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Analysis

Marketing Channels for Local Food

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ABSTRACT

Local food can be purchased through intermediated marketing channels, such as grocery stores, or through direct-to-consumer marketing channels, for instance, farmers markets. While the number of farms that utilize direct-to-consumer outlets keeps growing, the value of direct-to-consumer sales has reached a plateau. At the same time, intermediated sales continue to rise. If consumers prefer to purchase local food through intermediated channels, then policies designed to support direct channels may be misguided. Using an online choice experiment, this paper investigates consumers' willingness to pay for local food differentiated by marketing channel. We find that, on average, consumers are willing to pay a premium for local food. However, they are not willing to pay premiums for local food that is sold at farmers markets, and discount it when it is purchased directly from an urban farm. Our findings can be used by farmers, marketers and policy makers to develop a better understanding of consumers' motivation for buying local through various channels.

1. Introduction

The popularity of direct-to-consumer marketing channels, such as, farmers markets, continues to grow (McGarry-Wolf et al., 2005; Zepeda, 2009; Landis et al., 2010). According to the U.S. Department of Agriculture's (USDA) Agricultural Marketing Service (AMS), the national count of farmers markets tripled between 2000 and 2018 from 2863 to 8718 (AMS, 2018). Similarly, the number of community-supported agriculture (CSA) venues, one of the most common forms of urban farming where consumers subscribe to the harvest of a certain farm or group of farms by investing in and sharing the risks and benefits of food production, have increased dramatically from 761 in 2001 (Adam, 2006) to 7398 in 2015 (NASS, 2016). Yet, direct-to-consumer channels for local food are not the most important in terms of sales volume. U.S. grocery retailers are aggressively seeking out partnerships with local growers and producers to source seasonal, locally grown produce and products made out of local ingredients (Guptill and Wilkins, 2002; Dunne et al., 2011).[1] As a result of these trends, sales of local food rose from $6.1 billion in 2012 to $8.75 billion in 2015, and are projected to reach $20 billion by 2019 (NASS, 2016; USDA, 2016), with most of the growth occurring through intermediated channels, such as grocery stores and restaurants. Sales through direct-to-consumer channels, such as farmers markets and CSAs, are growing at a much slower rate (Low and Vogel, 2011; Thilmany-McFadden, 2015; Low et al., 2015; Richards et al., 2017). In this research, we aim to disentangle consumers' preferences for marketing channels and the "local" attribute in their food purchases.

In 2015, local food sales of the farms that sell only through intermediated marketing channels reached $5.75 billion, while the sales of the farms that only utilize direct-to-consumer channels were $3 billion (NASS, 2016). Nevertheless, the USDA AMS continues to support direct-to-consumer channels as a means of growing the demand for not just local food, but local food distributed in a particular way (Martinez et al., 2010; Low et al., 2015). For example, the Farmers Market and Local Foods Promotion Programs (2014 Farm Bill) sets aside up to $30 million in grants annually specifically for improvement, development, and expansion of farmers markets and other direct-to-consumer outlets (FMPP, 2016; NSAC, 2016). While there may be other goals that drive this policy besides simply growing local food sales, if the positive social impacts from local food are accrued regardless of channel, then we should better understand the relative effectiveness of direct and intermediated channels in growing local food sales.

There is mixed evidence on preferences for local food through different points of sale. For instance, Onken et al. (2011) find that consumers are willing to pay a price premium for strawberry preserves sold at farmers markets relative to conventional supermarkets. However, Carroll et al. (2013) did not find any significant differences between consumers' willingness to pay (WTP) for fresh tomatoes sold at the

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[1] For example, about 20% of fresh produce sold at Walmart during the summer months is grown in-state and almost 30% of Wegmans' produce sales come from seasonal products sourced from local family farms (King et al., 2010).

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grocery store or the farmers market. Neither of these studies control entirely for all the factors that may affect preferences for local food offered at different points of sale. In particular, both of these studies only include farmers markets and grocery stores as alternative venues for local food, and do not consider the growing popularity of other direct-to-consumer locations, such as urban farms. Nor do they take into account attributes of purchasing outlets that can potentially influence the choice, such as, convenience. Finally, they do not isolate consumers' WTP for the local attribute from their WTP for a particular marketing channel. Therefore, whether consumer preferences explain the divergence between direct and intermediated sales of local foods remains an open question.

In this paper we attempt to answer this question by conducting an on-line choice experiment that examines consumer behavior in a decision-making context using representative samples of the Phoenix, AZ and Detroit, MI population. The choice experiment setting allows us to separate the demand for local as an attribute from the demand for a particular channel. In doing so, we consider a more complete set of options available to consumers in order to fully characterize what is meant by a direct channel. For example, since many metropolitan areas are seeking to re-purpose empty lots within the city as sources of nutrition and new, extensive economic activity (Goldstein et al., 2011; Dieleman, 2017), understanding the role of commercial urban agriculture outlets is important. Urban agriculture, also known as urban farming, is defined as a practice of production and distribution of food and other products through plant cultivation and animal husbandry within the city limits using vacant lots and parks that are not suitable for housing or construction (Bailkey and Nasr, 1999; Urban Agriculture, 2016; USDA, 2018). We incorporate this marketing channel in our study by including urban farms as one of the points of sale.

We are also able to control for other factors that are likely to affect consumers' preferences for different outlets. Namely, given that convenience significantly influences consumers' preference and choice of the shopping location (Kezis et al., 1984; McGarry-Wolf et al., 2005; Gumirakiza et al., 2014), we account for accessibility as a potential determinant of where consumers prefer to buy local food. Further, we allow for variation in organic status as local and organic are often conflated, and consumers hold a strong preference for organic produce (Costanigro et al., 2011; Meas et al., 2015). In this way, we are able to separate the demand for organic from the demand for local, and determine whether preferences for organic strengthen or weaken the demand for food sold as locally produced. Finally, while examining all factors independently, our experimental design also allows us to test for potential interaction effects among local, organic and different points of sale. By doing so we are able to reveal the nature of the relationships that exists between these attributes, and determine whether the simultaneous presence of local and organic labels increases or decreases demand for food and whether preference for these labels differs by point of sale.

Our findings contribute to both the substantive literature on the local food market and the methodological literature on experimental design. Specifically, we demonstrate how experimental methods can be used to uncover preferences for specific determinants of consumer choice, when these determinants may have multiple, inter-related effects on demand. In this way, our design effectively disentangles the value of local as an attribute, separately from where local food is sold. By properly assigning preferences to product attributes and point-of-sale attributes, we are able to offer valuable insight to the welfare effects of offering food through direct channels and intermediated channels, when the food itself is differentiated along multiple overlapping dimensions.

