

**The theory of planned behavior:  
Understanding consumer intentions to purchase local food in Iowa**

by

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**NOMENCLATURE**

ATUS	American Time Use Survey
EFA	Exploratory Factor Analysis
IA	Iowa
IFC	Iowa Food Cooperative
ML	Maximum Likelihood
PB	Purchase Behavior or Past Behavior
PBC	Perceived Behavior Control
PYO	Pick-Your-Own
SN	Subjective Norms
TPB	Theory of Planned Behavior
TRA	Theory of Reasoned Action
USDA	United States Department of Agriculture

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## ABSTRACT

Alternative agriculture is an expansive movement which involves many different types of crop and food production. Participating in alternative agriculture markets, including organic, minimally-processed, natural, and local food systems is a growing consumer trend. Regarding the latter, there is a gap in knowledge that specifically focuses on the social-psychological motivations of consumers to participate in local food systems. Studies more often compare local to other types of alternative or conventional agriculture. Further, within alternative agriculture, gender dimensions of consumer intent are prominently stated with numerous studies comparing and contrasting the different beliefs, attitudes, or behaviors that men and women attribute to food produced in an alternative manner, yet specific focus on the element of gender in local food systems using a social-psychological framework is less common.

My research aims to better understand how attitudes and beliefs influence consumer intention to purchase locally grown or produced food rather than non-local food. This research is guided by three research questions: 1) how do consumers define 'local' food?; 2) what consumer beliefs and attitudes influence intention to purchase locally grown or produced food?; and 3) are there differences in beliefs or attitudes between males and females that influence decisions to buy local?

For this research I collected survey data using a purposive sample of members from an online local foods cooperative. To answer the research questions, I utilized the Theory of Planned Behavior, a social-psychological framework to address individual motivational factors within unique contexts to explain the execution of a specific behavior. I found that consumer intent to buy local was influenced by the belief that local is better for the environment. Intent to

buy local was also influenced by attitudes of community economic wellbeing, suggesting that survey respondents buy local to support the economic viability of their community.

Alternatively, attitudes about freshness, better taste, and better look of local food slightly negatively influenced purchase intent, suggesting that survey respondents were less likely to consider superiority and aesthetic characteristics of local food as influencing their intention to buy local. Finally, perceived influence from family members, including parents and children, increased intention of survey respondents to buy local. Female respondents, in particular, were also influenced by their partner or spouse. I also found that survey participants tend to be female, older, and more educated. Moreover, the most commonly associated definition of 'local' was food grown or produced in Iowa. These findings contribute to the field of sociology and advance understanding of who participates in local food outlets, specific beliefs and attitudes towards local food in contrast to non-local, and the nuances of what 'local' food means to consumers.

## **CHAPTER 1**

### **INTRODUCTION**

#### **Background of the Study**

A food system is a complete structure of food production that can be segmented into various stages including harvesting, processing, and distribution (Heffernan 2000). Food systems are broadly categorized in two ways - industrialized global food systems and local food systems. A local food system is characterized as being contained within a localized geographical area; industrialized food systems operate on a national or global level (SustainableTable 2016). Local food systems are commonly associated with high quality, fresh, better tasting, nutritious foods as well as more sustainable production practices, recirculating financial capital within a community, and better working conditions for farmers and other laborers (Feenstra 2002). While dominant local food discourse promotes these attributes, the principles of local food systems can sometimes blur in meaning, tripping up consumers in the 'local trap', mistakenly assuming that local food is inherently better or higher valued based on scale or location (Ackerman-Leist 2013). Local food systems are highly contextual and must be considered on an individual basis (Born and Purcell 2006).

As with the system itself, the term 'local' is also highly contextual with no firm definition. From a consumer perspective, it is dependent on individual perceptions and the meanings that are attributed to 'local.' Even so, there are three prominent ways in which local may be defined. First, proximity or geographical perspective is based upon established boundaries, such as distance in miles, political boundaries such as counties or states, or other pre-determined regions (Trivette 2015). For example, the concept of 'food miles' is commonly associated with the miles in which food travels and the environmental impact measured in carbon emissions (Wynen and

Vanzetti 2008). Relationships are a second way in which 'local' is defined and can be an amalgamation of many different actors including farmers or producers, distributors, and consumers (Dunne et al. 2010). Relationships are often considered multifaceted and more meaningful than large scale, industrialized systems of food production (Eriksen 2013). Finally, 'local' can be defined by an individual's personal values or values shared by a group entity. Principles that shape the discourse of 'local' are most commonly those that are critical of industrial-scale food production; principles favoring alternative methods of agriculture that are more ecologically sound, promote bodily health, and support local farmers and communities (Portman 2014). In the context of this research, the term 'local' is defined as food that has been grown, raised, or produced in Iowa.

Within common U.S. culture, women are more often associated with different aspects of food including food provision and being responsible for feeding their families (Sachs and Patel-Campillo 2014). More often than not, women shop for food, plan meals, and prepared food. Even in cases where men and women share domestic labor, food labor is more likely to be assigned to women, save for food prepared and served outside of the household (Allen 2004).

Though nation-wide samples are not readily available, when considering participation in alternative food networks, like locally grown or produced food, a greater proportion of women are responsible for food-related activities including planning meals, shopping for food, and preparing and cooking food (Som Castellano 2014). According to the 2015 U.S. Bureau of Labor Statistics American Time Use Survey (ATUS), women spend, on average, more hours per day engaging in consumer goods purchases than men, 0.44 and 0.27 respectively. Further, women engage, on average, 1.19 hours per day in food preparation and food cleanup while men engage in these activities an average of 0.79 hours per day. These statistics echo a thorough discussion

by Allen and Sachs (2007) who bring to light women's relationships with food and roles within alternative agriculture networks. They note women are largely responsible for food provision within the home yet the "caring work of feeding others" has shifted over time (Allen and Sachs 2007:10).

There is a wealth of research documenting consumer attitudes, beliefs, and behaviors in alternative agriculture food studies. Intentions of consumers to purchase locally grown or produced food most commonly gets compared or contrasted with other types of alternative agriculture, such as organic methods of production and harvest or with conventional agriculture (Burchardi et al. 2005; Meas et al. 2014; Onozaka and McFadden 2011; Yue and Tong 2009) rather than as a standalone research subject. Moreover, this trend extends to gender dimensions of alternative agriculture. Studies comparing and contrasting the different beliefs, attitudes, or behaviors men and women may attribute to food produced in an alternative manner are well documented (Blanck et al. 2008; DeLind and Ferguson 1999; Divine and Lepisto 2005; Gracia et al. 2012). Yet concerning locally grown and produced food, using a social-psychological framework specifically targeting the intentions driven by these beliefs, attitudes, or behaviors is less common in local food systems literature.

### **Statement of the Problem**

Alternative agriculture is an expansive movement which involves many different types of crop and food production. From a consumer's perspective, participating in alternative agriculture markets, including organic, minimally-processed, and natural is a growing trend. Consumer participation in local food systems is also gaining momentum, yet there is a gap in the knowledge that specifically focuses on the social-psychological motivations consumers hold that

influence their intention to purchase locally grown or produced foods. Research explicitly targeting consumer beliefs and attitudes about local food may provide useful insights to local food systems both from a marketing standpoint and social standpoint. For example, knowing attitudes and behaviors that influence intent can help shape consumer purchasing behavior within the local food system. Similarly, knowing beliefs and attitudes can be used to shape or meld perceptions of the local food movement and dominant local foods discourse, i.e., how local is defined, what principles guide decisions to purchase locally, or who commonly participates in – or is barred from - local food systems. Further, specifically targeting differences in attitudes and beliefs between women and men may provide better awareness to gendered relationships among local foods and local food systems.

### **Purpose of the Study**

The objective of this research is to better understand the social-psychological motivations that influence a consumer's intention to purchase locally grown or produced food rather than non-local food. More specifically, using a quantitative approach, I seek to understand the broad beliefs consumers hold about local food, the explicit attitudes that shape those beliefs, and other potential indicators, such as peer interactions or barriers that affect a consumer's ability to buy local. Additionally, I seek to understand how consumers interpret or define 'local' and whether or not there are differences in beliefs, attitudes, or behaviors among men and women consumers. To do so, I survey a purposive sample of members from the Iowa Food Cooperative – an online local foods cooperative in Iowa.



