Understanding the Connections between Consumer Motivations and Buying Behavior: The Case of the Local Food System Movement

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Local and organic food systems represent some of the many food sector innovations of the past decade that signal that consumers are increasingly diverse and have heterogeneous preferences that reflect their unique values and preferences (Thilmany, Bond and Bond, 2008). In fact, products labeled with credence attributes associated with a sustainable food system, such as "organic," have enjoyed approximately a 20% retail growth rate every year since 1990 (Dimitri & Greene, 2006), and there is more anecdotal evidence that other claims, such as "local," and "fair trade," have seen similar demand growth. Yet, regardless of the significant attention and growth surrounding sustainable foods, there is still a demand for research investigating the intersection of economic and psychological factors that can aid in predicting and explaining consumer behavior.

Traditionally, consumer food purchases have been motivated by private benefits such as price, quality, convenience, and brand familiarity. Weatherall et al. (2003) argues that there seems to be other factors that are influencing the decision criteria by a minority of consumers. These factors signal a potential connection to perceived public benefits in products labeled with sustainable attributes. Therefore, some savvy consumers are using their money to make a public statement of activism regarding different public benefits (Seyfang, 2006). Supporting this notion, Sunding (2003) claims that price premiums are more likely to be paid by consumers that are motivated to purchase alternatively produced foods for altruistic reasons. The connection between altruistic motivations and an increased willingness to pay (WTP) was also explored by Umberger, Thimany McFadden, and Smith (2009). They report a relationship between credence attributes associated with beef products and a consumer's willingness to pay.

Despite growing interest in sustainable food systems, and the rise of altruistic benefits associated with them, initiatives such as sustainable organic food have a market share of only about 3% (Fromartz, 2009). Vermeir and Verbeke (2006) claim that is in part due to the attitude-behavior gap that is currently present in the consumer behavior literature. Attitudes alone are poor predictors of behavioral intentions in the marketplace (Ajzen, 2001; Kraus, 1995). For example, positive attitudes toward sustainable food products, such as organic, are not necessarily followed by positive behavioral intentions (Ajzen & Fishbein, 1974; Thompson & Kidwell, 1998). These findings suggest that positive attitudes towards sustainably grown food might not necessarily result in a willingness to pay for products that have these attributes.

Sustainable food products may connect with perceived public good dimensions of consumer choices, but an increased level of importance given to sustainable attributes might not result in an increased willingness to pay for the attribute. In this instance, the use of consumer psychology's construct, "perceived consumer effectiveness" (PCE) has been measured to aid in understanding an individual's perceived belief in that her/his purchase will prove to achieve the envisioned end goal. The perception of "effectiveness" of an action taken to achieve may influence the marginal utility of that action and explain a behavioral intention better than understanding consumer attitudes alone. To illustrate, Roberts (1996) found that 33% of the variation in ecologically-conscious consumers' behavior was explained by variability in the consumers' PCE, while concern for the environment (a consumer attitude) was not nearly as important.

Therefore, the benefits of purchasing sustainable food need to be in the consumers' realm of perceived control. Roberts (1996) suggests that for pro-environmental motives to influence consumer behavior, consumers must be convinced that their behavior has an impact on the

environment or social good that the product represents. Researchers argue that a high PCE reaches beyond just changing consumer attitudes toward a product and further motivates consumer to purchase a product, and may even increase their willingness to pay for the product. Along this line, several examples of an approach to extend conventional economic models to include attitude and other psychological predictors has proved successful (Harris et al., 1989; Michell and Carson, 1989).

A theoretical framework often used to explore other determinants of behavioral intention other than attitude is the Theory of Planned Behavior (TPB), which uses one's attitudes, social norms, and perceived behavioral control to predict behavior intentions. Previously PCE has been used as a dimension of perceived behavioral control in the TPB model (Vermeir & Verbeke, 2008). Robinson and Smith (2002) found that the TPB was a good model to predict behavior intention related to purchasing sustainable food because of the inclusion of other psychosocial variables. They found that all three components of the TPB were significant predictors of intention to purchase sustainably produced foods.

The potential of the TPB to explain WTP for different goods (both public and private) has provided mixed results (Ajzen and Driver, 1992; Luzar and Cosse, 1998; Pouta and Rekola (2001); Werner et al., 2002). Both Pouta and Rekola (2001) and Werner et al. (2002) found perceived behavioral control to be an important predictor of WTP while others have found it to be insignificant. The aforementioned studies suggest that psychosocial variables, such as perceived behavioral control, have shown to be better predictors than attitudinal variables alone (Sparks & Shepard, 1992).