The rest of the paper is structured as follows. Section 2 develops our hypotheses regarding the expected difference in consumer demand for direct-channel and intermediated local food based on concepts from the empirical literature. Section 3 describes in detail the experiment, and how our design allows us to disentangle the value of local and organic foods. It also explains our empirical model. Section 4 presents the estimation and results. Finally, we draw some conclusions and implications of our findings in Section 5.

2. Conceptual Background

Direct marketing channels matter for various reasons. Direct-to-consumer outlets, such as farmers markets or urban farms, provide an opportunity for local farmers to sell the food they grow directly to the customers (Neil, 2002; AMS, 2017) and create personal relationships with them (Onianwa et al., 2006). Direct channels may facilitate the development of farmers' entrepreneurial skills (Feenstra et al., 2003). They may allow farmers to reduce marketing costs, thereby retaining a larger share of the retail price (Low et al., 2015), and receive higher net profits (Anderson, 2007). Nevertheless, while the number of local farms utilizing the direct-to-consumer marketing channels continues to grow, direct sales growth is stagnant (Low et al., 2015). At the same time, sales through intermediated channels are growing rapidly (Richards et al., 2017). Therefore, if the main goal of the governmental policies is to increase the sales of local food, then the support of direct channels may be misguided.

The fact that direct-to-consumer sales have plateaued raises the questions considered here, namely (1) Do consumers prefer to purchase local food through direct channels, or from intermediated channels, such as, grocery stores? (2) Are consumers willing to pay a premium for local food sold at direct-to-consumer marketing channels? (3) What affects consumers' preferences for local food purchases? The investigation of these questions is based on core concepts from consumer behavior theory.

The body of research that investigates consumers' demand and WTP for local food shows that consumers are willing to pay more for local produce (Willis et al., 2013; Carroll et al., 2013) and processed foods (Hu et al., 2009; Onken et al., 2011; Hu et al., 2012) compared to non-local. Consumers also appear to have a higher WTP for local as a product attribute over other value-added claims, such as, fair trade, GMO-Free, low fat, or 'no sugar added' (Loureiro and Hine, 2002; James et al., 2009; Onozaka and Thilmany-McFadden, 2011). In fact, while previous research demonstrates that consumers value the attribute "local," it also suggests that they have a significantly positive WTP for "organic" (Loureiro and Hine, 2002; Costanigro et al., 2011; Hu et al., 2012; Meas et al., 2015). If this is the case, then there may be a sub-additive or super-additive relationship[2] between these two attributes. For example, Meas et al. (2015) explore consumer preferences for value-added food labels of processed blackberry jam. They find strong overlapping valuation between organic and local multi- and sub-state regional claims. On the other hand, Onozaka and Thilmany-McFadden (2011) investigate interaction effects among food claims of apples and tomatoes and find that local and organic claims do not have a significant interaction, meaning that their values are independent from each other. In addition, conducting a study among Spanish consumers, Gracia et al. (2014) find super-additive relationships between organic and local. Given these mixed results, one objective of this study is to investigate the interaction effects between local and organic food attributes.

Interactions are not limited to credence attributes. Prior research also suggests that there may be an interaction between the marketing

[2] Two attributes are considered to have a sub-additive (super-additive) relationship when there exists (does not exist) an overlap between their values in the WTP that results in a discounted (higher) total premium compared to the sum of individual WTP for the attributes. This overlap can be determined by examining the sign of the interaction effects between these attributes. While Meas et al. (2015) state that "…the substituting or complement nature between attributes can be conveniently determined through the signs of the interaction terms. Specifically, two attributes are complements if $\beta pq > 0$, and substitutes if $\beta pq < 0$…", we use the terms "sub-additivity" and "super-additivity" for this occurrence in order to avoid confusion with the economic terms substitutes and complements.

channel and local and organic claims. For example, Grebitus et al. (2017) find that "organic" is the most frequent association with urban farming. This suggests that consumers believe that local food sold at urban farms is produced organically. Also, Ellison et al. (2016) find that consumers think tomatoes sold at direct-to-consumer outlets are truly organic. This implies that consumers might have a higher WTP for organic food sold at direct marketing channels. Identifying the true effect of local separate from other attributes requires a design that accounts for these potential interactions, while allowing to evaluate all factors independently. This study disentangles the value of local from other attributes by testing for possible interaction effects among local, organic and different points of sale.

Even after controlling for attributes that may be associated with local food, point of sale is important in its own right. Conducting a choice-based conjoint experiment at farm markets, farmers markets, and retail grocery stores located in Ohio, Darby et al. (2008) find that grocery and direct market shoppers have a higher WTP for locally grown strawberries over the ones labeled as grown in the U.S. However, the direct market shoppers' WTP was almost twice as high as grocery store shoppers' WTP. This finding suggests that point of sale might have had an effect on the results, indicating that consumers may be willing to pay more for local food sold through direct-to-consumer marketing channels.

There are also specific point-of-sale characteristics that can affect consumer demand for local products, for example, accessibility. This is a reasonable proposition as convenience is, empirically, one of the most significant drivers of consumers' store choice (Bell and Lattin, 1998; Leszczyc et al., 2000; Briesch et al., 2009). In fact, inconvenience and remoteness of the location are the factors that discourage consumers from shopping at the direct venues (Kezis et al., 1984; McGarry-Wolf et al., 2005; Gumirakiza et al., 2014). One reason for this is that farmers markets usually offer a limited assortment of products, meaning that consumers will have to shop at multiple locations to satisfy their grocery needs. As a result, a remote location increases consumers' fixed costs of shopping driven by the time and effort involved in reaching farmers markets, which is not consistent with the goal of minimizing shopping costs (Bell and Lattin, 1998; Tang et al., 2001). Therefore, we hypothesize that the demand for convenience means that consumers are willing to pay a premium when purchasing produce from grocery stores compared to direct-to-consumer outlets.

Consumers, however, may prefer direct channels because they get to enjoy some other intangible benefits that direct-to-consumer outlets have to offer. For example, there may be a recreational aspect to buying from a direct channel (McGarry-Wolf et al., 2005; Sumner et al., 2010). That is, if consumers simply enjoy community engagements and the aesthetic aspect of going to a farmers market, or a farm, then some of the marginal utility associated with entertainment may be bid into the price of the product. Second, at direct outlets, consumers' ability to interact with food producers may make them feel more connected to farmers and appreciate the knowledge of where their food is coming from (Zepeda and Leviten-Reid, 2004; McGarry-Wolf et al., 2005; Landis et al., 2010). In fact, the notion that meeting the person who grew your food is in some sense a guarantee of its integrity has grown into a movement in its own right ("Know your Farmer, Know your Food", USDA, 2017). Third, consumers may believe that shopping at a farmers market, or urban farm, will have a more direct impact on the local economy and farmers' welfare (Zepeda, 2009; Landis et al., 2010), even though local food sold through an intermediary still generates value for local farmers. We examine each of these motives by allowing consumers to express their preference for point of sale.