### **Research Questions**

The intent of this research and thesis are outlined in the following research questions:

- How do consumers define 'local' food?
- What consumer beliefs and attitudes influence intention to purchase locally grown or produced food?
- Are there differences in beliefs or attitudes between males and females that influence their decision to buy local?

### **Theoretical Framework**

In order to address these research questions, I utilize Icek Ajzen's (1991) Theory of Planned Behavior (TPB), which addresses individual motivational factors within unique contexts to explain the overall execution of a specific behavior. The TPB has previously been used to capture an array of attitudes, beliefs, and behaviors concerning consumer preferences towards organically grown and produced products (Arvola et al. 2008), fruit and vegetable consumption at farmers' markets (Middleton and Smith 2011), as well as differences in vegetable and fruit consumption among males and females (Gracia et al. 2012). However, little research using the TPB has specifically focused on the intent to purchase local foods. By applying the TPB model solely to local food systems, insight into how people develop their attitudes and beliefs about local food as well as their intention to buy local food can prove valuable in shaping social and community practices, marketing strategies, and local food systems discourse.

### **Iowa Food Cooperative**

The Iowa Food Cooperative (IFC) is a web-based marketing system featuring products grown or produced exclusively in Iowa, including, but not limited to, fresh and frozen fruits,

vegetables, meat, and processed food, as well as non-consumable artisanal items like handmade soap. Anyone is allowed to join as a member for a one-time, fully refundable joiner's fee as well as a small additional fee paid annually. Members of the IFC enjoy benefits such as voting rights on important cooperative issues, establishing relationships with farmers and producers, and having access to locally grown and produced food all year round. The IFC's base of operations is in Des Moines with additional pick-up locations in West Des Moines, Ankeny, Osceola, Ames, Albia, and Indianola. The IFC also offers home delivery within a four-mile radius of their Des Moines location.

As part of the mission statement and producer guidelines, the IFC requires transparency with practices used to raise livestock and grow produce. Farmers and producers must disclose any use of "petroleum based fertilizers, herbicides or insecticides on crops, or the use of hormones or antibiotics in animals" (IFC 2016). Further, producers can only sell what they have grown, raised, or crafted themselves. Value-added items like baked goods may also be sold using ingredients specifically grown in Iowa. Purchasing items wholesale with the intention of resale is not permissible. As per the mission statement, the goal of the IFC is to support and encourage farming practices that benefit and are sustainable for Iowa's water and soil, while simultaneously providing the community with healthy, nutritious food.

### **Significance of the Study**

This research has the potential to influence many different audiences, including the academic and the private and public spheres. Sampling from members of the IFC is advantageous because they already have strong attitudes and beliefs about locally grown and produced food by virtue of choosing this way to participate in the market. This way, 'local' is at

the forefront which allows for deeper, more thoughtful analysis, rather than needing to differentiate ‘local’ from other types of alternative agriculture markets or make comparisons of local and other alternative agriculture networks.

This research contributes to the field of sociology by providing a better understanding of who participates in local food outlets, what their beliefs and attitudes are specifically towards local food over non-local food, as well as the nuances of what ‘local’ food means to consumers. This research also has practical use for the IFC in order to better understand, serve, and market to members and to recruit prospective members in surrounding communities.

### **Overview of Chapters**

Chapter 2 will begin with a review of literature on local food systems in contrast to global food systems, several types of common local food outlets, the use and definitions of ‘local’ food as well as the precise context in which ‘local’ will be used throughout this study. I will also include a formal definition of the Theory of Planned Behavior (TPB), the application of TPB in alternative agriculture and consumer studies, and the gendered dimensions of alternative agriculture market systems.

Chapter 3 describes my methodology. I will discuss survey design, sampling procedure and data collection, analytical procedures, and limitations of the study. This research used an online instrument to survey members of the IFC in order to gain a better understanding of consumer beliefs and attitudes about locally grown and produced food and how those beliefs and attitudes shaped their intention to buy local. Prior to statistical analysis, Maximum Likelihood (ML) imputation was used to estimate and fill in missing data. Next, exploratory factor analysis with varimax rotation was used as a data reduction method. Finally, binary regression was used

to examine participants' intention to purchase locally grown or produced food within the next six months.

In Chapter 4, I present the results of the study. I begin with a description of the sample and how participants defined local (additional text-based responses are discussed in Chapter 5). Exploratory factor analysis was used as a data reduction method to analyze participants' attitudes about local food, including consumption, environmental/sustainability impacts, and community impacts, as well as subjective norms of perceived relevant others' beliefs. I also include a presentation of model fitness and effects of predictor variables in three separate binary regression models: 1) the overall model including all participants; 2) the female-only model including only female responses; and 3) the residence model with participants who have lived in Iowa for 31 or more years.

In Chapter 5, the final chapter, I provide a summary of this thesis, a discussion of my key findings, implications of this research, and my recommendations for future research. I show that beliefs about the environment and community economic wellbeing influence consumer intention to buy local food. Further, I illustrate how social interactions among family members within the private sphere have influence on women's intention to buy locally produced and grown food.

## Definition of Terms

The following terms are defined as they are used and interpreted in this thesis:

**Alternative Agriculture:** Alternative agriculture, a broad, collective term, is just that – an alternative to conventional or mainstream forms of agriculture and agricultural processes. Alternative agriculture includes a spectrum of farming systems that can range from small-scale, diverse production to large-scale, organic monocropping.

**Attitude:** An individual's way of thinking or feeling; a self-evaluation, either positive or negative, of performing a behavior.

**Behavioral Belief:** An individual's perception of a behavior and its likely consequences. Behavioral beliefs, along with subjective values, influence attitudes toward a behavior.

**Community Economic Wellbeing:** A good or satisfactory condition of the community's economic status (*e.g. re-circulating money, creation of food-based businesses*).

**Community Social Wellbeing:** A good or satisfactory condition of the community's social status and relations (*e.g. food security, strong farmer-consumer relationships*).

**Community Supported Agriculture (CSA):** Community Supported Agriculture; an alternative, local food system in which community members buy a 'share' of the anticipated harvest ahead of the growing season in order to support farmers and farming operations. Farmers and consumers share the risks and benefits as an equal partnership.

**Farm Stand:** Typically a small booth, stand, or stall, most commonly situated on a high traffic roadside, operated by a vendor that sells various products.

**Farmers' Market:** Communal space in which farmer-producers sell their grown, raised or value-added agricultural products directly to consumers.

**Foodshed:** In the 'local' lexicon, a foodshed is a geographical region that produces food for that area's population. Foodsheds are sometimes referred to as comparable to watersheds; one traces the flow of food to a population, the other traces the flow of water in a particular area.

**Global or Industrial Food System:** A food system that is complex and involves many actors on a national and international level. Global food systems can be characterized as being highly concentrated in integration both vertically and horizontally.

**Intent:** The likelihood of taking action to perform a specific behavior.

**Iowa Food Cooperative (IFC):** Iowa Food Cooperative; a web-based market featuring products grown or produced exclusively in Iowa.

**Local:** Food grown, produced, or processed in the state of Iowa using Iowa-grown or processed ingredients.

**Local Food System:** A food system in which production, processing, and distribution occur within a geographically localized area, rather than nationally or globally.

**Perceived Behavioral Control:** An individual's evaluation of their ability to engage in the intended behavior based on the perceived difficulty or ease of performing the behavior.

**Subjective Norms:** An individual's own perception of a particular behavior and the strength of motivation to comply with relevant others' beliefs (partner or spouse, children, friends, etc.).

**Theory of Planned Behavior (TPB):** A model used to address individual motivational factors within unique contexts to explain the overall execution of a specific behavior.

**U-Pick or Pick-Your-Own (PYO):** Market style in which community members are invited onto a farm to harvest their own food.

