# Market Experience Matters: Status Quo Effect in the Economic Valuation of Consumer Preferences for Local Produce

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**Abstract**

As a well-known phenomenon in human decision making, the status quo effect has attracted the attention of researchers from many fields. Via choice experiment, this study examines the status quo effect in the economic valuation of consumers' preferences for locally and organically grown fresh produce. We investigate the possible factors that affect the choice of the status quo option in choice experiment. Based on the data on consumers' preferences for locally and organically grown fresh produce collected in Massachusetts, our preliminary results show evidence of the status quo effect in consumers' choice behavior. Our results indicate that previous market experience in purchasing locally grown fresh produce significantly reduces the choice of the status quo option.

**Keywords**: Status Quo Effect, Locally Grown, Organically Grown, Willingness to Pay, Choice Experiment

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## Introduction

Choice experiment has been widely used in non-market valuation surveys to evaluate the relative importance of components of the public programs and to derive economic values of non-market goods. The basic idea of choice experiment is to ask survey respondents to state their preferences among a few choice alternatives. Those choice alternatives are presented in terms of a set of attributes (usually a price attribute included) where the levels of attributes vary across the choice alternatives. Each of the decision makers considers the tradeoffs among different levels of the attributes and chooses one from the choice alternatives. The economic value of a certain attribute can be recovered by examining the marginal rate of substitution between the attribute of interest and the price attribute based on the choices made by decision makers.

In choice experiment, to avoid forcing a choice, respondents are usually given an option to choose the status quo or a no-change alternative[1]. Hanley et al. (2006) point out that the choice of status quo option in choice experiment is similar to a zero-bid behavior in contingent valuation studies, and the respondents refuse to give a bid to reveal their real preferences. Consequently, model estimation and the following economic valuation are potentially affected if the respondents have a disproportionate preference for the status quo option. Various factors have been reported to affect the choice of status quo, including respondents' social-economic characteristics, complexity of experimental design, protest motives, and perceptions of status quo conditions. (e.g., Scarpa et al., 2007; Meyerhoff and Liebe, 2009; Boxall et al., 2009; Marsh et al., 2011; Lanz and Provins, 2015; Oehlmann et al., 2017).

While following the established line of research to investigate the possible factors that affect the choice of status quo option in choice experiment, we focus on one particular factor,

[1] Breffle and Rowe (2002) discuss whether the status quo option should be included in the survey design and empirical analysis, and they conclude that the decision depends on the research questions.

previous market experience, to understand the status quo effect. The paper attempts to explain how the market experience possibly contributes to the status quo effect in human decision making, and then to empirically test the market experience hypothesis. In the empirical model, we first examine the presence of status quo effect in the choice experiment using the data from an economic valuation study on locally grown fresh produce in Massachusetts. It is found that the respondents exhibit a preference for leaving the status quo option. We further explore the possible determinants of the status quo effect, in particular including individual characteristics, the market experience, and prior knowledge about the product, as well as some behavioral traits. The evidence has been found that market experience in purchasing the product significantly reduces the choice of the status quo option in choice experiment, which is consistent with behavioral theories.

The next section reviews the status quo effect literature in economic decision making and the treatment of status quo effect in choice experiment. We propose the hypothesis of a market experience effect on the status quo effect, based on economic and behavioral theories. The third section lays out the econometric framework to empirically test the market experience hypothesis. Section 4 describes the choice experiment design of the economic valuation of locally grown fresh produce in Massachusetts and we also summarize the data. Section 5 presents the results of the analysis. The last section provides conclusions.

## Status Quo Effect

Status quo effect has been recognized by psychologists and behavior economists for several decades (Samuelson and Zeckhauser, 1988; Kahneman et al., 1991). It describes the disproportionate preference for the current situation when new alternatives are available to

decision makers. There are various potential causes of the status quo effect, stemming from uncertainty avoidance, cognitive misperception, loss aversion, transaction cost, psychological commitment from misperceived sunk costs, regret avoidance, and a drive for consistency (Samuelson and Zeckhauser 1988). For example, Kahneman and Tversky (1979) have shown that human beings weight loss and gain asymmetrically in the decision-making process. If a potential loss is perceived by the decision maker when making tradeoffs between new alternatives and existing option, the loss is likely to be overweighed. The loss aversion prevents the change from current conditions to new alternatives, and leads to the acceptance of the existing option. Thaler (1980) finds that people are willing to pay more to give up an option that they have already had, and names it as endowment effect. The status quo effect has also been intensively studied in neuroscience, although the neural mechanism behind the scene is unclear yet. For example, Fleming et al. (2010) suggest that status quo bias in the human brain may be related to specific prefrontal-basel ganglia dynamics.

Adamowicz et al. (1998) and Scarpa et al. (2005) point out that the status quo effect may exist in choice experiment. People evaluate the choice alternatives with which they are more familiar with in a systematically different approach, when compared to the alternatives that are presented hypothetically (Scarpa and Alberrini 2005). A common way to account for the status quo effect in choice experiment is to introduce an alternative specific constant of the status quo option to capture the unobserved sources of utility for status quo. Scarpa et al. (2007) indicate that it is not sufficient to merely introduce a status quo constant in the econometric model for the purpose of accounting for the status quo effect in choice experiment, and suggest the decomposition of the status quo constant using the respondents' socio-economic characteristics. The authors employ the data from a Yorkshire Water survey to estimate nested logit models and

mixed logit models, and they conclude that the mixed logit models with the decomposition of status quo constant fit the data better. Meyerhoff and Liebe (2009) find that protest motives, attitudes towards the goods, and perceptions of choice complexity affect the respondent's choice of status quo option. A choice experiment survey was designed to measure the welfare impact of a change in forest biodiversity on people who live in two different regions. Two different levels of survey complexity across the two regions were constructed. Both surveys consist of the attitude questions towards survey protest and forest conservation policy, as well as the subjective perceptions of survey complexity. Using error component logit models and random parameter logit models, the authors find that the protest motives and complexity perceptions tend to increase the status quo effect. Boxall et al. (2009) study the status quo effect in two choice experiments: improvements to a threatened population of Woodland Caribou in Alberta and a forest management program in Saskatchewan. In the random parameter logit with heterogeneity model, it is shown that increasing choice complexity positively affects the choice of status quo option. Among the included individual characteristics, an increase in age and a decrease in the level of education both lead the respondents to choose the status quo option. In another choice experiment study on the valuation of freshwater quality improvement in New Zealand, Marsh et al. (2011) find that the respondents' perception of the status quo affects the likelihood of choosing the status quo. The respondents who lack the information of the status quo conditions are more inclined to leave the status quo and prefer the change of water quality. Accordingly, their preferences for the water quality improvements are stronger than others. By contrast, for those who are able to make their own assessment of the status quo conditions are more likely to stay with the status quo and reluctant to leave the current conditions that they already have. Lanz and Provins (2015) study the status quo effect in the context of water utilities investment