Apart from intangible benefits that motivate consumers to purchase products at direct-to-consumer outlets, there are other desirable characteristics related to the products themselves that influence consumer preference, such as taste, quality, value, and price. For example, consumers purchase from farmers markets and urban farms because they provide an access to fresh, healthy, higher quality products for a reasonable price (Armstrong, 2000; Brown, 2002; McGarry-Wolf et al., 2005; Landis et al., 2010). However, these characteristics are also the reason why consumers prefer to purchase local food in general (Feldmann and Hamm, 2015). Therefore, an increasing availability of local food at grocery stores (Guptill and Wilkins, 2002; Dunne et al., 2011) means that these product characteristics become less specific to the direct marketing channels. This suggests that isolating the value of local from the value associated with direct channels might reveal that there is no difference in consumer preferences for where to shop for local food, at direct channels or grocery stores, implying that the demand for local is distinct from the demand for a marketing channel.

We hypothesize that if consumers, whose main goal is to purchase food, value such "intangible" characteristics associated with direct-to-consumer channels more than the product attributes themselves, then their preferences will manifest in a premium for products sold at direct outlets. On the other hand, if consumers place the highest value on whether the food was produced locally, then there will be no difference in preferences between the products offered at the direct channel and grocery store. Furthermore, knowing that consumers believe that direct-to-consumer venues provide a good value for their money (Brown, 2003; McGarry-Wolf et al., 2005), we might find that they actually expect to pay less at those outlets. That is, they will have a lower WTP for local food sold at the direct channels. We test our hypotheses by conducting the experiment described next.

3. Methodological Background

3.1. Choice Experiments

To simulate purchase decision making in our study, we use a hypothetical online choice experiment, which is a popular research tool that has been shown to be a good representation of non-hypothetical settings that provide estimates of marginal WTP (Carlsson and Martinsson, 2001; Lusk and Schroeder, 2004; List et al., 2006; Taylor et al., 2010). While conducting a study hypothetically could lead to biased estimates because participants may overestimate their WTP without financial consequences, by comparing hypothetical WTP to actual WTP Murphy et al. (2005) found that the median value of the ratio of hypothetical WTP to actual WTP was only 1.35.

To carry out our experiment, we select a fresh produce item, one pound of fresh tomatoes. We choose this product for two main reasons. First, it is a common and familiar food item that consumers can buy at grocery stores, farmers markets and urban farms. Tomatoes are the fourth most popular (ERS, 2016) and the second most consumed (ERS, 2017) fresh vegetable in the US, with a per capita availability of 20.27 pounds in 2017 (Parr et al., 2018). Second, local tomatoes are grown successfully in Arizona and Michigan, where the study is conducted, and available to consumers for purchasing (Arizona Harvest Schedule, 2017; Michigan: Vegetable Planting Calendar, 2017).

3.1.1. Attribute Specification

Our choice experiment includes five attributes, namely price, local production, certified organic, point of sale, and travel time (see Table 1). The price attribute includes three levels that were established through collecting and analyzing the market prices of fresh tomatoes

Table 1
Choice experiment attributes and levels for 1 lb of tomatoes.

Attributes	Levels		
Price	$0.99	$2.99	$4.99
Convenience	Travel time one-way 5 min	Travel time one-way 15 min	Travel time one-way 25 min
POS	Grocery store	Farmers market	Urban farm
Certified organic	USDA organic	No label	
Local production	Locally grown	No label	

observed at grocery stores, farmers markets and urban farms at the time of the study. The price range is chosen to reflect the low-end, average, and high-end prices of the product.

The local production attribute has two levels and includes a "Locally grown" label, as opposed to no label. While it is understood that local food has to be produced within some specific geographical boundaries around the consumer's residence, the definition of "local food" remains unclear. Therefore, similar to Lim and Hu (2013), we do not provide participants with the definition for "locally grown" or with a specific mileage that the food has traveled. This allows participants to use their own perception regarding what constitutes local food. We define two levels for the certified organic attribute: "USDA Organic," and no label. The point of sale attribute has three levels that reflect different local-food outlets: grocery store, farmers market and urban farm. We provide a definition for what constitutes an urban farm, because focus-group interaction suggested that consumers may not be familiar with the term.

There are several alternative ways to measure convenience, with travel time and travel distance being the most common metrics. Briesch et al. (2009) uses travel distance to measure the effect of convenience on consumers' choice of grocery and non-grocery stores. Hsu et al. (2010) examine grocery shopping behavior among students in a college town using distance from campus to the grocery store as one store attribute. However, perceptions of distance may differ, so Thang and Tan (2003) investigate the effect of consumer perception of accessibility – defined as a store's convenience measured in travel time, parking, and ease of travel – on department store preference. Fox et al. (2004) also use travel time as one of the variables to predict household store patronage and expenditures. Therefore, we define convenience in terms of the time in minutes it takes a consumer to travel one-way to the retail outlet, and utilize published data to identify common shopping travel duration patterns among U.S. consumers. For example, according to USDA, the mean distance households have to travel to the nearest primary grocery shopping location is 3.79 miles (Ver Ploeg et al., 2015). Assuming a 45 mile-per-hour speed limit, the 3.79 miles, on average, implies a travel time of 5.05 min. Also, Hamrick and Hopkins (2012) used The Bureau of Labor Statistics' American Time Use Survey data from 2003 to 2007 and found that national average one-way travel time to the grocery shopping outlet is 15 min. They also found that, on average, the population with poor access to a grocery shopping venue will have to drive a maximum of 23.23 min to reach a store. We set this number as our upper bound for travel time and round it up to 25 min to have a balanced design. Therefore, we use durations of 5, 15 and 25 min for a one-way trip to the point of sale as our measure of travel time. Each of these factors form elements of the choice sets in the experimental design described next.

3.1.2. Experimental Design

The experimental design for our study consists of 36 choice sets, which we divide into four blocks to minimize effects of learning or fatigue that can arise in online surveys (Lusk and Norwood, 2005; Savage and Waldman, 2008). Consequently, each block includes nine choice sets that are presented in random order. Each choice set has four alternatives and an opt-out option ("None of these").