## **CHAPTER 2**

### **LITERATURE REVIEW**

This chapter will discuss relevant review of literature sectioned into four parts: 1) the Theory of Planned Behavior (TPB) defined; 2) local food systems versus global food systems, varying types of local food outlets, the 'local trap', and local defined; 3) applications of TPB in food research; and 4) TPB and local food in the present investigation.

#### **The Theory of Planned Behavior**

The Theory of Planned Behavior (TPB) is an expansion on the Theory of Reasoned Action (TRA), first introduced by Fishbein and Ajzen in 1975. TRA describes measures of attitudes and social normative perceptions of a specific behavior that lead to an intention to perform the behavior (Montano and Kasprzyk 2002). Likewise, TPB was developed out of the principle of aggregation, a model which posits that the collection of specific behaviors across occasions has better predictive validity of attitudes and other traits than simply analyzing perceived locus of control alone. Put simply, TPB seeks to address individual motivational factors within unique contexts to explain the overall execution of a specific behavior (Ajzen 1991).

It is assumed that intentions will capture motivational factors that influence behavior, following that an intention is an indication both of how hard a person is willing to work, and how much effort a person will exert, in order to perform the behavior (Ajzen 1991). Ajzen (1991) suggests as a general rule, the stronger a person's intention to engage in a behavior, the more likely the behavior will be performed. The behavior, however, must be under a

person's volitional control, or will, to decide whether or not to perform the behavior (Ajzen 1991).

An attitude towards a behavior is an individual's "beliefs about what will happen if he or she performs the behavior" (Edberg 2015:43). Attitudes are shaped by an individual's judgment, either positive or negative, of the expected outcomes of performing a behavior (Ajzen 2011). A behavioral belief is the individual's perception of the likely consequences of performing the behavior (Ajzen 2011). Let's say a person may purchase local food because she or he holds specific attitudes about this behavior. For instance, she or he may feel that purchasing local food keeps money circulating within her or his community or will support a farmer's income. The person's overall belief is then shaped by those individual attitudes which may lead the person to believe that local food supports a community's overall economic wellbeing.

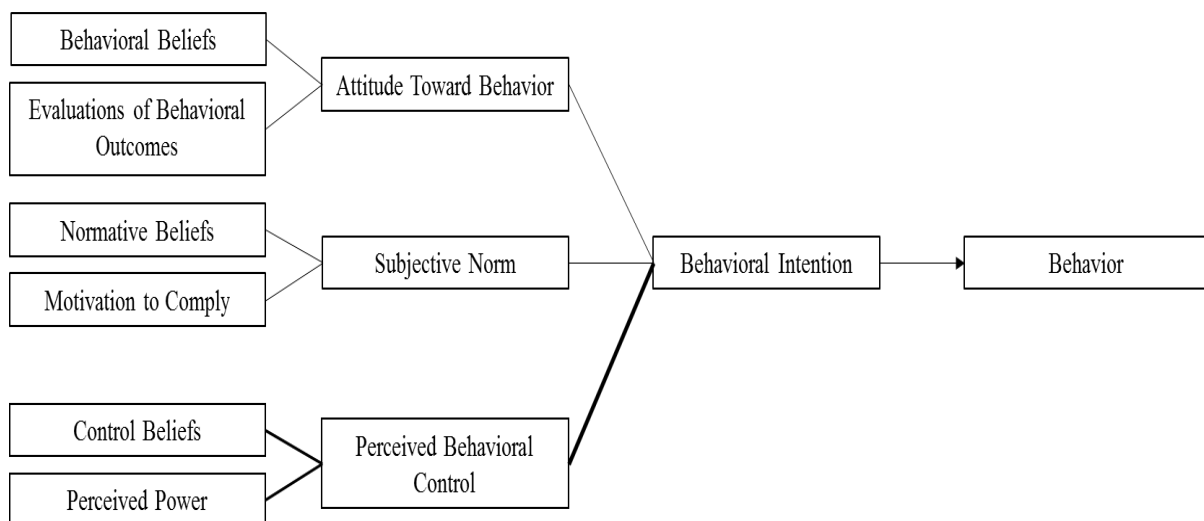
A normative belief is a person's perception of social normative pressures, or a relevant other's (i.e. a partner or spouse, child, parent, doctor, etc.) beliefs that she or he should perform the behavior (Ajzen 2011). The subjective norm is an individual's own perception of a particular behavior and the strength of motivation to comply, or to conform, with relevant others' beliefs (Ajzen 2011). For example, does a person think her or his spouse or partner supports their decision to purchase locally grown or produced food? And if so, how does that perceived normative belief influence that person's actual intention to follow through with the purchase? Will she or he conform to her or his spouse or partner's perceived norm?

The TPB builds on the TRA by introducing a person's control beliefs, or the presence of factors that can assist or hinder the performance of a behavior (Ajzen 2011). Perceived

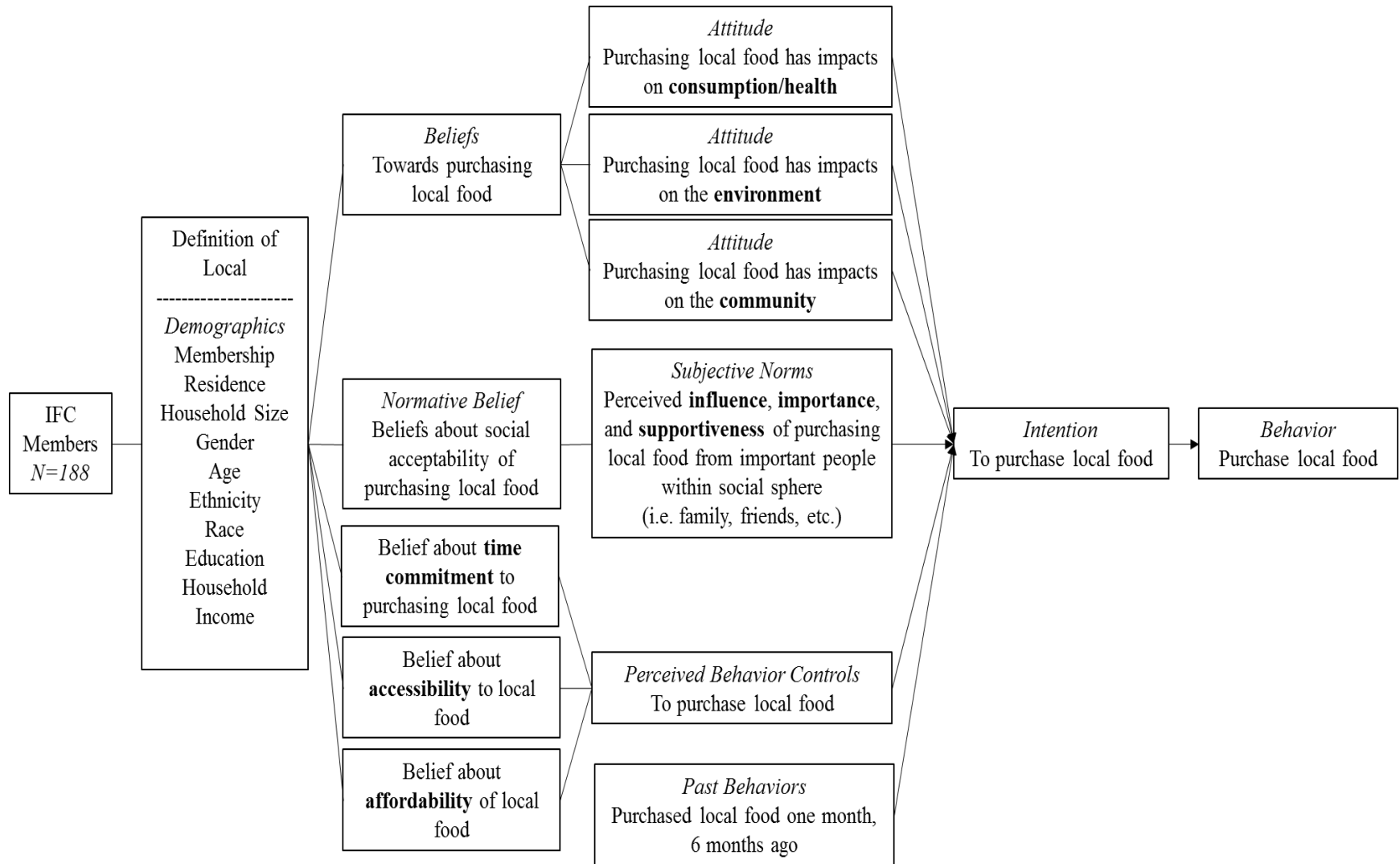


behavioral control is an individual's evaluation of her or his ability to engage in the intended behavior based on her or his perceived power, or perceived difficulty or ease, of performing the behavior (Ajzen 2011). For instance, how does a person perceive potential barriers to purchasing local food? Does she or he perceive her or his power to afford local food as positively or negatively affecting their intention to buy local food?