planning in England and Wales. The authors confirm the existence of status quo effect in their choice experiment and employ an alternative approach to examine the factors that influence the choice of status quo option. An econometric model has been built to directly investigate the factors that affect the probability of choosing the status quo option and the authors indicate that this approach enables the assessment of a wide range of factors. Lanz and Provins (2015) show that the probability of choosing the status quo option is largely driven by the respondents' preferences for services, instead of the subjective perception of the survey. Although protest motives and social demographic characteristics are also associated with the choice of status quo, the magnitude is small compared with the influence of preferences for services. However, the serial status quo choices, in which case the respondents always opt for status quo, are significantly driven by cognitive and/or contextual factors. Oehlmann et al. (2017) use the error component mixed logit model to study the status quo effect induced by the context in choice experiment. Oehlmann et al. (2017) find the probability of choosing the status quo option is positively associated with the number of choice tasks, the range of levels, and the similarity between alternatives. Additionally, the status quo effect is further affected by respondents' perception of the current environmental situation. As a result, both the marginal and non-marginal welfare estimates are affected by the choice experiment design.

In spite of those aforementioned well-studied factors, this study focuses on the effect of market experience on the status quo effect in choice experiment, which has been less-explored in the existing literature. We hypothesize that market experience will affect the information set of the respondents and thus will affect the choice of the decision maker. In fact, the effect of market experience has been well documented in other economic valuation studies in general. For example, Hanley et al. (1997) find that the respondents have difficulty giving an accurate answer

to the willingness to pay questions when prior market experience is missing. In addition, Hanemann (1999) finds that the valuation of market goods is less prone to hypothetical bias using stated preference methods. Therefore, the status quo effect tends to be stronger among those who have not encountered similar questions or market scenarios before. Along another line of literature, List (2003) uses the experimental data to confirm the hypothesis that market experience can eliminate the behavioral anomalies, such as the endowment effect. List (2011) further studies the effect of market experience on the disparity between willingness to pay and willingness to accept. He finds that the difference in willingness to pay and willingness to accept is evident among the inexperienced consumers, but the difference shrinks when market experience increases in a field experiment. This is because market experience helps respondents to increase the familiarity and the knowledge of the goods. Even some hypothetical market experience has been found to be helpful to obtain a stable preference. Cherry et al. (2003), Carlsson et al. (2012), and Day et al. (2012) study the effect of repetition and learning on obtaining true preferences in the stated preference surveys, and they have found that preferences are more consistent after respondents have made a few rounds of choices to learn the experience. Meyerhoff et al. (2014) conduct a meta-analysis to study the sources of protest behavior in stated preference surveys which is similar to status quo effect. They find that market goods suffer less from protest behavior issues compared with non-market goods. All those studies convey the same message that market experience might be an important factor in understanding the status quo effect in human choice behavior, since it changes the information set of decision making.

Another mechanism of how market experience affects the status quo effect is through the avoidance of taste uncertainty. Loomes et al. (2009) use a reference-dependent expected utility theory to develop a theoretical model of the status quo effect in consumers' choice behavior. It is

assumed that consumers are uncertain about their utility function before they have any consumption experiences. Under prospect theory, if the consumers have asymmetric perceptions about losses and gains, the model demonstrates that the status quo effect might exist. It is also shown that the status quo effect may decay as individual experience increases. In the following section, we outline the empirical framework to test the influence of market experience on the status quo effect.

## Empirical Framework

Discrete choice models are usually used to analyze the choice experiment data. The discrete choice models are based on the Random Utility Model (RUM). The utility level associated with the choice of alternative *i* for the decision-maker *n* consists of two components: a deterministic component and a random component,

$$U_{ni} = V_{ni} + \varepsilon_{ni}$$

The deterministic component of the utility function is assumed to be a function of choice attributes (and individual characteristics in more complex models). To account for the status quo effect, an alternative specific constant (ASC) for the current situation is built into the deterministic component of the utility function. Assuming linearity, the term $V_{ni}$ can be written as follows.

$$V_{ni} = \alpha_{SQ} + X'_{ik}\beta_k$$

where $X$ is the set of choice attributes, $\beta_k$ is the marginal utility of the attribute $k$, and $\alpha_{SQ}$ is the ASC that is non-zero for the status quo choice and zero for all other choice alternatives. A

rational decision-maker chooses the alternative that gives the highest utility. The probability that the decision-maker *n* chooses alternative *i* is,

$$\pi_{ni} = \Pr(V_{ni} + \varepsilon_{ni} > V_{nj} + \varepsilon_{nj}) \quad \forall j \neq i$$

There are different assumptions about the distribution of the random error term, which leads to different types of discrete choice models. If we assume the error term follows an independent and identical Type I extreme value distribution, then a conditional logit model is obtained. The conditional logit model has been widely used for analyzing discrete choice data since the seminal paper by McFadden (1973). The probability of choosing alternative *i* can be expressed as,

$$\pi_{ni} = \frac{\exp(V_{ni})}{\sum_{j=1}^{J} \exp(V_{nj})}$$

A simple way to detect the status quo effect in choice experiment is to test whether the alternative specific constant (ASC) is statistically different from zero. A statistically significant non-zero ASC suggests that the status quo effect is present (Adamowicz et al. 1998; Scarpa et al. 2005; Scarpa et al. 2007). A positive and statistically significant ASC indicates that the respondents are more inclined to stay with the status quo given all other things equal, which is generally considered as the evidence for "bias" towards status quo (Marsh et al., 2011; Lanz and Provins, 2015; Oehlmann et al., 2017). On the other hand, the negative and statistically significant ASC reveals a preference for a change from the status quo (Marsh et al., 2011). To study the determinants of the status quo effect, we follow a similar strategy that has been

suggested by Meyerhoff and Liebe (2009), and Oehlmann et al. (2017)[2], to incorporate different potential determinants of the status quo effect as the interaction terms with the ASC in the standard econometric models. Those determinants of the status quo effect are hypothesized to be individual household characteristics, market experience, and knowledge about the product, as well as some behavioral traits such as volunteering frequency, charitable donation frequency, regret tendency on decisions, and involvement in environmental protection activities. In this paper, we are particular interested in testing the effect of market experience on the choice of the status quo option in our choice experiment.

