.23)	0.59** (0.25)	-0.23 (0.19)
Bid4($): conventional, U.S. produced	3.07 (1.17)	2.60 (1.33)	2.59 (1.26)	0.48** (0.19)	0.49** (0.20)	0.01 (0.15)
Partial bids for local($) (Bid2-Bid4)	0.33 (1.05)	0.34 (1.04)	0.45 (0.88)	-0.01 (0.15)	-0.12 (0.15)	-0.11 (0.12)
Partial bids for organic($) (Bid3-Bid4)	0.87 (1.25)	0.53 (1.63)	0.77 (1.52)	0.35 (0.23)	0.10 (0.24)	-0.24 (0.18)

Note: Tukey multiple comparison test is used. The numbers in the parenthesis are standard errors. ** indicates significance at 5% level.

Table 5. Tobit for reported bids

Independent Variables	Coefficient	Std. Err.	t	P>t
Age	-0.007**	0.003	-2.550	0.011
Female	0.167	0.099	1.690	0.091
Income($35,000-$99,999)	-0.011	0.106	-0.100	0.921
Income($100,000 or above)	0.175	0.124	1.410	0.160
Caucasian	-0.012	0.132	-0.090	0.927
Hispanic	-0.034	0.245	-0.140	0.889
Asian	-0.667**	0.282	-2.360	0.018
Others races	0.296	0.211	1.400	0.162
College	0.356**	0.104	3.410	0.001
Postgraduate	0.188	0.142	1.320	0.186
Number of Children	0.074	0.043	1.710	0.088
Farmers' market	0.484**	0.132	3.670	0.000
Quality-focused	0.378**	0.130	2.920	0.004
Florida	-0.436**	0.090	-4.820	0.000
Organic	0.637**	0.116	5.480	0.000
Local	0.419**	0.116	3.610	0.000
Organic_local	1.010**	0.116	8.690	0.000
Like	0.321**	0.064	5.000	0.000
History	0.130	0.171	0.760	0.448
Intention	0.427**	0.114	3.730	0.000
Intercept	0.704**	0.337	2.090	0.037
/sigma	1.516	0.031		
Model Fitting Statistics				
Number of Observation	1376			
Log-likelihood	-2470.916			
LR chi2(20)	214.250			
Prob > chi2	0.000			

Note: Dummies for income ($34,999 or below), Black, education level below college and the price-conscious stores are omitted for identification; Organic=1: the auctioned blueberry is organic; Local=1: the auctioned blueberry is local; Organic_local=1: the auctioned blueberry is both organic and local; Like: How well the participant likes fresh blueberries (1=dislike very much; 5=like very much); History=1: The participant has purchased fresh blueberries before; Intention=1: The participant intended to purchase fresh blueberries that day. ** indicates significance at 5% level.

Table 6. Robust OLS for partial bids

Independent Variables	Local			Organic		
	Coef.	Std. Err.	P>t	Coef.	Std. Err.	P>t
Age	-0.016**	0.004	0.000	-0.019**	0.006	0.002
Female	0.182	0.134	0.177	0.452**	0.205	0.028
Income($35,000-$99,999)	-0.044	0.120	0.711	-0.164	0.201	0.417
Income($100,000 or above)	-0.167	0.157	0.288	-0.118	0.224	0.598
Caucasian	0.163	0.201	0.419	0.042	0.296	0.888
Hispanic	0.034	0.303	0.911	-0.364	0.538	0.499
Asian	-0.125	0.294	0.670	0.305	0.430	0.478
Others races	-0.223	0.238	0.351	0.072	0.345	0.834
College	0.189	0.127	0.138	-0.263	0.201	0.192
Postgraduate	0.280	0.183	0.127	-0.026	0.265	0.923
Number of Children	-0.011	0.047	0.817	0.115	0.083	0.17
Farmers' market	0.591**	0.169	0.001	0.582**	0.264	0.028
Quality-focused	0.512**	0.168	0.002	0.950**	0.278	0.001
Florida	-0.090	0.120	0.457	0.026	0.183	0.887
Like	0.022	0.061	0.713	0.046	0.102	0.655
History	-0.252	0.206	0.223	-0.248	0.279	0.374
Intention	-0.094	0.146	0.523	0.282	0.214	0.189
Intercept	0.569	0.389	0.144	0.741	0.521	0.156
Model Fitting Statistics						
Number of Observation	344			344		
R-squared	0.133			0.105		
Prob > F =	0.000			0.033		

Note: Dummies for income ($34,999 or below), Black, education level below college and the price-conscious stores are omitted for identification; Like: How well the participant likes fresh blueberries (1=dislike very much; 5=like very much); History=1: The participant has purchased fresh blueberries before; Intention=1: The participant intended to purchase fresh blueberries that day.