Similar to Scarpa et al. (2012), we use a two stage approach to allocate the attribute levels among the choice sets. During the first stage, an orthogonal design is generated for pre-testing purposes. The pre-test survey is administered to an initial group of participants ($n = 21$). In the second stage, the design is optimized using estimated coefficients from the pre-test as prior values to create a Bayesian efficient design. A Bayesian efficient design with random priors is used to account for uncertainty regarding the true parameter prior values that are not known exactly, but only up to an approximation (ChoiceMetrics, 2014). In addition, to assess the interaction effects between local, organic, and points of sale, we include five interaction terms in each stage of the design with specified attribute levels. This allows us to test whether the simultaneous presence of local and organic labels increases or decreases WTP and whether WTP for these labels differs by point of sale. We use the obtained experimental design to carry out our online experiment that follows.

3.1.3. Data Collection

We conducted the Institutional Review Board (IRB) approved online choice experiment in summer 2017. The Arizona State University IRB determined that the protocol is considered exempt pursuant to Federal Regulations 45CFR46 (2) Tests, surveys, interviews, or observation. A representative sample of the regional population in terms of socio-demographics was recruited from Phoenix, AZ and Detroit, MI using the market research company *Qualtrics*. The total number of participants was 1276, out of which 230 participants were omitted from our analysis because they did not complete the choice experiment. Nevertheless, since we requested $n = 500$ for each city, we received the specified number of completed observations, even slightly more for each city as Qualtrics was not able to close the survey right away after the 500th observation. Therefore, our between-subject design is comprised of $n = 524$ participants from Phoenix, AZ and $n = 522$ participants from Detroit, MI.

We focus on Phoenix, AZ and Detroit, MI because these two major cities are located in very different geographical regions. Consumers in both cities have an access to local food through a variety of marketing channels, such as, farmers markets, urban farms and grocery stores. However, local food is grown seasonally in Detroit, MI while the Phoenix, AZ climate allows for a year round production of fresh local produce (Arizona Harvest Schedule, 2017; Michigan: Vegetable Planting Calendar, 2017). This enables us to highlight variation in preferences that might occur among consumers based on geographic and climate differences.

Participants did not have previous information about the goal of the study or the product being used. One of the four blocks of the choice experiment was randomly assigned to each participant. Before participants were introduced to the choice experiment, they were asked to read a cheap talk script (Cummings and Taylor, 1999). Cheap talk was included to lower hypothetical bias by explaining the importance of making each of the selections as if one was actually facing it in a real-life setting. After the cheap talk script, participants were asked to make their choices. Fig. 1 provides a sample choice set.

Apart from the choice experiment, participants were asked to answer demographic questions, specifying, among others, their age, gender, and household size. The survey produced an eligible sample of 1046 participants in total. Summary statistics for the basic socio-demographic characteristics of the sample are presented in Table 2. Half of participants are female. Participants are on average 45 years old with the annual household income of $55,223 (Detroit, MI) and $58,306 (Phoenix, AZ). Using this sample, we are able to estimate the WTP with an econometric model appropriate for discrete choices among local food products.

A	B	C	D	E
$0.99 Urban Farm Locally grown Travel time one way 15 min.	$2.99 Farmers Market Travel time one way 25 min.	$4.99 Urban Farm USDA Organic Locally grown Travel time one way 25 min.	$4.99 Grocery Store Travel time one way 15 min.	None of these

Fig. 1. Sample choice set for 1 lb. of tomatoes.

Table 2
Sample characteristics.

Characteristics	Phoenix (% unless stated)	Detroit (% unless stated)
Number of observations	524	522
Age in years (mean)	44.7	45.0
Gender (female)	50.0	50.0
Percent primary food shopper	82.0	81.0
Household income (mean in $)	58,306.0	55,223.0
Educational level		
Less than High school	2.3	2.7
High school diploma	15.7	21.7
Some college	42.0	36.6
Bachelor's degree or higher	25.8	26.1
Professional or doctorate degree	14.3	13.0
Race/ethnicity		
White	83.0	75.0
Black or African American	6.0	19.0
Asian	5.0	4.0
American Indian or Alaska native	2.0	3.0
Other	6.0	2.0

3.2. Mixed Logit Model

In our choice experiment, participants make discrete choices among products that vary in attribute levels. In this setting, and assuming preferences are randomly distributed over subjects, a random-utility model is an appropriate econometric approach. In addition to heterogeneous preferences, we also assume that our subject pool reflects a substantial degree of unobserved heterogeneity. We control for the bias that would otherwise arise due to unobserved heterogeneity by applying a random-coefficient, discrete-choice model to the experimental data. Because we assume the distribution of preference heterogeneity is Type I Extreme Value, the specific form of the econometric model is a mixed logit. The fundamental concept underlying the mixed logit model is that individual utility from any choice is correlated with other choices, according to the attributes embodied in each of the choices. In general, mixed logit models allow for variations in consumer preferences that may arise from random taste differences, unrestricted substitution across product attributes, and correlation in unobserved factors over sequential treatments (Train, 2009).

Choice modeling assumes that at a given choice occasion t consumer i maximizes his or her utility by choosing a product among j alternatives with attributes that provide the highest level of utility. This utility consists of a deterministic component V_{ijt}, which includes the specified attributes of the product, and a random component e_{ijt}, which is unobservable to the researcher:

$$U_{ijt} = V_{ijt} + e_{ijt} \tag{1}$$

Under the assumption of a linear utility functional form, the deterministic component can be written as $\beta'_i x_{ijt}$ so the indirect utility function is written:

$$U_{ijt} = \beta'_i x_{ijt} + e_{ijt} \tag{2}$$

where β_i is a vector of structural parameters that are specific to consumer i and x_{ijt} is a vector of the observed variables of the alternative j faced by consumer i at the choice occasion t. The choice probability, conditional on the utility parameters β_i that consumer i will choose a sequence of choices s_i given the alternatives x_i, is written as

$$P(s_i \mid x_i, \beta) = \prod_{t=1}^{T} \left[\frac{\exp(\beta_i' x_{is_{it}t})}{\sum_{j=1}^{J} \exp(\beta_i' x_{ijt})} \right] \tag{3}$$

Consequently, the unconditional choice probability in the mixed logit model is obtained by integrating the conditional probability over the joint distribution of β:

$$P(s_i \mid x_i, \beta) = \int_\beta P(s_i \mid x_i, \beta) g(\beta \mid \theta) d\beta \tag{4}$$

where $g(\beta|\theta)$ is a population distribution, from which individual specific parameters β_i are drawn, and θ is a vector of distribution parameters, such as mean and variance. This choice probability does not have a closed form solution and is approximated through simulation (Brownstone and Train, 1999).