It is well-known that the conditional logit model fails to account for preference heterogeneity among respondents. In addition, the assumption of independence of irrelevant alternatives (IIA) is embedded in the conditional logit model that the odds ratio of two choice alternatives does not depend on the characteristics of any other alternatives. The IIA assumption can lead to unrealistic predictions of the choice probabilities. A more flexible empirical model, the mixed logit model, relaxes the IIA assumption and enables the modeling of individual heterogeneity by allowing one or more of the parameters in the model to be randomly distributed and correlated with each other (Revelt and Train 1998).[3] If $\beta$ is assumed to be randomly distributed, the unconditional probability of $\pi_{ij}^{*}$ in the log-likelihood function of mixed logit models is derived by integrating over $\beta$.

$$\pi_{ij}^{*}(\theta) = \int_{\beta} \pi_{ij}(\beta) f(\beta \mid \theta) d\beta$$

[2] The approach proposed by Lanz and Provins (2015) explicitly explores the factors that influence the choice of status quo. However, it might be more informative to incorporate the factors into discrete choice models, which enables the investigation of the influence on the welfare estimates.

[3] The random parameters can also be a function of individual characteristics to bring in individual heterogeneity of random parameters and enable the correlation between alternatives.

where $f(\beta \mid \theta)$ is the density function of $\beta$, and $\theta$ is the parameter of the density function. Since the estimation of parameters in mixed logit models requires the integration over the distribution of $\beta$, there is no closed-form solution to the maximum likelihood function, and typically a simulation estimation approach is employed. Based on the estimates of the marginal utility of attributes which are $\beta$s in the conditional logit and mixed logit models, the marginal willingness to pay for a change in the attributes can be obtained by calculating the marginal rate of substitution between attributes and price. Holmes and Adamowicz (2003) show a convenient way to calculate the WTP for a binary or two-level attribute by taking the ratio of the interested attribute coefficient and the price coefficient. We use the Delta method to compute the standard errors and confidence intervals of the WTP measures, as suggested by Bliemer and Rose (2013).

## Economic Valuation of Preferences for Local Produce in Massachusetts

With the increasing interest in local agriculture across the country, the literature of the economic valuation of locally grown food is expanding rapidly. Various methods have been used to obtain consumers' preferences for locally grown food, for example contingent valuation (Loureiro and Hine 2002; Giraud et al., 2005; Carpio and Isengildina-Massa 2009), and choice experiment (Darby et al., 2008; James et al. 2009; Onken et al., 2011; Adalja et al., 2015; Pyburn et al. 2016). Onken et al. (2011) use a national web-based survey to study U.S. consumers' preferences for the local attribute of tomatoes and apples, and the interaction effects between local claims and other claims, including organic, fair trade, and carbon footprint. Their results show that U.S. consumers are willing to pay a 9 to 15 percent price premium for locally grown products relative to domestically grown products. Adalja et al. (2015) estimate the WTP for locally produced food using both hypothetical and non-hypothetical conjoint analysis and they

find typical Maryland residents and supermarket shoppers are willing to pay a premium for local food products. Pyburn et al. (2016) use choice experiment to assess the consumer preferences for locally grown green beans, cucumbers, and snap peas in New Hampshire. The conditional logit models show that New Hampshire consumers are willing to pay 35 percent, 55 percent, and 30 percent price premiums for locally grown green beans, cucumbers, and snap peas respectively.

To study the status quo effect, we conducted a choice experiment on the locally grown fresh produce in Massachusetts. Focus group meetings were employed to collect information regarding consumers' preferences and purchasing habits for local and organic produce through a few qualitative questions. We recruited the participants of the focus meetings from the northeastern New England areas through a few screening questions. The opinions on the consumers' definition of "local" were also collected, and the consensus was "produce cultivated within 50 miles of where it was purchased". In addition to the types of fresh produce that should be included in the experiment, the respondents were also asked about what would be the important factors that affect their purchasing behavior of agricultural products. All the information from focus group meetings was used to determine the attributes and levels of attributes in the choice experiment design.

Three produce types are considered in the survey: snap peas, green beans, and cucumbers. Five attributes are specified to describe each vegetable in the choice experiment design. Tables 1, 2, and 3 tabulate the detailed information of the five attributes and the associated levels for the three vegetables, respectively. The first two attributes indicate whether the produce is grown locally[4] or with certified organic practices. The appearance of the produce is also included as an important factor that affects the purchase decision, since the consumers probably use appearance

[4] The "local" is defined as produce grown within 50 miles of the point of purchase, as agreed by the participants of the focus groups meetings.

as the quality perception. Freshness and quality of the produce have been shown as the most important attributes for household consumers (Bond et al. 2008; Brown 2003). The location of purchase (directly from farmers or indirectly from grocery stores/supermarkets) is included as a measure of the convenience of purchase for consumers[5]. Finally, price is included to obtain the willingness to pay estimates for each of the non-price attributes.

Among the five attributes, two levels (Yes/No) are designed for locally grown, organically grown, blemishes or irregularities, and direct purchase from a farmer. There are four levels for the price attribute, the range of which was framed based on the market price of the three produce under consideration. In a sample choice scenario as shown in Table 4, consumers were invited to compare and choose from two bundles of produce attributes with an opt-out option. The opt-out option is the key of this study, which allows the respondents to choose neither of the two bundles and stay with the current conditions. An orthogonal main effects design was employed for the choice experiment design, which resulted in eight runs (eight sets of two bundles) for each vegetable. We further divided the eight runs into 4 blocks with two runs in each block. As a result, four versions of the survey questionnaires were generated, and each survey respondent was asked to choose between two bundles twice for each of the three vegetables. In addition to the comparison of the vegetable bundles, the questions about the market purchase experience and the self-reported knowledge of locally and organically grown fresh produce were also asked to make sure that we can test the market experience hypothesis on the status quo effect. The respondents were also asked about their purchase habits for groceries and food items, their understanding of local produce, reasons for purchasing local/organic, as well as their household characteristics at the end of the survey. There were also four behavioral

[5] Some other studies suggest that social interactions in direct farmers market are important in attracting consumers (Hunt 2007).

questions to investigate the behavioral determinants of the status quo effect, such as the frequency of volunteering, charitable donation, feeling regretful after making a decision, and participation status in environmental protection activities. A web survey was designed and distributed via Qualtrics Survey Research Suite.[6] The email addresses of a sample of 250 Massachusetts residents who are at least18 years old were purchased from Qualtrics. The survey began at the end of April and was completed by the middle of May, 2016. After clearing incomplete responses, no-responses and non-compliers, 216 respondents remain in the final sample.