Perceived behavior of control differs from locus of control in that it can vary across situations and actions rather than remaining stable across situations and forms of action (Ajzen 1991). It is similar to Bandura's concept of perceived self-efficacy which “is concerned with judgments of how well one can execute courses of action required to deal with prospective situations” (Bandura 1982:122). The concept of self-efficacy differs from perceived behavior control in that self-efficacy is concerned with an individual's ability to perform behavior regardless of how much control over performing a behavior or how easy or difficult it is to perform the behavior (Hayden 2014). Figure 1 represents the basic TPB model. Figure 2 represents the conceptual model developed to research consumer intention to purchase locally grown or produced food.



**Figure 1.** *Theory of Planned Behavior Model*



**Figure 2.** Iowa Food Cooperative Member Intention to Purchase Local Food Conceptual Model

Ajzen (1991) specifies several conditions that need to be met in order to accurately predict perceived behavioral control and intentions to carry out a behavior. First, measures of intentions and perceived behavioral control must either correspond or be compatible with the intended behavior and must share the same context (Ajzen 1991). Second, intentions and perceived behavioral control must remain steady between the time of assessment and observation of the behavior (Ajzen 1991). Lastly, in order for greater predictive validity, the perceptions of behavioral control should realistically reflect actual control (Ajzen 1991). The more realistic perceptions of behavioral control is, the greater the prediction of behavior. As with all theories, several critiques of TPB are worth noting. First, the TPB assumes that an individual's behavior is performed in a rational manner characterized by linear decision-making processes (Edberg 2015). While rational in this context does not imply 'correctness', it does imply that decisions are made only through a step-by-step procedure. However, real world applications are messy and not every decision an individual makes goes through the motions outlined in the TPB. Consider emotion for example. Some decisions can be made based on 'gut' instincts or reactions to highly stressful or intense situations (Edberg 2015). Further, other non-linear processes may be affected and altered based on different cultural norms, social classes, genders, ages, or individual habits (Edberg 2015).

Secondly, individual constructs within the TPB model lack lucidity. Edberg (2015) discusses the issues with a person's perceived behavioral control and the "relationship to the actual control a person might have or his or her behavior" arguing that "it may or may not have much to do with a person's ability to exercise control, just their belief about it" (44). For example, what if an individual believes in destiny, fate, luck, or fortune? Any number of choices a person may have about their intention to carry out a behavior could be outside their

realm of control; instead leaving control to a higher being or power. Similarly, many factors contribute to a person's belief “about control that it appears difficult to really assess this construct” (Edberg 2015:44). What if someone has little confidence, self-esteem, or self-respect? Deficits such as these may take precedence over other social or physical factors a person may use to assess the ability to carry out a behavior effectively dismissing their control over the behavior. Further, social norms with which the person operates are different and may even be in competition with one another including “religious norms, peer norms, workplace norms, parental norms” among others (Edberg 2015:44).

Thirdly, the time between a person's intention and action is not often considered. What if a person is highly likely to buy locally grown or produced food because the farmers' market they frequent has a wide variety of products to offer during the typical growing season? Will that same person be likely to buy local food in winter? Or is her or his purchasing decision a free-for-all during those winter months? This fault can be easily amendable, however, due to the quantitative nature of TPB which allows the principle investigator the ability to specify items that address time durations or intervals. Discussion about time sensitivity, participant recruitment requirements, and measurements of intention to buy local is explained in detail in Chapter 3.

Despite these drawbacks, the TPB is very useful in highly contextual situations. Because members of the IFC already have attitudes and beliefs that shape their values and decisions to make local food purchases, the TPB can be used to study this deliberate and planned behavior with potential to change or alter that behavior, based on covariate predictors, for a more desirable outcome; i.e. increase purchases of local food to support sustainability.

## **Local Food**

### *Local Food System vs. Global Food System*

A food system is a complete structure of food production that can be broken down into various stages including harvesting, processing, and distribution (Heffernan 2008). Food system production, processing, and distribution comprise the way in which animals are raised and crops are grown, how the animal was slaughtered and the crops harvested, and the ways in which foods are prepared and packaged, transported, and sold in various outlets for consumer purchase (SustainableTable 2016).

Broadly speaking, food systems can be categorized in two ways: industrialized global food systems and local food systems. Industrialized and global food systems are often considered highly complex and are often rendered by the need of sophisticated farming equipment, inputs and fertilizers, vitamin fortified animal feed, and specialized, sometimes genetically modified, seeds (Heffernan 2008). Industrialized and global food systems are also associated with large, multinational corporations are considered concentrated both horizontally and vertically. Horizontal integration is characterized as the “expansion of a firm in the size of its operation in one stage of the food system such as [...] the slaughter of beef cattle” (Heffernan 2008:67-68). For example, the largest four commodity slaughtering firms, including Tyson Foods, Cargill, Swift & Company, and National Beef Packing, slaughter 84% of all beef cattle production (Heffernan 2008:67-68). Similarly, vertical integration is characterized as a corporation or firm controlling multiple stages in the food system, either through the purchase of other firms and facilities or alliances and mergers of multiple firms, both above or below in the food systems chain (Heffernan 2000). For instance, a joint venture between Monsanto, the leading producer of genetically modified seeds and

agrochemicals, Cargill, the largest producer and processor of livestock and livestock feed, and Kroger, the second-largest general retailer in the United States controls nearly all aspects of the food system (Heffernan 2008).

Alternatively, local food systems production, including harvesting, processing, and distribution, occur within a geographically localized area, rather than nationally or globally (SustainableTable 2016). Local food is raised and grown, slaughtered and harvested in close proximity to the homes of consumers and are transported shorter distances than in the global food system. Similarly, a ‘locavore’ is a person who prefers to eat, or strictly eats, food that has been grown or raised in her/his own home region or foodshed (DeLind 2010). Feenstra denotes six goals in which local food systems integrate production, processing, and distribution to enrich environmental, economic, and social health of a geographically localized area (2002:100):

- 1) Improved access by all community members to an adequate, nutritious diet; 2) a stable base of family farms that use more sustainable production practices; 3) marketing and processing practices that create more direct links between farmers and consumers; 4) food and agriculture-related businesses that create jobs and recirculate financial capital; 5) improved working and living conditions for farm and other food system labor, and 6) food and agriculture policies that promote local food production, processing, and consumption.

A commonly held perception of local food is that it can be analogous to other forms of alternative agriculture. Local food may be associated with certain attributes that distinguish from global food systems, which are highly industrial, including ecological sustainability, stewardship of environment, and organic or low-input growing methods (Schnell 2013). While in some instances this may be true, the discourse and purpose of local food systems can sometimes stray or blur in meaning from the six goals previously mentioned, effectively catching people in the ‘local trap.’ DeLind (2011) emphasizes caution

when speaking of local food systems and provides three trends in which the emphasis on ‘local’ strays away from its core principles. Concerning locavores, DeLind (2011) argues that the emphasis gets placed on, and privileges, the individual as consumers whose sole purpose is to vote with their dollar with the assumption that everyone is able to do so despite race, gender, and social class inequalities. She notes, “All locavores are not created equal. Nor is the eating of local food a social elixir” suggesting that many social, unequal differences are embedded within the local food movement as a whole (2011:277). Secondly, the Wal-Mart trend of ‘local’ is the selling of local food from within large multinational companies turning the very essence of local into a commodity to be capitalized on; “[pairing] rhetoric with some of the very conditions the [local] movement was designed to overcome” (DeLind 2011:277). Lastly, singling out Michael Pollan, well known author of books such as *In Defense of Food* and *The Omnivore’s Dilemma*, among many others, the ‘Pollan trend’ is characterized as experts and heroes, ascended by popularity to demigod status, managing and dictating how the local movement and its ‘soldiers’ should operate (DeLind 2011).