Accordingly, this project examines potential psychological predictors of stated willingness to pay (WTP) for different sustainable food attributes. Specifically, consumer

attitudes and level of PCE are measured to identify and define potential factors that aid in predicting consumer willingness to pay for products labeled locally grown, organically grown or fair trade. Additionally, the expanded TPB model is introduced to look at the potential explanatory power of the full model on the WTP for the locally grown attribute. It is important to note that the relationship between psychological factors affecting behavior is explored in these studies, but there might also be a reciprocal relationship with behavior in turn affecting variables in the TPB model that is beyond the scope of these studies.

This paper targets one possible determinant of sustainable food purchase behavior, PCE, in an effort to close the gap between attitudes and behavior. Specifically, components of TPB (attitude and PCE) are used interpret WTP parameters for apples and tomatoes that are labeled organic, local, and certified fair trade. Due to limitations in the data, the full TPB model is only used to evaluate WTP for locally grown apples and tomatoes. Using a wide array of variables, we test the following hypotheses:

1) PCE is significantly related to the marginal attribute values of local, organic and fair trade produce in a choice set experiment for apples and tomatoes.
2) PCE will be a positive predictor of behavioral intention (willingness to pay) for locally grown, organic, and fair trade produce (as the perceived effectiveness toward the activist issue increases utility relatively more).
3) The full TPB model will improve upon the abbreviated model while still showing PCE as a predictor of WTP.

Methodology, Data, and Results

Participants

The data were collected by a private research firm, Knowledge Networks, Inc., based in California. They were contracted to collect a representative stratified sample (n>1000) of primary grocery shoppers across the country. Shoppers were sent the survey via online or WebTV, and it took about 20 minutes to complete the survey. Some 1,269 participants responded to the survey (out of 1,829) resulting in a 69% response rate. Table 1 shows the summary statistics of representative demographic information based on the larger sample (N=1,269). Females were the majority of the respondents (71% female) which was expected due to the fact that they are often the primary grocery shopper. The mean age was 50.2 and the sample was 75% Caucasian. For the research questions specific to this paper, usable data from the choice modeling that established the willingness to pay parameter estimates were utilized for the analyses. To increase the number of choice sets considered, segments of respondents from the larger sample were presented with different apple and tomato attributes in their choice sets. Data for each segment ranged from 500 to 650 observations representative of American consumers.

Materials

There were various items measuring different latent constructs of TPB. The description of the predictor variables as well as the dependent variable is described below.

Attitudes. Attitudes were measured by asking each respondent/shopper how important the following attributes are when they pick their fresh produce: locally grown, organically grown, and that the farmer was given a fair share of the profits (representing fair trade). These items were rated on a 4-point continuous scale ranging from “not at all important” to “extremely

important." There was also a box that the participant could check labeled, "I never think about that issue when choosing fresh produce." People that chose the box indicating that they never thought about the issue were excluded from the analyses. Table 2 shows the means and standard deviations of shopper attitudes toward the importance of selected sustainable food attributes. It is interesting to point out that organically grown was considered the least important attribute by consumers (*M*=2.65, *SD*=.89). Furthermore, Table 3 shows the correlations between these attributes indicating a significant relationship between the organic and fair trade attributes.

Perceived Consumer Effectiveness (PCE). The direct measure of PCE was adapted from a scale constructed by Roberts (1996) and consisted of four items addressing different characteristics associated with sustainable food (e.g. "I believe that by purchasing certain kinds of food, I can have a substantial positive impact on the environment"). The four components included public good characteristics attributed to sustainable food: social fairness, economy, environment, and social responsibility. All items on the PCE scale were scored on a 7-point scale, ranging from strongly disagree (1) to strongly agree (7). Alpha for the scale was .843. Table 4 shows the means and standard deviations of the PCE scale. Note that there are four items, each pertaining to a different element attributed to sustainable food.

A varimax rotated principal components analysis confirmed that there is only one factor extracted in the PCE scale explaining 68% of the variance (Table 5). Items were averaged together to develop the PCE scale for the analyses in this study. Correlations between the items are shown in Table 6. All items are significantly correlated, but correlations are not high enough to raise concerns of multicollinearity.

Other Components of TPB model. Perceived availability and perceived social norms were added to the model when looking at willingness to pay for locally grown apples. These variables

were defined by one statement each measuring whether or not the participant believed that local foods were readily available and whether or not people close to them think they should buy local food products. Perceived availability and perceived social norms were scored on a 7-point scale, ranging from strongly disagree (1) to strongly agree (7).