About 13 percent of survey respondents vote for the status quo (no choice) for snap peas, 9 percent for green beans, and 10 percent for cucumbers in the survey. The percentage of choosing the status quo is substantially lower than other environmental valuation studies. For example, around 60 percent of the combined sample chooses the status quo option in any given choice task in Lanz and Provins (2015) and Boxall et al. (2009), and about 25 percent in Hanley et al. (2006). Table 5 briefly summarizes the respondents' characteristics. About 59 percent of the respondents are female. The mean age is about 53 years with a standard deviation of about 15 years, which indicates that the sample has broad coverage of food consumers in the household. The average annual household income is about $74,167. For educational attainment and employment status, about 17 percent of the respondents do not have any college education. About 46 percent of the sample work fulltime and 25 percent have retired. The respondents were also asked about their market experience in purchasing locally grown and organically grown fresh produce, and their self-reported knowledge about locally grown and organically grown.

[6] Qualtrics is a research software company that provides on-line data collection and data analysis services. It has been widely used by researchers in business (for example marketing research), economics, sociology and many other fields.

About 87 percent of the respondents have purchase experience of locally grown fresh produce and 73 percent had purchased organically grown fresh produce in the past. The average self-reported knowledge scores about locally grown and organically grown fresh produce are 5.31 and 5.39, respectively, under the 1-10 scale. A few behavioral traits questions to help explore other potential factors contributing to the status quo choice were asked in the survey. The average frequency of volunteering is 2.64 times every year and is 3.93 times for donating. About 5 percent of the respondents report that they feel at least "often regretful" after making a decision and about 17 percent of them have participated in environmental protection activities in the past three years.

## Model Specifications and Estimation Results

Both the conditional logit models and mixed logit models with four specifications are estimated. Model specification 1 includes all the choice attributes as explanatory variables, and allows an alternative specific constant (ASC) for the no-choice option (the status quo). To compare and explore factors that contribute to the status quo effect, three additional model specifications are employed. Model specification 2 models the ASC of the no-choice option as a function of basic characteristics of the survey respondent including household income, gender, education level, and employment status. Model specification 3 includes additional key variables of interest in the modeling of the ASC: the market experience in purchasing the product and self-reported knowledge about the product. In model specification 4, we further examine whether the status quo effect is associated with individual behavioral traits including participation in environmental protection, frequency of volunteering, frequency of charity donations, and frequency of regrets about decisions.

Table 6 summarizes the estimation results of all conditional and mixed logit models for snap peas. We find that in all estimated conditional logit and mixed logit models, the coefficients for the produce attributes are significant with expected signs. The standard deviations of random parameters in the mixed logit models are statistically different from zero, which suggests that mixed logit models perform better to capture preference heterogeneity. The price coefficients are negative and statistically significant at the 99 percent confidence level, which means that a higher price reduces the chance of an alternative to be chosen. The coefficients of local and organic attributes are positive and statistically significant at least at the 95 percent confidence level, which means that consumers have preferences for those attributes of snap peas. We also identify a negative effect of blemishes and a positive effect of direct purchasing from farmers on the consumers' choices. As seen in Models S1 and S5 in Table 6, the ASC for no-choice is statistically different from zero, which indicates the presence of status quo effect. The negative sign of the ASC implies that the respondents have the tendency to lean away from the "neither" or the status quo option. In Models S2 and S6, ASC is modelled to vary with the basic individual characteristics. We find that the female and education variables have significant negative effects on the choice of status quo, which is consistent with the findings in Oehlmann et al. (2017). It informs us that females and respondents with college education are less likely to choose status quo in the choice experiment of snap peas. Boxall et al. (2009), and Meyerhoff and Liebe (2009) also find that a higher education level is negatively associated with the choice of the status quo option.

In particular, the coefficients of market experience and prior knowledge reveal more information about the status quo effect. In Models S3 and S7, the negative estimated coefficient of the market experience suggests a smaller likelihood of choosing the status quo if the

respondent has previous market experience in purchasing the local or organic vegetables and fruits. Those with market experience of purchasing locally grown fresh produce are less drawn to the status quo. Market experience increases the familiarity with the hypothetical products under consideration. As a result, the perceived loss and uncertainty associated with the new alternatives is largely reduced by the previous experience. This behavioral pattern coincides with the loss aversion and uncertainty avoidance hypothesis suggested by Kahneman and Tversky (1979). It explains why the percentage of choosing the status quo option in this study is substantially lower than other environmental valuation studies (e.g. Boxall et al., 2009; Hanley et al., 2006; Lanz and Provins, 2015). However, the effect of knowledge about locally and organically grown fresh produce is mixed. The estimated coefficients of knowledge are not significantly different from zero except in Model S4 of the conditional logit models, and the effect disappears when random parameters are allowed in mixed logit models. The statistically insignificant effect of knowledge might stem from the lack of variation among the self-assessed knowledge about locally grown and organically grown produce.

Model S8 in Table 6 reveals that the frequency of volunteering per year negatively affects the choice of status quo. It suggests that people who volunteer more are less likely to choose the no choice option, which may be attributed to the willingness to help local farmers or the enthusiasm about helping the survey. However, there is no statistically significant association detected for the other behavioral traits, such as frequency of charitable donations, frequency of feeling regret about decisions, and participation in any environmental association in the past three years.