In the choice experiment described above, participants were asked to make nine choices among tomatoes characterized by the levels of the attributes. We analyze these choices using the indirect utility function specified as follows

$$\begin{aligned} U_{ijt} = {} & \alpha_i Price_{jt} + \beta_{1i} UF_{jt} + \beta_{2i} FM_{jt} + \beta_{3i} Organic_{jt} + \beta_{4i} Local_{jt} + \beta_{5i} Travel_{jt} \\ & + \beta_{6i} UF_{jt} Organic_{jt} + \beta_{7i} UF_{jt} Local_{jt} + \beta_{8i} FM_{jt} Organic_{jt} \\ & + \beta_{9i} FM_{jt} Local_{jt} + \beta_{10i} Organic_{jt} Local_{jt} + e_{ijt} \end{aligned} \tag{5}$$

where α_i and β_i are the price-response parameter and the attribute valuations, respectively, that vary over consumers i; $Price_{jt}$ is the price of the alternative j at choice situation t; *UF* and *FM* are dummy variables that take a value of 1 if tomatoes are sold at the urban farm or farmers market, respectively, and zero if tomatoes are sold at the grocery store; *Organic* and *Local* are dummy variables that take a value of 1 if tomatoes are certified organic or produced locally, respectively, and zero otherwise; *Travel* is an alternative-specific convenience attribute of the alternative j at the choice occasion t; $UF * Organic$, $UF * Local$, $FM * Organic$, $FM * Local$ represent possible interaction terms between the point of sale (urban farm or farmers market) and organic or local production; $Local * Organic$ is an interaction term indicating that tomatoes are organically and locally produced, and 0 otherwise; and e_{ijt} is a random error specific to consumer i.

Afterwards, using the estimated parameters β from the model, we compute WTP for each of the random parameters n by dividing the attribute coefficient by the negative of the price coefficient. The results are recorded into the matrix, which has one column for each random parameter. The overall WTP that is based on conditional estimates is then calculated by averaging the values in the matrix over all individuals k (Greene, 2016):

$$WTP_n = \left(\sum_{i=1}^{k} \left(-\frac{\beta_{ni}}{\beta_{pricei}} \right) \right) / k \tag{6}$$

In order to determine whether the WTP estimate of each attribute is significant, we calculate its variance by following Daly et al. (2012):

$$var(WTP_n) = \left(\frac{\beta_n}{\beta_0} \right)^2 \left(\frac{\omega_{nn}}{\beta_n^2} + \frac{\omega_{00}}{\beta_0^2} - 2\frac{\omega_{n0}}{\beta_n \beta_0} \right) \tag{7}$$

where β_0 is the price parameter, β_n is the parameter of the attribute, and ω_{nn} and ω_{00} are the variances and ω_{n0} is a covariance for the respective parameter estimates.[3] Further information can be found in Syrengelas et al. (2017).

We estimate three models, one for the Detroit sample, one for the Phoenix sample, and one for the pooled sample to account for city-specific differences that might occur, with alternative sets of random parameters for each of the products. These mixed models are estimated with 500 Halton draws (Revelt and Train, 1998) and examined for the stability of the parameters using several different numbers of draws.

4. Empirical Results

4.1. Preferences

Table 3 presents the results of the mixed logit for Phoenix, Detroit

[3] The square root of Equation (7) is the standard error, which is then used in the t-ratio test to determine the statistical significance of the interaction WTP.

Table 3
Mixed logit model estimation results for Phoenix and Detroit.

	Phoenix and Detroit			Phoenix			Detroit		
	Coefficient	SE	z-Value	Coefficient	SE	z-Value	Coefficient	SE	z-Value
Price (M)	−0.723***	0.014	−52.210	−0.759***	0.020	−37.110	−0.704***	0.019	−36.270
Farmers Market (M)	0.019	0.077	0.250	−0.114	0.110	−1.040	0.129	0.108	1.190
Urban Farm (M)	−0.576***	0.080	−7.220	−0.608***	0.116	−5.260	−0.549***	0.111	−4.940
Organic (M)	0.175**	0.078	2.260	0.101	0.114	0.890	0.269**	0.111	2.440
Local (M)	0.595***	0.068	8.740	0.609***	0.097	6.300	0.594***	0.098	6.090
Travel time (M)	−0.118***	0.004	−29.450	−0.121***	0.006	−19.840	−0.118***	0.006	−21.100
Local * Organic (M)	0.049	0.074	0.670	0.150	0.107	1.410	−0.037	0.101	−0.360
Farmers Market * Organic (M)	−0.006	0.084	−0.070	0.202*	0.121	1.660	−0.221*	0.118	−1.870
Farmers Market * Local (M)	−0.478***	0.092	−5.210	−0.556***	0.130	−4.280	−0.454***	0.134	−3.390
Urban Farm * Organic (M)	0.131	0.086	1.520	0.221*	0.124	1.780	0.081	0.121	0.670
Urban Farm * Local (M)	−0.191**	0.082	−2.320	−0.220*	0.119	−1.850	−0.157	0.116	−1.350
None (M)	−6.347***	0.204	−31.040	−6.337***	0.303	−20.920	−6.810***	0.316	−21.570
Farmers Market (SD)	0.664***	0.068	9.730	0.553***	0.111	4.960	0.732***	0.099	7.370
Urban Farm (SD)	0.766***	0.068	11.310	0.731***	0.098	7.440	0.778***	0.104	7.470
Organic (SD)	1.057***	0.061	17.400	1.114***	0.094	11.800	1.107***	0.079	14.080
Local (SD)	0.365***	0.107	3.430	0.206	0.189	1.090	0.540***	0.114	4.750
Travel time (SD)	0.087***	0.004	23.420	0.095***	0.006	16.980	0.088***	0.006	15.750
Local * Organic (SD)	0.776***	0.092	8.440	0.790***	0.137	5.780	0.579***	0.160	3.610
Farmers Market * Organic (SD)	0.117	0.141	0.830	0.203	0.212	0.960	0.127	0.210	0.610
Farmers Market * Local (SD)	0.332*	0.182	1.830	0.288	0.249	1.150	0.783***	0.157	4.970
Urban Farm * Organic (SD)	0.011	0.179	0.060	0.083	0.352	0.240	0.023	0.190	0.120
Urban Farm * Local (SD)	0.234*	0.126	1.860	0.285	0.184	1.550	0.409***	0.142	2.890
None (SD)	2.977***	0.175	17.020	3.256***	0.235	13.870	3.188***	0.233	13.690
Log-likelihood	−9736.588			−4797.906			−4926.027		
McFadden Pseudo R-squared	0.358			0.368			0.349		
Number of Observations	9414			4716			4698		

Note: ***, **, and * denote statistically significant differences at 1%, 5% and 10%, respectively. SE = Standard Error.

and the overall sample. All models are highly significant based on McFadden's Pseudo R^2 of, on average, 0.36, which is considered excellent (McFadden, 1978).