The PCE scale was paired with an availability item to represent the "perceived behavioral control" latent construct of the TPB. The mean for the perceived availability item was 4.45 (*SD*= 1.48) suggesting that consumers were slightly above neutral when asked if local food products were readily available. Additionally, the mean for perceived social norms was 3.69 (*SD*=1.6) suggesting that respondents had a more distributed response to that item.

Choice Model. A choice experiment was conducted as part of a larger NRI grant. Each participant was given a series of produce comparisons (apples and tomatoes) with different labels and assurances in an effort to understand the consumer's tradeoffs between product characteristics, including price. There were many different attributes explored in the project, but of specific interest in this study was the assurances made regarding origin of production and organic and fair trade certification status. Therefore, key attributes considered in this analysis were whether or not the product was locally grown, organically grown or fairly traded. Choices made by the individual were utilized to calculate willingness to pay (WTP) estimates at the individual level. WTP coefficients for both local tomatoes and local apples are explored in more detail in an earlier, separate analyses.

Results

Hypothesis 1, PCE is significantly related to the marginal attribute values of local, organic and fair trade produce in a choice set experiment for apples and tomatoes, was primarily

supported. In general, there was a significant relationship between PCE and the marginal attribute values of local, organic and fair trade produce. Tables 7-9 show the relationship between attitude, PCE, and WTP for all three attributes associated with sustainable food. WTP for both organic and fair trade attributes associated with apples and tomatoes were significantly correlated with PCE. In addition, the WTP for the differentiated apples and tomatoes (with respect to each attribute) were significantly correlated (Table 9). Similar to organic and fair trade, WTP parameter estimates for both apple and tomato were significantly correlated. PCE was also significantly related to the WTP for locally grown apples, but not locally grown tomatoes. This last finding was the only result that does not support the first hypothesis, and suggests some difference among produce categories in beliefs about source of production.

PCE was measured in conjunction with specific attitudes in an effort to explain the amount a consumer was willing to pay for produce that is labeled as organic, fair trade, and locally grown. Hypothesis 2 was strongly supported, suggesting that understanding a consumer level of PCE is a better indicator of the amount they are willing to pay for attributes associated with sustainable food than attitudes alone (Table 10). However, attitude toward the attribute (or level of importance assigned) was not important. PCE seemed to be the strongest predictor of WTP for fair trade label on both an apple and a tomato showing that for every 1 unit increase in PCE level, WTP increased .20 (apple) and .14 (tomato). Still, the coefficient of determination (R^2) ranged from .01 to .04, suggesting that attitude and PCE (abbreviated version of TPB) explained a low amount of variance in the willingness to pay for organic, fair trade, and local apples and tomatoes, suggesting these variables may be have more value when integrated into a broader model of consumer behavior.

Hypothesis 3 was partially supported. The full model of TPB was not significant and did not aid in explaining the variation in willingness to pay for locally grown tomatoes. On the other hand, the full model of TPB was successful in explaining behavioral intention toward locally grown apples. Figure 1 shows the four variables that were used as predictors of willingness to pay for local apples. Significant predictors were social norms (β=.16) and PCE (β=.15). It is important to note that PCE remained a significant predictor of WTP and that including social norms into the model further enhanced explanatory power of the model. The Coefficient of determination (R^2) increased to .08, indicating that all the variables in the model explained 8% of the variance, increasing from .02, in the willingness to pay for locally grown apples.

Marketing Implications and Discussion

This research expands upon earlier work investigating the role of different determinants that influence consumer motivation to purchase sustainable food products (Vermeir & Verbeke, 2008). While positive attitudes can still be possible indicators of purchase behavior—these results suggest that there might be other psychological predictors that could influence how much a consumer is willing to pay. It is important to try to understand consumer population's purchase motives as well as to introduce other potential explanatory factors to use in economic models. The results offer moderate support for the applicability of the Theory of Planned Behavior. Table 10 shows clear evidence found that perceived consumer effectiveness might be a more important explanatory variable than attitudes, or level of importance given certain attributes in predicting willingness to pay. In addition, depending on what sustainable food attribute is focused on, there are other factors from the TPB that help to predict reported behavior. Specifically, knowing customers' level of normative influence as well as PCE aided in predicting whether they would report being willing to pay more for locally grown apples. These results suggest that further

testing of TPB, including social norms, might be beneficial in understanding WTP for other sustainable food attributes.