Winter (2003) stresses the tendency of ‘local’ to conflate with notions of food safety, nutrition and health, and sustainability in market systems, essentially hijacking the meaning of the word and using it for market gains. He speaks of a case study involving a farmer delivering milk marketed as ‘local’ in the locale of his community to help adjust to economic challenges and the deregulation of the milk market (30):

The farm is not organic nor are environmental and food safety considerations used to market the product. Indeed, the farm is intensively managed with high inputs of nitrate fertilizer and, in common with many west country dairy farms, a recent shift to forage maize with attendant problems of soil compaction and/or erosion.

Similarly, Born and Purcell (2006) highlight that local food can often mistakenly amalgamate with organic or that consumers may assume that local food systems are

“inherently more socially just than a national-scale or global-scale food system” (195).

However, with reference to Winter’s (2003) milk case study, local food systems can also be “just or unjust, sustainable or unsustainable, secure or insecure” (Born and Purcell 2006:195). Local food systems are highly contextual and must be considered on an individual basis. As Born and Purcell (2006) suggest, “they depend on the actors and agendas that are empowered by the particular social relations in a given food system” (196).

### *Types of Local Food System Outlets*

There are many ways in which local foods may be bought and sold. Among the most common are farmers’ markets, community supported agriculture (CSAs), U-Pick and farm stands, and growing produce in gardens. These five types of local food system outlets appear on the Iowa Food Cooperative Member Survey and will be defined and discussed next.

#### Farmers’ Markets

Farmers’ markets are communal spaces in which farmer-producers sell their grown, raised or value-added agricultural products directly to consumers (USDA 2016). Handcrafted and artisanal items may also be sold. Farmers’ markets may be either community owned or privately managed and can operate seasonally or year-round (SustainableTable 2016).

Typically, a farmer or producer pays a participatory or vendor stall fee and is expected to directly transport her or his own products to and from the market. According to the USDA 2015 Trends in U.S Local and Regional Food Systems report, there are as many as 8,268 farmers’ markets in the United States showing an increase in growth by 180% since 2006.

#### CSAs

A CSA, or Community Supported Agriculture, is a type of direct-to-consumer program in which a community of individuals purchase a ‘share’ of a farmer’s projected



harvest (SustainableTable 2016). This payment is made prior to the start of the growing season and aids in the funding of farm operations, farming equipment, farmer salary, and other costs (USDA 2016). In return, the consumer, or share-member, receives a portion of the farm's bounty, typically on a weekly basis, for the duration of the growing season. This local food system outlet is based on mutual risk and reward between share-member and farmer and transforms the farmland "either legally or spiritually" into "the community's farm" (USDA National Agricultural Library 2016).

#### U-Pick and Farm Stands

U-Pick, or Pick-Your-Own (PYO) style farms "invite the public onto the farm to harvest their own food" (Ernst and Woods 2014:1). Similar to evergreen tree farms that allow customers to pick their own tree during the holiday season, these farms invite customers come to onto the farm to pick their own food preferences. Typically, U-Pick farms feature produce that requires little skill to harvest "including tree fruits, berries, tomatoes, beans, and pumpkins" (Ernst and Woods 2014:1). Some U-Pick operations also have 'U-Cut' flowers as well. This type of market is particularly alluring to farmers because time and labor allotted to harvesting is reduced and produce that may be too fragile to transport, such as peaches, is more easily sold (MSU Natural Resources Enterprises 2016).

Alternatively, a farm stand is a small booth, stand, or stall, most commonly situated on a high traffic roadside, operated by a vendor that sells various products including produce, meat, dairy, eggs, and non-food items (UVM Extension 2014). Stalls and vendors may also be set up in other high-traffic locations such as college campuses, urban and suburban neighborhoods, or inner-city areas. Farm stands may help a farm operation gain exposure and

increase consumer traffic - especially if the farm is located off of a main road or highway (UVM 2014).

### Gardening

There are many different types of gardens used to grow food locally. Domestic, or home gardens, are private spaces used in residential areas to grow food. This type of garden allows local food consumers to only grow the types of fruit, vegetables, or herbs preferred. Alternatively, community or neighborhood gardens are gardens in public or private places, both urban and rural settings, where members of the community collectively gather to grow food. In some cases, allotments for garden space are distributed to gardeners for a fee. In others, community members agree to share the bounty equally (Urban Harvest 2016). School gardens are another type of food cultivation gaining in popularity. School gardens are treated as outdoor learning spaces where “school curricula are reinforced through planting, cultivating, and harvesting vegetables and fruits” (Urban Harvest 2016). Through this outlet, children are provided the opportunity to gain hands-on learning experiences. Other gardens commonly found in urban spaces include on rooftops or incorporated into landscaping (Urban Harvest 2016). As suggested by Ghosh (2014) using gardens as a means of local food production can reduce carbon emissions and carbon footprint by promoting a shorter food supply chain, can be a more efficient use of resources, can reduce food waste, as well as “[facilitate] better human-nature interactions for improved biodiversity” (34).

### *Local Food Defined*

The term 'local' is highly contextual with no firm definition. The meaning of 'local' is dependent on a consumer's perception of local and the meaning that is attributed to local (Darby et al. 2008). There are three prominent ways to define 'local' food. The first way is by

geographical perspective or proximity (Bosona and Gebresenbet 2011; Eriksen 2013; Trivette 2015). Trivette (2015) defines 'local by proximity' as food that is based around established boundaries, either through a distance between producer and farm, such as a 100, 200, or 500 mile radius or by geographical or political boundaries, such as the state of Iowa, counties within Iowa, or other pre-determined regions. Similarly, Bosona and Gebresenbet (2011) note, “from a geographical perspective, local food refers to food produced, retailed and consumed mainly in the specific area” (294). These boundaries are determined “typically by using interviews or survey techniques with food producers, consumers, or retailers” and vary greatly, and somewhat arbitrarily, in meaning (Trivette 2015:476). Consider the concept of 'food miles'. Defined as the total amount of miles traveled, and fuel consumed, from producer to consumer, food miles are a common assessment of locality and sustainability (Wynen and Vanzetti 2008). However, the effectiveness of this measure is contested due to the limited scope of number of miles alone. Author Steven Van Passel proposed a new, more comprehensive definition of 'food miles', known as 'enhanced food miles', that accounts for “the total external costs of food [transportation] including environmental, social, and economic external costs” - not just the simplicity of number of miles (2010:3). Another study by Wynen and Vanzetti (2008) suggests that food miles need to take into account externalities like road accidents, noise, and emissions. Other external costs can include harvest, storage, and packaging practices (Wynen and Vanzetti 2008).

The second proposed definition of local is 'local by relationship.' Food may possess cultural attributes that shape whether or not it is defined as local, “both in terms of how particular locations create a sense of place and meaning, and also in terms of the quality of the relationship between participants” (Trivette 2015:477). Likewise, Dunne et al. (2010)

describe local food systems as “complex networks of relationships between actors including producers, distributors, retailers and consumers grounded in a particular place” (46). This is in contrast to consumers shopping in conventional commodity markets, such as supermarkets or grocery stores, where there is a lack of ‘relational’ experience (Eriksen 2013). The direct-to-consumer or direct-to-retail style of local food provides the face-to-face interactions “counterpoint to large scale, industrialized systems of food production and distribution” where actors are largely disconnected from consumers (Eriksen 2013:52). Concerning measurability, it is much easier to empirically measure the distance between two entities (farmer to consumer, farmer to retailer) than it is to measure the quality of relationship between two entities (farmer and consumer, farmer and retailer) (Trivette 2015).