Table 7 summarizes the estimation results of the green beans choice experiment. We find a similar negative effect of the market experience of locally grown produce on the choice of

status quo in the green beans experiment. However, the effect of market experience of organically grown produce is not significantly different from zero, which suggests that only certain market experience affects the status quo effect for green beans. This finding may reflect that the respondents have different preferences for locally grown and organically grown fresh produce and the motives for purchasing may be different (Adams and Salois, 2010). Similar to the snap peas choice experiment, there is no effect detected for the prior knowledge for green beans. The comparison between conditional logit models and mixed logit models also suggests the mixed logit models perform better. All the estimated coefficients of price, locally grown attributes, and organically grown attributes have expected signs. However, the coefficients of blemishes and direct purchase from farmers are not significantly different from zero for green beans. Similar to the results of snap peas, the constant term for no choice alternative is also negative and statistically different from zero. The only individual characteristic to significantly influence the ASC of the no-choice option is income. The additional variable of purchasing experience and prior knowledge further explains the negative status quo effect. We do not find any effect of the behavioral traits in the green beans experiment.

In the choice experiment of cucumbers, we also find that market experience of locally grown fresh produce significantly contributes to the negative status quo effect, which is consistent with the findings in the snap peas and green beans experiments. Likewise, the effects of market experience of organically grown fresh produce and prior knowledge are not statistically significant. Interestingly, the coefficients of the locally grown attribute are not significantly different from zero in the preferred mixed logit models, which suggests that the respondents are not willing to pay a higher premium for locally grown cucumbers as opposed to the non-locally grown cucumbers in Massachusetts, holding other attributes the same. The

individual characteristics do not affect the choice of the status quo option as they do in the snap peas and green beans experiments. Among the behavioral traits, we find that the coefficient of frequency of regretting decisions is negatively associated with the choice of no option. This result is inconsistent with the psychology theory that regret avoidance is one of the motivating factors that lead individuals to choose the status quo (Samuelson and Zeckhauser, 1988). However, since the choice of fresh produce is a relatively simple and common choice task, the chance of feeling regretful about the choice made can be relatively small.

The willingness to pay estimates for the different attributes are calculated in Table 9 for snap peas, green beans, and cucumbers, respectively. Since mixed logit models are superior to the conditional logit models based on the regression results, we rely on the mixed logit models to report the willingness to pay estimates. The joint tests reject the null hypothesis that all the coefficients of behavior traits are zero except for green beans. Specification tests suggest that the full specification of the no-choice ASC as a function of individual characteristics, market experience, knowledge, and behavioral variables is generally preferred. Hence, we compute welfare measures of the three produce types based on the estimated Models S8, G8, and C8 in Tables 6, 7, and 8, respectively. The welfare measures are reported in Table 9. Across the three fresh produce types, the respondents are willing to pay a high premium for locally grown snap peas and green beans ($1.348 per pound for snap peas and $1.401 per pound for green beans), but none for locally grown cucumbers, holding everything else as constant. In addition, the respondents are willing to pay a positive price premium for the organically grown feature (about $0.602 per pound for snap peas, $0.838 per pound for green beans, and $0.542 per pound for cucumbers), holding everything else the same. The willingness to pay for locally grown attribute is higher than that of organically grown attribute, which is consistent with the observation of

Adams and Salois (2010). It has been shown that consumers' preference for organic food has been outweighed by local food since the 1990s (Adams and Salois, 2010). The studies before the turning point in the late 1990s usually find that the organic feature is more important than the local feature, but studies after the 1990s usually find the opposite.

## Conclusions

As a well-known phenomenon in human decision making, some people give up on making a choice when the available alternatives are apparently better than the no-choice scenario. This so called status quo effect has attracted the attention of researchers from many fields. Without properly accounting for the status quo effect, the analysis may be biased. In this study, we focus on the status quo effect in choice experiment that has been widely used in economic valuation studies. We hypothesize that market experience, in addition to individual characteristics, can affect the choice of the status quo option in a choice experiment. We test this hypothesis in discrete choice models by decomposing the alternative specific constant for status quo option. We examine the factors that contribute to the alternative specific constant, such as individual characteristics, market experience, self-reported knowledge, and some behavioral traits.

From the choice experiment data of consumers' preferences for locally grown produce in Massachusetts, we find evidence of the status quo effect in consumers' choice behavior, which confirms the previous findings by Scarpa et al. (2007), Meyerhoff and Liebe (2009), Boxall et al. (2009), Marsh et al. (2011), Lanz and Provins (2015), and Oehlmann et al. (2017). More importantly, we find that market experience in purchasing locally grown fresh produce significantly reduces the choice of the status quo option. We further test the effect of self-

reported knowledge about locally grown and organically grown fresh produce, and some behavioral traits on the choice of the status quo option. In contrast, no statistically significant and robust results have been found across the choice experiments on the three produce types.

The results of this study suggest that when we analyze the data collected from choice experiment surveys and estimate discrete choice models, the inclusion of an alternative specific constant for the status quo option is necessary. In addition to individual characteristics that have been identified to help explain some of the status quo effect in choice experiment, individual market experience can have significant impact on gravitating towards or staying away from the status quo option. For future study, it will be interesting to explore how learning or anchoring in choice experiments affects the status quo effect. Specifically, one may design a choice experiment to have respondents answer choice questions multiple times. The induced "market experience" from sequential choice-making in the choice experiment will provide information to enable a test for status quo effect in a dynamic model.

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## Figures and Tables

Table 1: Choice Experiment Design and Assigned Levels of Attributes: Snap Peas

| **Attribute** | **Actual Levels** |
|---|---|
| Locally Grown (Y/N) | 0,1 |
| Certified Organically Grown(Y/N) | 0,1 |
| Some Blemishes or other Irregularities (Y/N) | 0,1 |
| Purchased Directly from the Farmer (Y/N) | 0,1 |
| Prices ($) | 1.6, 2.7, 4.5, 7.0 |

Table 2: Choice Experiment Design and Assigned Levels of Attributes: Green Beans

| **Attribute** | **Actual Levels** |
|---|---|
| Locally Grown (Y/N) | 0,1 |
| Certified Organically Grown(Y/N) | 0,1 |
| Some Blemishes or other Irregularities (Y/N) | 0,1 |
| Purchased Directly from the Farmer (Y/N) | 0,1 |
| Prices ($) | 1.4, 2.0, 2.75, 3.5 |

Table 3: Choice Experiment Design and Assigned Levels of Attributes: Cucumbers

| **Attribute** | **Actual Levels** |
|---|---|
| Locally Grown (Y/N) | 0,1 |
| Certified Organically Grown(Y/N) | 0,1 |
| Some Blemishes or other Irregularities (Y/N) | 0,1 |
| Purchased Directly from the Farmer (Y/N) | 0,1 |
| Prices ($) | 0.75, 1.4, 2.5, 3.75 |