In addition, trying to understand whether any of the personal and social determinants are driving willingness to pay is important. Using stated preference data from a choice-based conjoint analysis, WTP for the local attribute helped to provide insight into the value people hold for this attribute in relation to different psychosocial variables. A consumer's willingness to pay for apples that were labeled locally grown was significantly predicted by the attitude, social norms, and PCE components of the expanded TPB model.

Furthermore, this research suggests that the attitude-behavior gap might be bridged by different psychosocial variables, depending on specific motivations and desired consumer assurances. In the marketplace, some of this gap could be addressed through educational programs and labeling programs that seek to increase the PCE of a consumer for those food businesses who incorporate "social values" into their business model. Outreach materials might be developed to guide food market managers as they frame their communications with potential consumers. In addition, these findings might inform food policy organizations councils who seek to shape policy that addresses public issues of concern to food buyers who currently see targeted purchases as a way to "vote with their dollars".

One aspect of this study is unique to the literature: by investigating the public benefit perspective we revealed a least one significant factor that aided in understanding predictors of behavioral intention. Therefore, different aspects related to the benefits of the complex set of attributes that consumers may associate with sustainable food also influence the impact the TPB determinants themselves. Recognizing that these differences exist and can be specific to different consumer segments is a significant advancement in the field.

Table 1

Demographic Information for Nationwide Sample

Variable Name	Description	Frequency	Percentage	Mean
Age				50.2
Education	<High School	107	8	
	High School	353	28	
	Some College	415	34	
	Bachelor's or higher	394	31	
Gender	Male	369	29	
	Female	900	71	
Race	White	949	75	
	Black	100	8	
	Other	31	2	
	2+ ethnicities	131	10	
	Hispanic	58	5	

Table 2

Attributes of Fresh Produce

Attributes of Fresh Produce:	Mean (SD)	Rank	N
Farmers were given a fair wage	3.33 (.80)	1	927
Locally grown	3.13 (.81)	2	1005
Organically grown	2.65 (.89)	3	941

Table 3

Correlations between Fresh Produce Attributes

	Local	Fair Trade	Organic
Local	1	.001	.064
Fair Trade		1	.312**
Organic			1

Table 4

Means and Standard Deviations of PCE Items on Nationwide Survey

PCE Item	Statement	*M*	*SD*
PCE-Economy	I believe that what I choose to buy and where I choose to buy fresh produce can have an impact on the local economy.	5.08	1.36
PCE-Environment	I believe that by choosing to buy or not to buy certain foods, I can have a positive impact on the natural environment.	4.33	1.55
PCE- Social	I believe that I can make a statement about social fairness by carefully choosing the fresh produce I buy.	4.09	1.57
PCE- Social Responsibility	Each consumer's behavior can have a positive effect on society by purchasing products sold by socially responsible companies.	4.74	1.52

Table 5

Factor Analysis of PCE Scale

PCE	Factor Loading*
PCE 1: Economy	.743
PCE 2: Environment	.854
PCE 3: Social Fairness	.845
PCE 4: Social Responsibility	.853

*68% Variance Explained

Table 6

Correlations of the Five Dimensions of PCE

Environment	Economy	Social Fair	Social Resp	PCE Scale
Environment	.499**	.659**	.638**	.854**
Economy		.477**	.525**	.742**
Social Fair			.632**	.847**
SocialRes				.850**

**p<.01.

Table 7

Correlation Matrix of PCE and WTP for Organic Attribute.

	WTP-Apples	WTP-Tomatoes	Attitude	PCE
WTP-Apples	1	.304**	.03	.105**
WTP- Tomatoes		1	.04	.143**
Attitude			1	.03
PCE				1

Table 8

Correlation Matrix of PCE and WTP for Fair Trade Attribute.

	WTP-Apples	WTP-Tomatoes	Attitude	PCE
WTP-Apples	1	.284**	.012	.145**
WTP- Tomatoes		1	.087	.117**
Attitude			1	.055
PCE				1

Table 9

Correlation Matrix of PCE and WTP for Locally Grown Attribute.