Going beyond both spatial proximity and quality of relationships, the meaning of 'local' food can also be defined by values. Values are highly symbolic and qualitative in nature. Consider Portman (2014:6):

Through their practices, local food networks aim to *resist* the status quo of industrial-scale, economically driven food production by creating systems that operate on alternative scales and are founded on alternative methods of production and consumption. Alternative systems are needed to the extent that the industrial systems in place are seen as allowing for exploitation and degradation, and as neglecting particular shared values such as ecological health, bodily health, and accountability to local communities.

Focusing specifically on the consumer perspective within food systems, Carroll and Fahy (2014) sought to measure how consumer perspectives shape the economy through food purchasing decisions which, ultimately, can shape society. Similar to Portman, they argue that local food is ‘value-laden’ and can promote “discourses of sustainable consumption [that] emphasize the powerful role of consumers to affect food system change; by flexing

their metaphorical muscle, they can exert the influence of ‘consumer demand’ to encourage a shortening, both spatially and socially, of food system chains” (Carroll and Fahy 2014:565).

Values can be intertwined with both proximity and relationships. For instance, food that is produced locally, from a proximity standpoint, is perceived to be more healthful, nutritious, and safe than food produced further away (MacMillian et al. 2012; Penney and Prior 2014; Yue and Tong 2009). Furthermore, Ackerman-Leist (2013), notes that as participators in the local food system and consumers of locally sourced food “we are coconsciously making the choice to build new economic relationships, rekindle traditional ways of doing business, support those in need, and even invent new technology-based social networks, that can, rather ironically, link neighbors” (10).

Focusing specifically in the context of this research, the Iowa Food Cooperative (2016) unifies all three of these definitions in their mission statement:

We’re local. We’re responsible. 85% [sic] of what you pay goes directly to our farmers. Order exactly what you want and know how your food was produced (and who produced it). Our members say our prices are fair and the food is fresher, tastier, and healthier. Choose to support producers who use practices you believe in and protect Iowa’s air, water, soil and wildlife.

Trivette (2015) also considers other influences that contribute to the definition of local including the actual size of the farm and scale of operation, the type or specialization of the operation, for example vegetable/fruit farm versus a meat or dairy operation, and roles within the food system. To borrow from Ackerman-Leist (2013), “despite the difficulty we have in defining the radius of 'local', we are clear on one thing: the nucleus for local foods is ultimately the table” (3). To better understand how consumers of local food systems define local I propose my first research question: How do consumers define 'local' food?

## **Applying the Theory of Planned Behavior to Food Research**

### *TPB and Alternative Agriculture*

The Theory of Planned Behavior (TPB) has been widely used in food studies that focus on attitudes, beliefs, and behaviors in alternative agriculture practices and markets. Alternative agriculture, a broad, collective term, “is not a single system of farming practices. It includes a spectrum of farming systems, ranging from organic systems that attempt to use no purchased synthetic chemical inputs, to those involving the prudent use of pesticides or antibiotics to control specific pests or diseases” (National Research Council 1989:4). From a consumer’s perspective, participating in alternative agriculture markets, including organic, minimally-processed, and natural is a growing trend. Interestingly, research on the intentions of consumers to purchase locally grown food often gets compared or contrasted with other types of alternative agriculture or conventional agriculture (Burchardi et al. 2005; Meas et al. 2014; Onozaka and McFadden 2011; Yue and Tong 2009).

Consider research by Arvola et al. (2008) that focused on affective attitudes and moral attitudes that shape a consumer's intention to purchase organically grown food. In particular, Arvola et al. focused on positive attitudes and self-satisfaction when considering purchases of fresh organic apples and organic ready-to-cook pizza. In their quantitative study, data was collected from a sample of consumers from three different countries including Italy, Finland, and the United Kingdom. The researchers incorporated measurements of exclusively positive moral attitudes including statements like, “Buying organic apples instead of conventional apples would feel like making a personal contribution to something better” and “Make me feel like a better person” (Arvola et al. 2008:446). Overall, Arvola et al. found that affective attitudes and positive moral attitudes significantly

influenced a consumer's intention to purchase organically produced foods. In particular, their model, which excluded perceived behavioral controls, was better at explaining the intention to purchase the fresh, organic apples over the processed, organic ready-to-cook pizza, potentially indicating that consumers are more morally cognizant of fresh produce and the implications to purchasing organic rather than the conventional alternative. While this particular research does not include food grown locally, it does contain attributes of organic food that may be considered exchangeable between the two.

In another study concerning food consumption, this time at a farmers' market, researchers Middleton and Smith (2011) specifically focused on the attitudes and intentions of senior citizens, aged 60 and older, to consume more local fruits and vegetables. Again, attitudes concerning fruit and vegetable consumption was the strongest predictor of intentions to purchase these items. Subjective norms, including opinions of friends and family on what the respondents ought to do, as well as perceived behavior control, also played a significant role in influencing intentions. However, concerning the role of alternative agriculture, with emphasis on supporting locally grown and produced food, a portion of the sample was part of the Senior Farmers' Market Nutrition Program (SFMNP), making it unclear whether the sample of senior citizens were supporting local food systems or simply participating due to the perceived benefits of the SFMNP program.

In a 2007 study, Vermeir and Verbeke investigated perceived consumer effectiveness (PCE), “or the extent to which the consumer believes that his [or her] personal efforts can contribute to the solution of a problem”, as well as confidence when deciding to purchase foods that are produced or grown in a sustainable manner such as organically or locally. (544). Results indicated that consumers’ attitudes were the highest predictor of behavioral

intentions to purchase sustainable food, regardless of the sustainability claim of the product or personal values. However, consumer confidence also influenced intention. Those who were less confident in the product's claim gave more weight to their own personal attitudes and PCE beliefs while those who were confident in sustainability claims gave more weight to social norms. While this study includes blanket statements about sustainability, with reference to locally grown food, 'local' was not defined and did not play a prominent role.

More research is needed from the consumer perspective to better understand the beliefs and attitudes consumers have about locally grown food in order to better understand the meaning or definition of 'local' food. On an applied level, knowing the influences of consumer intention can help the IFC better understand and serve its members as well as more efficiently recruit prospective members. To address this gap in the knowledge I propose my second research question: What consumer beliefs and attitudes influence intention to purchase locally grown or produced food?

### *Gender Dimension*

There are many studies documenting gender differences in food consumption. For example, research by Blanck et al. (2008) indicated that men are less likely than women to consume fruits and vegetables. Similarly, those who consume fruits and vegetables and maintain healthy lifestyles, including limiting alcohol consumption and getting enough exercise, tend to be females who are older in age and more educated (Divine and Lepisto 2005). Research also suggests women show more willingness to pay for local food based on moral, ethical, and altruistic social dimensions (Gracia et al. 2012).

When investigating consumer habits on a national level, women spend, on average, 0.44 hours per day engaging in consumer goods purchases while men spend an average of



0.27 hours in the same activity (U.S. Bureau of Labor Statistics 2015). Further, according to the 2015 U.S. Grocery Shopping Trends published by the Food Marketing Institute, 57% of females and 43% of males identified themselves as “responsible for at least 50% or more of the grocery shopping in their household.” Women also spend more hours than men engaged in food preparation and food cleanup; women spend an average of 1.19 hours engaged in these activities while men spend an average of 0.79 hours engaged in these activities (U.S. Bureau of Labor Statistics 2015).

Though nation-wide samples are not readily available, when considering participation in alternative food networks, a greater proportion of women are responsible for food-related activities including planning meals, shopping for food, and preparing and cooking food (Som Castellano 2014). Similarly, Allen and Sachs (2007) emphasize a female’s role within the household as being primarily responsible for food provisioning rather than shared equally with males. They note, “Despite the increasing entry of women into the labor force, women spend at least twice as much time as men doing domestic chores, an imbalance particularly marked in food labor. Even when men share more domestic labor in the home, they are only marginally involved with food provisioning activities (Allen and Sachs 2007:10). Allen and Sachs (2007) also highlight that women are leading in the way of “ethical buying, supporting fair trade, humane, organic, and local food. Some of these efforts are individual acts by consumers and business owners, others are collective actions, and some combine individual and collective actions” (13).