Table 4: Sample Hypothetical Bundles of Produce

| **Green Bean Bundle A** | **Green Bean Bundle B** |
|---|---|
| Non-Locally Grown | Locally Grown |
| Certified Organically Grown | Conventionally Grown |
| $1.40/lb. | $2.00/lb. |
| Some Blemishes or other Irregularities | No Blemishes or other Irregularities |
| Purchased Directly from the Farmer (e.g. farmer's market) | Purchased Indirectly from the Farmer (e.g. grocery store) |

- Bundle A (1)
- Bundle B (2)
- Neither, Why? (3) _____

Table 5: Summary Statistics of Massachusetts Respondents Characteristics in the Choice Experiment of Locally Grown Fresh Produce

| **Variables** | **Definitions** | **Mean** | **Standard Deviation** |
|---|---|---|---|
| inc | Annual Household Income (in dollars) | 74166.67 | 30354.09 |
| age | Respondent's Age | 52.92 | 14.80 |
| female | Gender dummy (Female=1) | 58.80% | |
| edu | Education attainment dummy (At least Some College=1) | 83.34% | |
| retire | Retired dummy (retired=1) | 25.46% | |
| locexp | Indicator of Market Purchasing Experience of Locally Grown Fresh Produce (Yes=1) | 86.57% | |
| orgexp | Indicator of Market Purchasing Experience of Organically Grown Fresh Produce (Yes=1) | 73.15% | |
| environ | Indicator of Participation in Environment Protection Activities in the Past Three Years (Yes=1) | 16.70% | |
| regret | Indicator of Often Feeling Regretful for Decision-making (Yes=1) | 5.09% | |
| kwdge_organic | Knowledge About Organically Grown Fresh Produce (1-10 scale) | 5.39 | 2.30 |
| kwdge_local | Knowledge About Locally Grown Fresh Produce (1-10 scale) | 5.31 | 2.26 |
| volunteer | Frequency of Volunteer Every Year | 2.64 | 3.10 |
| donation | Frequency of Donation Every Year | 3.93 | 2.80 |
| Sample Size | 216 | | |

Table 6: Conditional Logit and Mixed Logit Models for Snap Peas

| | CL | CL | CL | CL | ML | ML | ML | ML |
|---|---|---|---|---|---|---|---|---|
| | Model S1 | Model S2 | Model S3 | Model S4 | Model S5 | Model S6 | Model S7 | Model S8 |
| local | 0.778*** | 0.810*** | 0.800*** | 0.805*** | 1.362*** | 1.407*** | 1.217*** | 1.245*** |
| | (0.156) | (0.160) | (0.162) | (0.163) | (0.303) | (0.319) | (0.275) | (0.280) |
| organic | 0.327** | 0.354** | 0.350** | 0.355** | 0.662** | 0.643** | 0.538** | 0.556** |
| | (0.151) | (0.155) | (0.157) | (0.158) | (0.286) | (0.277) | (0.247) | (0.254) |
| price | -0.611*** | -0.634*** | -0.639*** | -0.644*** | -0.910*** | -0.946*** | -0.893*** | -0.926*** |
| | (0.0624) | (0.0642) | (0.0651) | (0.0657) | (0.132) | (0.148) | (0.126) | (0.132) |
| blemish | -0.537*** | -0.562*** | -0.559*** | -0.560*** | -0.819*** | -0.872*** | -0.783*** | -0.807*** |
| | (0.150) | (0.153) | (0.155) | (0.155) | (0.252) | (0.263) | (0.232) | (0.236) |
| direct | 0.427*** | 0.445*** | 0.440*** | 0.441*** | 0.511* | 0.546* | 0.500** | 0.510** |
| | (0.151) | (0.153) | (0.155) | (0.155) | (0.277) | (0.282) | (0.252) | (0.255) |
| sq | -3.142*** | -1.692*** | -0.296 | 0.883 | -3.957*** | -2.293*** | -0.796 | 0.598 |
| | (0.263) | (0.458) | (0.607) | (0.810) | (0.483) | (0.626) | (0.732) | (0.966) |
| sq*inc | | -0.0775 | -0.0344 | -0.173 | | -0.0945 | 0.0231 | -0.195 |
| | | (0.357) | (0.383) | (0.395) | | (0.464) | (0.465) | (0.490) |
| sq*female | | -0.830** | -0.711** | -0.641* | | -1.165*** | -0.972** | -0.891** |
| | | (0.329) | (0.353) | (0.366) | | (0.435) | (0.429) | (0.444) |
| sq*edu | | -1.415*** | -1.340*** | -1.022** | | -1.589*** | -1.430*** | -0.993* |
| | | (0.386) | (0.422) | (0.443) | | (0.518) | (0.514) | (0.537) |
| sq*retire | | 0.358 | 0.0747 | -0.0481 | | 0.472 | 0.133 | 0.0228 |
| | | (0.341) | (0.371) | (0.387) | | (0.441) | (0.452) | (0.471) |
| sq*locexp | | | -1.637*** | -1.932*** | | | -1.512*** | -1.893*** |
| | | | (0.419) | (0.464) | | | (0.542) | (0.587) |
| sq*orgexp | | | -0.724* | -0.876** | | | -0.881* | -1.062** |
| | | | (0.402) | (0.419) | | | (0.490) | (0.517) |
| sq*kwge | | | 0.0459 | 0.171* | | | 0.0200 | 0.168 |
| | | | (0.0839) | (0.0953) | | | (0.101) | (0.116) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| sq*volunteer | | | | -0.455*** | | | | -0.561*** |
| | | | | (0.153) | | | | (0.183) |
| sq*donation | | | | 0.0138 | | | | 0.00302 |
| | | | | (0.131) | | | | (0.158) |
| sq*regret | | | | -0.493 | | | | -0.596 |
| | | | | (0.305) | | | | (0.372) |
| sq*environ | | | | -0.613 | | | | -0.338 |
| | | | | (0.806) | | | | (0.894) |
| Standard Deviation | | | | | | | | |
| local | | | | | 0.134 | 0.0509 | 0.0324 | 0.0558 |
| | | | | | (0.567) | (0.537) | (0.609) | (0.635) |
| organic | | | | | 1.389*** | 1.280*** | 1.130** | 1.185*** |
| | | | | | (0.445) | (0.476) | (0.461) | (0.455) |
| blemish | | | | | -0.204 | 0.348 | 0.123 | 0.0453 |
| | | | | | (1.053) | (0.848) | (0.915) | (0.626) |
| direct | | | | | 2.301*** | 2.275*** | 1.828*** | 1.850*** |
| | | | | | (0.515) | (0.591) | (0.493) | (0.486) |
| *Log-Lik* | -323.5 | -313.0 | -299.1 | -291.9 | -310.4 | -300.6 | -290.8 | -283.4 |
| *AIC* | 658.9 | 645.9 | 624.3 | 617.9 | 640.8 | 629.2 | 615.5 | 608.7 |
| *BIC* | 689.9 | 697.6 | 691.5 | 705.7 | 692.5 | 701.5 | 703.3 | 717.2 |
| *#Choices* | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| *#Respondents* | 216 | 216 | 216 | 216 | 216 | 216 | 216 | 216 |