Our models include five interaction effects, so the main effects require careful interpretation. Similar to Meas et al. (2015), in our study the variables that are included in the interaction effects[4] are dummy variables that take on a value of 0 or 1.

Considering our main empirical models, point of sale is an important determinant of consumers' preferences for local foods. In our models, *Grocery Store* was used as the reference level for point of sale. Therefore, the insignificant mean coefficient for *Farmers Market* across all the models implies that there is no statistically significant difference among consumers' preferences for tomatoes sold at the farmers market compared to tomatoes sold at the grocery store. However, given that the interaction effect between *Farmers Market* and *Local* is significant, the marginal effect of the *Farmers Market* coefficient should be interpreted assuming that there is no simultaneous presence of the attribute *Local*. Thus, the insignificance of the *Farmers Market* coefficient might indicate that consumers do not have a preference for where to shop for non-local tomatoes, at the farmers market or grocery store. On the other hand, a significant and negative interaction effect between *Farmers Market* and *Local* has a discounting effect on the combined main effects of the two attributes, implying that consumers prefer to purchase local tomatoes at grocery stores instead of farmers markets. This finding is somewhat remarkable as it is commonly assumed that farmers markets are the primary source for local products. Further, a significant and negative coefficient for *Urban Farms* indicates that consumers prefer tomatoes sold at a grocery store to the ones sold at an urban farm, while a significant and negative interaction between *Urban Farms* and *Local*, in the case of Phoenix and the overall sample, suggests that consumers prefer local tomatoes sold at the grocery store over tomatoes sold at an urban farm. On the other hand, an insignificant interaction between *Urban Farms* and *Local* in the case of Detroit suggests that the two attributes are independent. This is surprising, as this finding implies that among Detroit consumers the preference for urban farms does not depend on the fact that the food sold there is local.

Attributes related to production methods are also important factors in shaping consumers' preferences for local foods. In our models, the mean coefficients for *Local* are significant with the expected positive signs, suggesting that consumers prefer tomatoes carrying this label. On the other hand, the mean coefficients for *Organic* are significant in the case of Detroit and the overall sample, but insignificant in the case of Phoenix, suggesting that Phoenix consumers do not have a preference for organic tomatoes over non-organic ones. These *Local* and *Organic* estimates, however, are independent across the models, as indicated by the insignificant interaction coefficients, suggesting that there are no conflating effects among these two attributes.

Our models, however, demonstrate some evidence of the conflation effects between points of sale and organic production. In the case of Phoenix, a significant and positive interaction effect between *Urban Farms* and *Organic* has an additive effect on the combined main effects of the two attributes, indicating that Phoenix consumers prefer organic tomatoes sold at urban farms to the ones sold at a grocery store. Similarly, Phoenix consumers prefer organic tomatoes sold at farmers markets to the ones sold at a grocery store, as indicated by the significant and positive interaction between *Farmers Market* and *Organic*. However, the opposite is true for Detroit consumers. The significant and negative interaction effect between *Farmers Market* and *Organic* implies that Detroit consumers have a lower preference for organic tomatoes sold at farmers market compared to the ones sold at a grocery store. This finding is supported by an additional model that accounts explicitly for differences between Phoenix and Detroit consumers–see Appendix A–and suggests that Phoenix consumers have a higher preference for organic tomatoes sold at a farmers market than Detroit consumers. This implies that there might be regional differences in preference for where to buy organic food that future research could

[4] When two variables are included in the interaction effect ($\beta_A * X_A + \beta_B * X_B + \beta_C * X_A * X_B$, where the last term represents the interaction effect), the main effect of one variable (β_A) is defined as the marginal effect in the absence of the other ($X_B = 0$). On the other hand, the total effect is interpreted based on the sign of the interaction effect term, given that both variables are present simultaneously.

take into consideration.

In terms of other utility estimates, as expected, the *Price* coefficients are statistically significant and negative, which means that as price of an alternative increases consumer preference for that alternative decreases, all else constant. *Travel Time* is also significant and negative, indicating that the higher the travel time the less likely consumers will choose that option, all else being equal. This finding is consistent with previous research that suggests that consumers usually strive to minimize travel time to the purchase location (Handy, 1992), making a grocery store a more appealing alternative.

Finally, the mixed logit models capture unobserved heterogeneity, or variation in preferences, that are specific to individual variables (Hensher et al., 2005). Thus, for example, significant standard deviation estimates for *Urban Farm*, *Organic*, and *Travel Time* in the models suggest that unobserved heterogeneity is an important feature of our experimental data, and a fixed-coefficient logit would imply substantial bias in several of the estimates. Results in this regard reveal that consumer preferences vary for most of the attributes in that some do prefer, e.g., organic, but this does not necessarily hold for all consumers. Therefore, practitioners need to appeal to their target market.

4.2. Willingness-To-Pay

It is well-understood that the coefficient estimates in a logit model are marginal utilities, and are not interpreted in dollar-metric terms. Therefore, in order to provide more meaningful, money-denominated interpretations, we calculate WTP values for each coefficient estimate. These values are displayed in Table 4.

The majority of WTP estimates are consistent among the models with regards to signs and statistical significance, and are of a similar magnitude when compared across the samples. With regards to point of sale, the WTP is significant and negative for *Urban Farm*, but insignificant for *Farmers Market*. This result implies that consumers are willing to pay significantly less for fresh tomatoes sold at an urban farm compared to the ones sold at a grocery store, since the grocery store was used as the reference category for point of sale. This might be the case because consumers may believe that growing, producing and selling produce at urban farms requires less financial input, since, for example, it does not involve profit sharing with a middleman. On the other hand, an insignificant WTP for *Farmers Market* indicates that there is no statistically significant difference among consumers' WTP for tomatoes from farmers markets compared to tomatoes from grocery stores. This indicates that consumers may not display different levels of support for farmers who sell their produce at the farmers market or at the grocery store (Toler et al., 2009). It might also suggest that, while consumers think that shopping at farmers markets provides some additional intangible benefits as suggested by previous research (Zepeda and Leviten-Reid, 2004; Onianwa et al., 2006; Onken et al., 2011), they still do not consider tomatoes from these venues to be different (Carroll et al., 2013) and, hence, are not willing to pay a premium.