Narrowing gender dimensions specifically within alternative agriculture networks, men and women have been shown to differ in attitudes and beliefs. In a study about urban consumer perceptions of local food, researchers Penney and Prior (2014) conducted a focus

group with 29 participants. Twenty-three of the participants were female “due to females tending to be the chief buyers for food in households” (581). Participants cited various barriers to purchasing local food, such as higher price point than conventional and inconvenience of buying local food from multiple outlets (Penney and Prior 2014). Participants also noted positive perceptions of local food including attributing local to being fresher, healthier, and better looking (Penney and Prior 2014). On the dimension of gender, Penney and Prior (2014) specifically noted that the three male participants “expressed their opinion that they did not always perceive ‘local’ as better, particularly when other factors such as environmental impact, supporting poor economies and farming subsidies were taken into account” (586). Though they suggest that purchasers of local food tend to be older, white, educated females, Penney and Prior (2014) also recommend that for further research a more representative sample of males be obtained.

DeLind and Ferguson (1999) also conducted focus groups as part of their research on gender differences within local food systems - specifically with CSA membership. Unlike the previous study, participants cited similar reasons for joining a CSA including “shared concern for fresh vegetables, the food system, and the environment” (DeLind and Ferguson 1999:197). However, men indicated obtaining a CSA membership more for personal growth and wellbeing while women were more likely to join to establish relationships and community building (DeLind and Ferguson 1999). Further, DeLind and Ferguson (1999) noted that “men's visions for the organization centered [on] efficiency and homogeneity or purpose, while women valued a holistic approach to encompassing greater diversity” (DeLind and Ferguson 1999:197). While both of these studies aimed to investigate differences between genders, there is a gap in the knowledge specifically on local food

consumption and the assessment of attitudes, beliefs, and intentions of consumers to buy local using a social-psychological framework such as the TPB.

For instance, in a TPB study by Emanuel et al. (2012), gendered differences in organically grown fruit and vegetable intake were apparent. In particular, women reported more favorable beliefs towards consuming fruits and vegetables than men. Further, specific pressures to follow social norms and perceived behavior control in relation to confidence were also significantly higher for females than males, although overall perceived norms did not have a significant impact on fruit and vegetable consumption.

In another study, also concerning organically grown and produced food, Irianto (2015) found women to be significantly more likely than men to purchase organically grown and produced food. In addition, women were more likely to have beliefs and attitudes concerned not only for their own personal health but also for environmental health with consideration “for the next generation[']s life, including discouraging the excessive environmental exploitation, and supporting environmental preservation” (Irianto 2015:24).

Furthermore, Robinson and Smith (2002) investigated consumer food preferences for sustainably grown and produced food. Here, ‘sustainable’ includes food that has been grown or produced both organically and/or locally. They found females to have more supportive attitudes toward sustainably grown food than males.

Literature concerning gender dimensions of consumer attitudes, beliefs, and behaviors varies widely; men and women fulfill different roles based on preparation or labor, purchasing responsibility, and held beliefs shaped by alternative agriculture networks. Even so, by specifically studying the gender dimension of local food systems, a better understanding of how men and women operate within the system as consumers may be

found. To investigate this I propose research question three: Are there differences in beliefs or attitudes between males and females that influence their decision to buy local?

### **Present Investigation**

The purpose of this study is to better understand how attitudes and beliefs of consumers influence their intention to purchase locally grown or produced food in preference to non-local food. As participants of local food systems I further seek to identify how consumers perceive and define ‘local.’ Additionally, I seek to identify differences in the ways women and men perceive local and how the dimension of gender may play into held beliefs, attitudes, and behaviors. In the following chapters I will examine the effects of salient beliefs, attitudes, and behavioral intentions from sample of members from the Iowa Food Cooperative. I will then explore how these beliefs, attitudes, and behavioral intentions are influential on dimensions of gender, local food systems discourse, and marketing strategies.

## **CHAPTER 3**

### **DATA AND METHODOLOGY**

The objective of this research is to understand the social-psychological motivations that shape a consumer's intention to purchase locally grown or produced food. The intent of this research objective, as discussed in Chapter 1, includes the following research questions:

- How do consumers define 'local' food?
- What consumer beliefs or attitudes influence intention to purchase locally grown or produced food?
- Are there differences in beliefs or attitudes between males and females that influence their decision to buy local?

This research employed an online survey to members of the Iowa Food Cooperative to gain an understanding of consumer beliefs and attitudes about locally grown and produced food and how those beliefs and attitudes shape intention to buy local. In this chapter I will discuss survey design, sampling procedure and data collection, analytical procedures, and limitations of this study.

#### **Survey Design**

Following guidelines suggested by Ajzen (2006) on Theory of Planned Behavior questionnaire construction, the instrument for this study was developed based on review of relevant literature and knowledge about local food systems, local food consumption and alternative agriculture. A survey instrument was developed to collect information from members of the Iowa Food Cooperative concerning their local food purchasing habits (Appendix A). The instrument asked members to respond to questions regarding their beliefs, attitudes, and behaviors related to consuming locally grown and produced food. Items were

inspired, in part, by several previous studies with surveys that applied the TPB model to alternative agriculture topics (Arvola et al. 2008; Irianto 2015; Middleton and Smith 2011; and Robinson and Smith 2002).

Three items measured dimensions of ‘local.’ One item measured broad beliefs about local food concerning health/quality, environment, and community themes. Three items measured subjective norms (SN). Three items measured perceived behavioral controls. Four items measured intentions to purchase local food; both past and future. Two items measured participation in IFC distribution cycles and amount spent each distribution cycle, respectively. Three items measured various attitudes about local food within three themes: health, environmental impact, and community impact. Nine demographic items and one text-entry item for additional comments appeared at the end of the survey. In total, the survey instrument contained 29 items. Components of the survey will be discussed in greater detail below.

#### *Intent and Past Behavior*

The main outcome variable used in this research is item 14: “In the next six months or so, how likely is it that you will purchase locally grown or produced food?” Participants were also asked to rate the likelihood of purchasing locally grown or produced food within the next month. Both of these items use a 5-point Likert scale (1=Very Unlikely to 5=Very Likely).

The application of TPB is an acceptable way to measure intent with reasonable internal power as explained by Ajzen (2011:76):

Although the behavioral, normative, and control beliefs people hold may sometimes be inaccurate, unfounded, or biased, their attitudes, subjective norms, and perceptions of behavioral control are thought to follow spontaneously and reasonably from these

beliefs, produce a corresponding behavioral intention, and ultimately result in behavior that is consistent with the overall tenor of the beliefs.

Further, TPB is highly contextual and often works best if specific protocols are followed. Simons-Morton et al. (2012) suggest four criteria to follow when measuring intention using TPB: “1) time frame for the performance of the behavior; 2) an exact description of the action comprising the behavior; 3) the desired outcome (target) of the behavior; and 4) the context of the behavior” (111). I consider these four requirements to ensure greatest accuracy when measuring intent of IFC members to purchase (description and context) locally grown or produced food (target) within the next six months (time).

Additionally, as Ajzen (2011) suggests, the TPB does not investigate the origin of a person's behavioral beliefs, which, in turn, may positively or negatively represent the motivational factors of intent by way of ‘background variables’ or variables that have indirect influence on intention. Background variables may include a multitude of demographic identifiers such as gender, age or socioeconomic status as well as other factors like personality or intelligence (Ajzen 2011). To ensure accurate predictor variables of intent, content-specific theories and thorough literature analysis are paramount (Ajzen 2011).

In this research, two items measured participants’ past behavior as a background variable to provide more context to their intention to purchase locally grown or produced food. Items 11 and 12 of the survey asked participants how often they had purchased locally grown or produced food in the past month (1=Never; 2=Once; 3=2-3 times; 4=Once a week; 5=2-3 times per week; 6=Daily or almost daily; 7=Other (Please specify)) and past six months (1=Never; 2=Less than 7 days per month; 3=Few (1-2) weeks per month; 4=Several (3) weeks per month; 5=Many (4+) weeks per month; 6=Other (Please specify)).