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Conditional Logit and Mixed Logit Models for Green Beans

| | CL | CL | CL | CL | ML | ML | ML | ML |
|---|---|---|---|---|---|---|---|---|
| | Model C1 | Model C2 | Model C3 | Model C4 | Model C5 | Model C6 | Model C7 | Model C8 |
| local | 1.290*** | 1.298*** | 1.296*** | 1.294*** | 2.030*** | 2.461*** | 2.425*** | 2.269*** |
| | (0.156) | (0.157) | (0.157) | (0.157) | (0.464) | (0.681) | (0.801) | (0.688) |
| organic | 0.841*** | 0.847*** | 0.841*** | 0.838*** | 1.157*** | 1.459*** | 1.442** | 1.356*** |
| | (0.151) | (0.151) | (0.151) | (0.151) | (0.336) | (0.500) | (0.575) | (0.510) |
| price | -1.027*** | -1.039*** | -1.025*** | -1.020*** | -1.453*** | -1.731*** | -1.703*** | -1.613*** |
| | (0.144) | (0.146) | (0.146) | (0.146) | (0.315) | (0.448) | (0.518) | (0.461) |
| blemish | -0.162 | -0.165 | -0.152 | -0.149 | -0.208 | -0.193 | -0.204 | -0.197 |
| | (0.135) | (0.136) | (0.136) | (0.136) | (0.242) | (0.294) | (0.289) | (0.267) |
| direct | -0.0609 | -0.0546 | -0.0689 | -0.0735 | -0.200 | -0.251 | -0.254 | -0.245 |
| | (0.134) | (0.134) | (0.135) | (0.135) | (0.234) | (0.284) | (0.282) | (0.265) |
| sq | -2.950*** | -2.431*** | -1.182* | -1.242 | -3.953*** | -3.803*** | -1.974* | -1.895 |
| | (0.347) | (0.558) | (0.677) | (0.832) | (0.757) | (1.149) | (1.160) | (1.289) |
| sq*inc | | -0.731** | -0.757* | -0.744* | | -1.429** | -1.619** | -1.409** |
| | | (0.369) | (0.387) | (0.392) | | (0.656) | (0.775) | (0.695) |
| sq*female | | -0.162 | -0.0393 | 0.0494 | | 0.327 | 0.580 | 0.600 |
| | | (0.356) | (0.373) | (0.380) | | (0.559) | (0.650) | (0.616) |
| sq*edu | | -0.238 | -0.0068 | -0.0123 | | -0.400 | -0.0303 | -0.107 |
| | | (0.439) | (0.479) | (0.501) | | (0.670) | (0.743) | (0.748) |
| sq*retire | | 0.580 | 0.374 | 0.329 | | 1.040* | 0.856 | 0.752 |
| | | (0.362) | (0.383) | (0.390) | | (0.621) | (0.651) | (0.611) |
| sq*locexp | | | -1.364*** | -1.359*** | | | -1.685** | -1.648** |
| | | | (0.446) | (0.455) | | | (0.834) | (0.783) |
| sq*orgexp | | | -0.444 | -0.344 | | | -0.296 | -0.126 |
| | | | (0.430) | (0.440) | | | (0.658) | (0.653) |
| sq*kwge | | | -0.0120 | 0.0137 | | | -0.106 | -0.0805 |
| | | | (0.0882) | (0.0947) | | | (0.146) | (0.146) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| sq*volunteer | | | | 0.0797 | | | | 0.211 |
| | | | | (0.115) | | | | (0.179) |
| sq*donation | | | | -0.0301 | | | | -0.101 |
| | | | | (0.132) | | | | (0.201) |
| sq*regret | | | | -0.0893 | | | | -0.154 |
| | | | | (0.295) | | | | (0.433) |
| sq*environ | | | | -1.731 | | | | -1.759 |
| | | | | (1.055) | | | | (1.232) |
| Standard Deviation | | | | | | | | |
| local | | | | | 1.742*** | 2.205*** | 2.067** | 1.832** |
| | | | | | (0.623) | (0.816) | (0.925) | (0.785) |
| organic | | | | | 1.524*** | 1.869*** | 1.800** | 1.641** |
| | | | | | (0.534) | (0.689) | (0.852) | (0.720) |
| blemish | | | | | 1.310** | 1.885** | 1.988* | 1.751* |
| | | | | | (0.660) | (0.854) | (1.046) | (0.899) |
| direct | | | | | 0.407 | 0.977 | 0.991 | 0.870 |
| | | | | | (1.036) | (0.815) | (0.806) | (0.812) |
| *Log-Lik* | -315.6 | -311.3 | -303.0 | -300.8 | -308.7 | -302.4 | -296.7 | -294.8 |
| *AIC* | 643.1 | 642.5 | 632.1 | 635.5 | 637.3 | 632.8 | 627.5 | 631.6 |
| *BIC* | 674.2 | 694.2 | 699.2 | 723.4 | 689.0 | 705.1 | 715.3 | 740.1 |
| *#Choices* | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| *#Respondents* | 216 | 216 | 216 | 216 | 216 | 216 | 216 | 216 |