The results suggest that Detroit consumers have a significant and positive WTP for *Local* and *Organic*, holding all other attributes constant. This implies that consumers are willing to pay significantly more for local or organic tomatoes, which is in agreement with previous research (Loureiro and Hine, 2002; Hu et al., 2009; Yue and Tong, 2009; Costanigro et al., 2011; Onozaka and Thilmany-McFadden, 2011; Carroll et al., 2013; Meas et al., 2015). Therefore, local growers, producers and retailers should stress and clearly articulate these attributes when promoting their products. However, while Phoenix consumers are also willing to pay significantly more for local tomatoes, they appear to be indifferent between organic and non-organic tomatoes, as suggested by the insignificant coefficient for *Organic*. This implies that there might be state differences in preference for organic food that future research could take into consideration when pulling together a sample from different regions. Nevertheless, the WTP for the local attribute is comparatively higher than the WTP for organic for either of the states, which is consistent with past studies, where local has been shown to be the highest value claim (Loureiro and Hine, 2002; Costanigro et al., 2011; Onozaka and Thilmany-McFadden, 2011).

The negative WTP for *Travel Time* indicates that as one-way travel time to the grocery outlet increases consumers' WTP decreases. This result is consistent with previous findings that consumers highly value convenience of the shopping location (Bell and Lattin, 1998; Leszczyc et al., 2000; Briesch et al., 2009). Therefore, given that remoteness of the direct marketing venues can significantly affect consumers' WTP for products sold at these venues, it needs to be taken into account by urban planners who aim to establish successful farmers markets and urban farms.

Finally, the interaction effects between the variables allow us to determine the nature of the relationships that exists between the values in WTP. Accordingly, in the case of Detroit, results suggest a significant and negative interaction effect between *Local* and *Organic* attributes, indicating that the WTP for local certified organic tomatoes is lower than the sum of WTP associated with local and organic tomatoes. This finding reveals an overlapping valuation of these competing attributes among Detroit consumers. One explanation for this overlap might be that consumers believe that local farmers are less apt to produce a good organic product, or organic producers are less likely to be truly local. Another explanation might be that benefits associated with purchasing organic tomatoes are already present in local ones, and vice versa (Gracia et al., 2014). That is, Detroit consumers might believe that local food possesses the qualities of organic production (Naspetti and Bodini, 2008; Onozaka et al., 2010), such as, being grown without pesticides or not containing genetically modified organisms, as per definition of organic foods according to the USDA (USDA, 2016). Similarly, these consumers might think that by buying organic food they support local economy, a factor associated with buying local food (Hughner et al., 2007; Grebitus et al., 2013). On the other hand, a significant and positive interaction effect between *Local* and *Organic* attributes in the case of Phoenix, implies that Phoenix consumers are willing to pay a premium for locally grown organic tomatoes. Said differently, *Local* and *Organic* have a super-additive effect on utility that is higher than the sum of the utilities derived by organic and local tomatoes. Therefore, combining organic and locally produced claims may be a successful strategy for Phoenix farmers.

In the case of Detroit, statistically significant WTP for the interaction effect between *Farmers Market* and *Organic* is lower than the sum of WTPs associated with organic tomatoes sold at a farmers market. The same can be said about local tomatoes sold at a farmers market. This implies that organic and local tomatoes might realize an extra discount among Detroit consumers when being sold at farmers markets. One explanation for this occurrence could be that Detroit consumers believe that organic or local produce sold at farmers markets are of a lower quality. Another explanation might be that these consumers believe that produce at farmers markets is more reasonably priced and provides

Table 4
Mean willingness to pay estimates.

	Combined sample *$/lb*	Phoenix *$/lb*	Detroit *$/lb*
Farmers Market	0.03	−0.13	0.19
Urban Farm	−0.79***	−0.80***	−0.80***
Organic	0.26**	0.16	0.36**
Local	0.83***	0.80***	0.85***
Travel Time	−0.16***	−0.16***	−0.17***
Local * Organic	0.07***	0.20***	−0.06***
Farmers Market * Organic	−0.01**	0.27*	−0.32*
Farmers Market * Local	−0.66	−0.73	−0.64**
Urban Farm * Organic	0.18***	0.29**	0.11*
Urban Farm * Local	−0.26**	−0.29**	−0.22

Note: ***, **, and * denote statistically significant differences at 1%, 5% and 10%, respectively.

a better value for their money relative to grocery stores (Brown, 2002; McGarry-Wolf et al., 2005; McCormack et al., 2010), suggesting that they might expect to pay less for organic or local food at this point of sale.

In the case of Phoenix, statistically significant WTP for the interaction effect between *Farmers Market* and *Organic* is higher than the sum of WTPs associated with organic tomatoes sold at a farmers market. This suggests that Phoenix consumers are willing to pay more for organic tomatoes sold at farmers markets. In contrast, the results indicate a significant and negative interaction effect between *Local* and *Urban Farm* attributes, implying a lower WTP for local tomatoes sold at urban farms. One reason for this might be that Phoenix consumers believe that organic produce sold at farmers markets are of a superior quality, while local produce sold at urban farms are of a poor quality. Another reason might be that consumers expect to pay less for local produce at urban farms, believing that local food sold at these venues is more affordable (McGarry-Wolf et al., 2005; McCormack et al., 2010). On the other hand, the WTP for the interaction effect between *Urban Farm* and *Organic* is higher than the sum of WTPs associated with organic tomatoes sold at farmers market among both, Phoenix and Detroit consumers. This suggests that consumers are willing to pay a premium for organic tomatoes sold at urban farms.

Our results have important implications for fresh produce growers, retailers and legislators. They demonstrate that consumers do not have a strong preference for the direct-to-consumer outlets compared to grocery stores and are not willing to pay premiums at these venues. In fact, they are willing to pay less at urban farms. Moreover, we find that some consumers appear to have lower preferences and WTP for local products sold at farmers markets and urban farms. This implies that the support of local food sales through the direct-to-consumer venues might not be an optimal strategy. Therefore, policymakers who seek to boost sales of local food or assist local farmers might want to take our findings into consideration.

5. Conclusions and Policy Implications

In this research we attempt to disentangle consumers' preferences for the local attribute from their preferences for a marketing channel. Doing so is necessary to evaluate policies that are aiming to grow local food sales through the support of direct-to-consumer venues. By evaluating the demand for local separately from the demand for a channel, our experimental design allows us to identify consumers' WTP for each target of such policies. Specifically, we determine if consumers are willing to pay a premium for local food per se, and for local food sold at the grocery store, farmers market or urban farm. In addition, we examine if this premium is affected by the convenience of the point of sale, as well as, by being organically grown.