	WTP-Apples	WTP-Tomatoes	Attitude	PCE
WTP-Apples	1	.252**	.029	.088**
WTP- Tomatoes		1	-.026	.069
Attitude			1	.049
PCE				1

Table 10

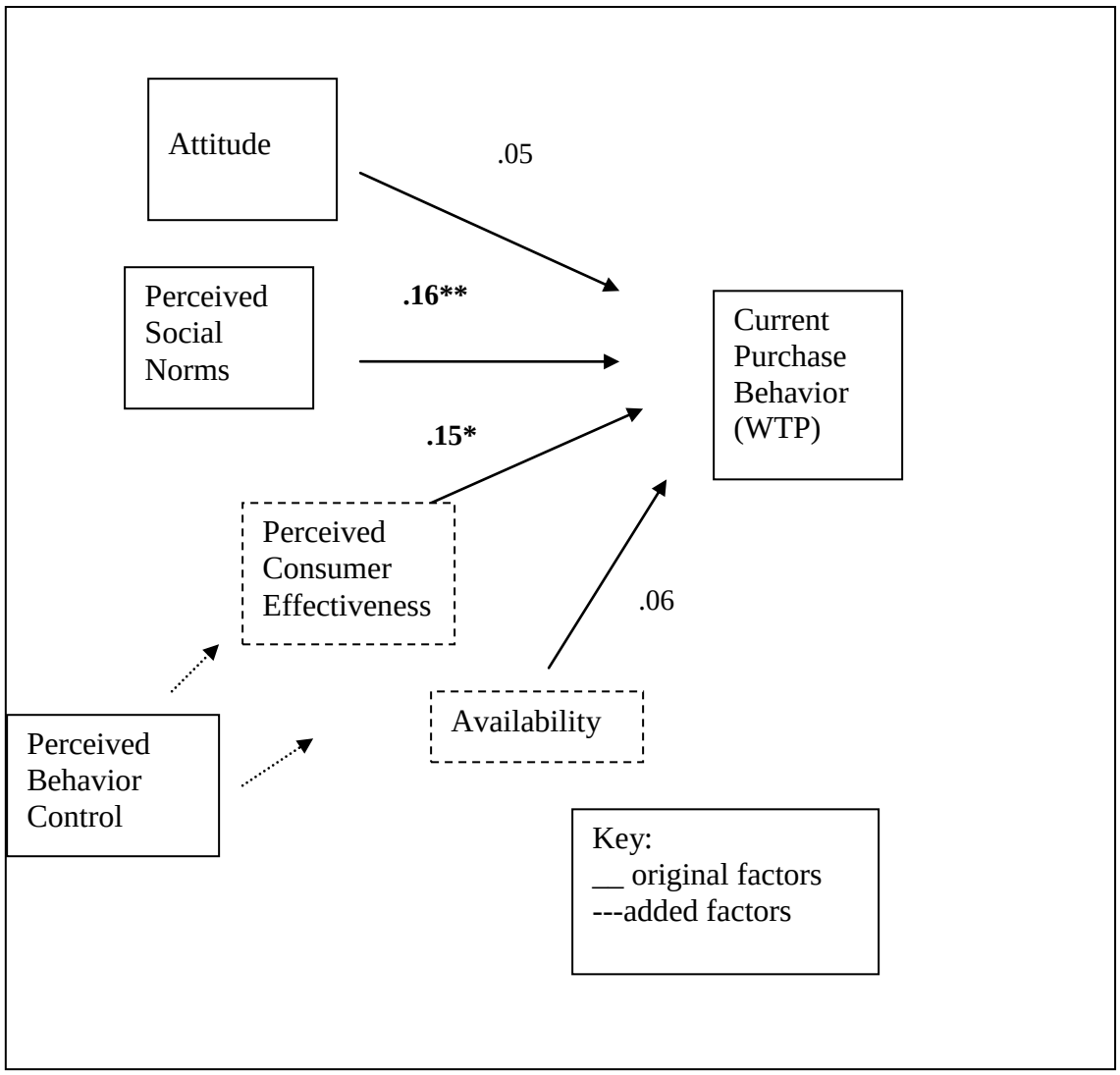
Results from Regression Analyses (Dependent Variable- WTP)

Attribute	**Predictors**	**Apple**			**Tomato**		
		B	*p*	R^2/ n	*B*	*p*	R^2/ n
Organic	Attitude	.03	.50	.01/463	.06	.24	.03/380
	PCE	.11	.02**		.14	.01**	
Fair Trade	Attitude	.03	.47	.04/438	.08	.14	.03/376
	PCE	.20	.00***		.14	.01**	
Local	Attitude	.01	.84	.02/464	-.07	.16	.01/407
	PCE	.11	.01**		.09	.09*	

*p<.10, **p<.05, ***p<.01.

Figure 1

Full TPB model and WTP for Locally Grown Apples.



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