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Conditional Logit and Mixed Logit Models for Cucumbers

| | CL | CL | CL | CL | ML | ML | ML | ML |
|---|---|---|---|---|---|---|---|---|
| | Model C1 | Model C2 | Model C3 | Model C4 | Model C5 | Model C6 | Model C7 | Model C8 |
| local | 0.251** | 0.244** | 0.269** | 0.290** | 0.734 | 0.515 | 0.417 | 0.445 |
| | (0.121) | (0.121) | (0.123) | (0.125) | (0.794) | (1.009) | (0.270) | (0.273) |
| organic | 0.359*** | 0.355*** | 0.373*** | 0.387*** | 1.368* | 1.102 | 0.665*** | 0.648** |
| | (0.121) | (0.121) | (0.123) | (0.124) | (0.717) | (1.665) | (0.255) | (0.255) |
| price | -0.667*** | -0.666*** | -0.692*** | -0.712*** | -2.395*** | -2.029 | -1.277*** | -1.215*** |
| | (0.0796) | (0.0798) | (0.0825) | (0.0848) | (0.856) | (2.065) | (0.308) | (0.317) |
| blemish | -0.130 | -0.133 | -0.142 | -0.156 | -1.331 | -1.118 | -0.372 | -0.342 |
| | (0.119) | (0.119) | (0.120) | (0.121) | (0.937) | (2.560) | (0.256) | (0.248) |
| direct | 0.126 | 0.128 | 0.144 | 0.165 | 1.316* | 1.035 | 0.430 | 0.366 |
| | (0.119) | (0.119) | (0.120) | (0.122) | (0.735) | (1.594) | (0.270) | (0.255) |
| sq | -3.067*** | -2.758*** | -0.629 | 1.205 | -7.970*** | -6.516 | -2.059* | 0.585 |
| | (0.264) | (0.632) | (0.765) | (1.069) | (2.578) | (4.512) | (1.182) | (1.449) |
| sq*inc | | -0.126 | -0.184 | -0.270 | | -0.543 | -0.424 | -0.356 |
| | | (0.444) | (0.497) | (0.513) | | (0.796) | (0.658) | (0.651) |
| sq*female | | -1.013** | -0.857* | -0.670 | | -1.179 | -0.748 | -0.487 |
| | | (0.429) | (0.459) | (0.467) | | (1.623) | (0.591) | (0.604) |
| sq*edu | | -0.0138 | 0.305 | 0.597 | | 0.379 | 1.126 | 1.326 |
| | | (0.559) | (0.614) | (0.653) | | (1.515) | (0.846) | (0.871) |
| sq*retire | | 0.785* | 0.461 | 0.483 | | 0.763 | 0.987 | 0.833 |
| | | (0.427) | (0.470) | (0.480) | | (0.886) | (0.678) | (0.649) |
| sq*locexp | | | -1.546*** | -1.858*** | | | -2.066*** | -2.228*** |
| | | | (0.506) | (0.537) | | | (0.745) | (0.781) |
| sq*orgexp | | | -1.007* | -0.895 | | | -1.009 | -1.051 |
| | | | (0.528) | (0.553) | | | (0.679) | (0.689) |
| sq*kwge | | | -0.134 | -0.0797 | | | -0.197 | -0.132 |
| | | | (0.104) | (0.119) | | | (0.142) | (0.155) |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| sq*volunteer | | | | 0.120 | | | | 0.124 |
| | | | | (0.138) | | | | (0.180) |
| sq*donation | | | | -0.192 | | | | -0.313 |
| | | | | (0.161) | | | | (0.217) |
| sq*regret | | | | -1.339*** | | | | -1.537** |
| | | | | (0.507) | | | | (0.668) |
| sq*environ | | | | -13.87 | | | | -19.85 |
| | | | | (678.4) | | | | (13397) |
| Standard Deviation | | | | | | | | |
| local | | | | | 7.780** | 6.569 | 2.301*** | 1.945*** |
| | | | | | (3.581) | (10.42) | (0.759) | (0.745) |
| organic | | | | | 3.999*** | 3.426 | -1.172* | 0.617 |
| | | | | | (1.522) | (4.463) | (0.670) | (0.780) |
| blemish | | | | | 3.720** | 2.979 | 1.015* | 1.243* |
| | | | | | (1.857) | (4.787) | (0.561) | (0.650) |
| direct | | | | | 1.920* | 1.484 | 1.244** | 1.417** |
| | | | | | (1.130) | (2.342) | (0.555) | (0.629) |
| *Log-Lik* | -329.7 | -324.7 | -308.8 | -302.7 | -317.2 | -315.4 | -301.4 | -296.0 |
| *AIC* | 671.4 | 669.3 | 643.6 | 639.5 | 654.4 | 658.8 | 636.8 | 634.0 |
| *BIC* | 702.4 | 721.0 | 710.8 | 727.3 | 706.1 | 731.2 | 724.7 | 742.5 |
| *#Choices* | 432 | 432 | 432 | 432 | 432 | 432 | 432 | 432 |
| *#Respondents* | 216 | 216 | 216 | 216 | 216 | 216 | 216 | 216 |

Standard errors in parentheses
* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Willingness to Pay for the Attributes (Dollars per Pound)

| | Snap Peas | | Green Beans | | Cucumbers | |
|---|---|---|---|---|---|---|
| | Conditional Logit Model S4 | Mixed Logit Model S8 | Conditional Logit Model G4 | Mixed Logit Model G8 | Conditional Logit Model C4 | Mixed Logit Model C8 |
| Local | 1.250*** | 1.348*** | 1.268*** | 1.401*** | 0.405** | 0.343* |
| | (31.66%) | (34.12%) | (52.53%) | (58.04%) | (19.29%) | (16.33%) |
| Organic | 0.547** | 0.602** | 0.821*** | 0.838*** | 0.543*** | 0.542*** |
| | (13.86%) | (15.23%) | (34.06%) | (34.72%) | (25.85%) | (25.78%) |
| Blemish | -0.872*** | -0.876*** | -0.147 | -0.123 | -0.216 | -0.287 |
| | (-22.09%) | (-22.18%) | (-6.09%) | (-5.12%) | (-10.25%) | (-13.65%) |
| Direct | 0.689*** | 0.555** | -0.071 | -0.153 | 0.228 | 0.327* |
| | (17.44%) | (14.03%) | (-2.94%) | (-6.32%) | (10.85%) | (15.59%) |

Note: WTP measures for a change in attribute level. *, **, and *** represent statistical significance at the 90%, 95%, 99% confidence levels respectively. Values in parentheses represent the markup percentage for the premium of each attribute using the average price level for each product as the base.