Results from online choice experiments show that consumers are willing to pay a premium for local food. Moreover, while customers might think that shopping at direct-to-consumer venues provides some additional intangible benefits, they seem to value whether the food was produced locally more, and display an equal level of support for local farmers who sell their produce at different venues. As a result, they do not have a preference for where to buy local produce whether at farmers markets or grocery stores. Furthermore, consumers actually discount local produce sold at urban farms, probably due to the belief that these venues offer a good value for their money. Therefore, the fact that the direct sales of local food seem to plateau is less surprising, especially considering the increasing growth of local food offerings by intermediated marketing channels.

Finally, results suggest that inconvenience of the point of sale significantly reduces consumer WTP for fresh local food products, in that longer travel time to the venue leads to lower WTP. This means that consumers are willing to pay more when purchasing products from more conveniently located retailing outlets, such as grocery stores, compared to direct-to-consumer outlets that are often times in more remote locations.

This research, however, is not without limitations. First, travel time to the point of sale can be assumed to be a fixed cost of shopping. Fixed costs per item purchased decreases when the number of products consumers purchased during their shopping trip increases. Thus, to control for the variety effect, the metric for convenience, travel time, needs to be divided by the number of items purchased by a consumer at each outlet. Nevertheless, since our experiment includes only one product at a time, we assume that the number of items purchased is constant across the purchasing venues and equal to one. Future research on this topic, that includes a variety of products in a shopping basket, should take this into account to determine how it impacts consumer preference for local food.

Second, apart from convenience, there are many other features that differentiate stores, farmers markets and urban farms, such as variety of products, speed and quality of service, or atmosphere. However, as the number of attributes and attribute levels increases, the complexity of the choice experiment increases as well. Therefore, we had to limit the number of attributes used in the study. Similarly, we could not include more types of points of sale. In this regard, it must be noted that using the general term "grocery store" might have limited our findings since various types of grocery stores might be perceived differently by the consumers. For example, some consumers might have a stronger preference for local food sold at premium grocery stores such as Whole Foods, as opposed to food sold at stores such as Walmart, and vice versa. Also, whether the grocery store is independently-owned might make a difference in consumer preferences for local food. Therefore, future research could consider how these other features of points of sale as well as different types of point of sale affect consumer preferences for local food.

Third, our research is limited to two types of direct-to-consumer marketing channels, farmers markets and urban farms, and does not include other possible locations where consumers can purchase local food, such as farms located outside of the city limits, roadside stands, and food hubs. We also do not consider services that offer local food baskets or even meal-kits that can be either delivered to consumers' homes or picked up at certain locations. All these various types of direct-to-consumer marketing channels might be of interest for future research.

Finally, one might argue that only researching one product (tomatoes) is too narrow of a focus, despite the fact that tomatoes are a staple produce in the U.S. Therefore, future research could address this by analyzing multiple products, for example, fresh produce, animal products and shelf stable food items, simultaneously and comparing them to each other. Moreover, while inconvenience has a negative effect on the WTP in general, including an interaction between marketing channel and convenience may reveal how travel time to the point of sale affects WTP for a particular channel. Therefore, this concept could also be investigated by future research.

Despite these limitations, it is hoped that this research offers insightful results and provides useful policy implications, since past research demonstrates a gap in understanding differences in local food sales among different marketing channels. Our research indicates that support for local channels may be misdirected because consumers appear to prefer to shop for local food through intermediated channels. If the current policy is intended to correct a market failure, or the lack of sales at direct-channels, then our findings can be interpreted as suggesting there is no market failure and that the existing system of retailers is adequate to bring local foods to consumers.

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Appendix A

Table A
Accounting for city-specific effects.

	Coefficient	SE	z-Value
Price (M)	−0.720***	0.014	−52.360
Farmers Market (M)	0.139	0.102	1.360
Urban Farm (M)	−0.574***	0.107	−5.380
Organic (M)	0.220**	0.106	2.080
Local (M)	0.578***	0.093	6.220
Travel time (M)	−0.111***	0.005	−21.090
Local * Organic (M)	−0.025	0.100	−0.250
Farmers Market * Organic (M)	−0.190*	0.114	−1.660
Farmers Market * Local (M)	−0.427***	0.128	−3.340
Urban Farm * Organic (M)	0.096	0.118	0.810
Urban Farm * Local (M)	−0.157	0.112	−1.410
Phoenix * Farmers Market (M)	−0.226	0.144	−1.570
Phoenix * Urban Farm (M)	−0.017	0.153	−0.110
Phoenix * Organic (M)	−0.131	0.149	−0.880
Phoenix * Local (M)	0.009	0.131	0.070
Phoenix * Travel time (M)	−0.007	0.007	−0.940
Phoenix * Local * Organic (M)	0.158	0.145	1.090
Phoenix * Farmers Market * Organic (M)	0.360**	0.162	2.220
Phoenix * Farmers Market * Local (M)	−0.169	0.181	−0.930
Phoenix * Urban Farm * Organic (M)	0.108	0.167	0.650
Phoenix * Urban Farm * Local (M)	−0.054	0.161	−0.330
None (M)	−6.392***	0.196	−32.650
Farmers Market (SD)	0.559***	0.088	6.320
Urban Farm (SD)	0.697***	0.072	9.680
Organic (SD)	1.015***	0.061	16.530
Local (SD)	0.377***	0.106	3.560
Travel time (SD)	0.086***	0.004	22.040
Local * Organic (SD)	0.568***	0.104	5.440
Farmers Market * Organic (SD)	0.026	0.154	0.170
Farmers Market * Local (SD)	0.518***	0.126	4.110
Urban Farm * Organic (SD)	0.034	0.161	0.210
Urban Farm * Local (SD)	0.154	0.129	1.190
Phoenix * Farmers Market (SD)	0.333**	0.152	2.200
Phoenix * Urban Farm (SD)	0.425***	0.128	3.310
Phoenix * Organic (SD)	0.209*	0.126	1.660
Phoenix * Local (SD)	0.185	0.139	1.330
Phoenix * Travel time (SD)	0.022*	0.013	1.740
Phoenix * Local * Organic (SD)	0.653***	0.119	5.490
Phoenix * Farmers Market * Organic (SD)	0.197	0.137	1.440
Phoenix * Farmers Market * Local (SD)	0.129	0.170	0.760
Phoenix * Urban Farm * Organic (SD)	0.117	0.239	0.490
Phoenix * Urban Farm * Local (SD)	0.092	0.134	0.690
None (SD)	2.934***	0.147	19.980
Log-likelihood	−9734.005		
McFadden Pseudo R-squared	0.358		
Number of Observations	914		

Note: ***, **, and * denote statistically significant differences at 1%, 5% and 10%, respectively. SE = Standard Error.

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