### *Local*

The Iowa Food Cooperative specifies in the guidelines for producers that food must be grown and raised in Iowa. Also, value-added merchandise, like fruit spread or handcrafted soap, must be made with ingredients grown or raised in Iowa. As such, the definition of ‘local’ used throughout this research is food that has been grown, raised, or produced in Iowa.

Within the context of this research, I reason that specific focus on members of a cooperative who are already participating in a local food system and who have preconceived beliefs and attitudes about what ‘local’ is may create a better understanding of how consumers currently operate within the system and, perhaps, how to alter or shape their understanding of ‘local’ food discourses. From this standpoint, data collected can be used not only for sociological research but for marketing purposes. Throughout the development of this survey instrument, collaboration between myself and IFC’s general manager, Gary Huber, took place to both fulfill my own needs as a graduate student and to gain a better understanding of IFC membership and purchasing activity.

Items 1-3 focused on participants’ perceptions of local food. Item 1 asked: “Local food means different things to different people. How do you define ‘local’ food? Use the ‘other’ space to qualify, elaborate, or give a different answer” (1=Food produced in my county; 2=Food produced in my county and neighboring counties; 3=Food produced 100 miles or less from my home; 4=Food produced in Iowa; 5=Other). This is the most pertinent item to help answer the research question “how do consumers define ‘local’ food?” given the myriad ways of defining ‘local.’



Participants were also asked to indicate what percent of their local food purchases come from different food markets including conventional supermarkets or grocery stores and a variety of local food systems markets including the IFC, farmers' markets, natural foods stores, CSAs, U-pick, roadside, or on-farm stands as well as an option to enter other text-based answers. Lastly, participants were asked to indicate who in the household makes the majority of local food purchases.

### *Beliefs*

According to TPB, beliefs are distinguished from attitudes in that they are broader, more expansive states of mind and are shaped and defined by individual attitudes. Item 4 states: "I believe that food grown or produced locally is better \_\_\_\_\_ than food from non-local sources." Using a 5-point Likert scale, participants were asked to rate their level of agreement or disagreement (1=Strongly Disagree to 5=Strongly Agree) in the following broad areas: health; environment; quality; community economic wellbeing; and community social-wellbeing.

### *Attitudes*

Attitudes are positive or negative self-evaluations of performing a behavior. Using a 5-point Likert scale, participants were asked to rate their level of agreement or disagreement (1=Strongly Disagree to 5=Strongly Agree) with statements about consumption, environmental/sustainable impact, and community impact as it pertains to locally grown or produced food. Items 17-19 included attributes commonly associated with local, organic, or other alternative forms of agriculture as suggested by common knowledge and review of relevant literature. For example, "Better tasting", "Production practices that are better for the environment", and "More money stays in my community" for consumption,

environmental/sustainable impact, and community impact, respectively. Each item also allowed for one additional text-entry answer.

### *Subjective Norms*

Subjective norms are an individual's own perception of a particular behavior and the strength of motivation to comply with relevant others' beliefs. Items 5-7 asked participants to rate how influential their peers are, how important their peers may find the decision to purchase local food to be, and how supportive they think their peers might be of their decision to purchase local food. Peers included partner or spouse, child(ren), parent(s), friend(s), neighbor(s), colleagues/coworkers, healthcare provider(s) as well as the option for one additional text-entry answer. Each item featured a 5-point Likert scale reflecting appropriate context; (1=Not at all Influential to 5= Extremely Influential), (1= Not at all Important to 5=Extremely Important) and (1= Not at all Supportive to 5=Extremely Supportive). Participants were also given the option to select "Not Applicable."

### *Perceived Behavioral Control*

A perceived behavioral control is an individual's evaluation of their ability to engage in the intended behavior based on the perceived difficulty or ease of performing the behavior. Items 8-10 asked participants to rate their perceived ease or difficulty in finding enough time to shop for local food, their ability to access local food, and their ability to afford local food. All three items featured a 5-point Likert scale (1= Strongly Disagree to 5=Strongly Agree).

### *Purchase Frequency and Dollar Amount Spent*

Distribution of products purchased at the IFC operates biweekly. Members make their purchase online and then retrieve their items at their assigned pick-up location. Item 15 asked participants how many biweekly distribution cycles they participated in between November

2014 and October 2015 (1=1-4 cycles; 2=5-8 cycles; 3=9-12 cycles; 4=13-17 cycles; 5=18-23 cycles). Item 16 asked participants approximately how much money they typically spend each distribution cycle (1=Less than \$30; 2=\$30 to \$50; 3=\$51 to \$70; 4=\$71 to \$99; 5=\$100+). As previously mentioned, background variables such as these may have an indirect influence on intention to purchase locally grown or produced food and are valuable at helping create a more accurate understanding of behavior.

### *Demographics*

Members were also asked to share demographic information including how long they have been a member of the Iowa Food Cooperative, how long they have lived in Iowa, their total household size, gender, age, race/ethnicity, highest level of education completed, and total annual household income. One open-ended item appeared at the end of the survey for additional comments/questions/suggestions.

The survey instrument was delivered using Qualtrics Online Survey Tool. Prior to formal launch, the survey was piloted to test for clarity, coherence, and logic. Pilot subjects included persons with knowledge and expertise in quantitative research as well as persons with knowledge and expertise in food/agriculture. The pilot was sent to a total of 27 people including the general manager of the IFC, coworkers, thesis committee members, and family members. Pilot testers were asked to complete the survey online and to provide feedback. Feedback was used to revise survey items for clarity. For example, concerning SN items, a younger-aged pilot tester suggested adding 'my parent(s)' as an answer option indicating that his parents have an influence on his intention to purchase locally grown or produced food.

### **Sampling and Data Collection**

Participants in this research are from a non-random purposive sample. Though non-random, the IFC is an appropriate approximation of likely local foods consumers. According to the 2010 USDA Food Environment Atlas, which includes county-level socioeconomic statistics for all states, the average racial makeup across all Iowa counties is 93.0% White, 1.04% Black, 0.84% Asian, 0.26% American Indian or Alaska Native, and 0.04% Hawaiian or Pacific Islander. Nearly 3.84% is Hispanic. Further, 18.0% are ages 65 and older while 23.6% are ages 18 and younger. Median household income is \$46,475. Inconveniently, this dataset does not feature gender statistics nor does it specifically identify consumer trends in local food systems.

However, the 2015 U.S. Grocery Shopping Trends published by the Food Marketing Institute indicated 57.0% of females and 43.0% of males identified as “Responsible for at least 50% or more of the grocery shopping in their household” (N=2,265) (5). In the same report, when asked “What health claims do you look for on the package when purchasing a food product?” 26.0% indicated ‘Non-GMO’, 26.0% indicated ‘Natural’ and 20.0% indicated ‘Certified organic’; these attributes are often associated with locally grown or produced food (FMI 2015:17). Participants were allowed to choose multiple items including those that do not apply to this research.

Similarly, the 2015 US Bureau of Labor Statistics American Time Use Survey (ATUS), featuring time spent in various activities and percent of population engaging in various activities, indicated that women spend, on average, 0.44 hours per day making consumer goods purchases versus men who spend 0.27 hours per day engaged in the same activity. This averages to 42.4% of women engaging in consumer goods purchases per day as

opposed to men at 34.7%. Further, the average hours per day engaged in food preparation and cleanup is 0.82 for women and 0.34 for men. The average percentage of women engaged in food preparation and cleanup per day is 68.9%. For men, the average percent engaged in food preparation and cleanup per day is 42.8%. While these indicators do not specifically focus on activity within local food system they are still informative indicators of consumer trends.

This study was granted Institutional Review Board approval by the Office of Responsible Research at Iowa State University (protocol 15-465). There were no foreseeable risks or discomforts to participants nor was a token of appreciation offered upon completion.

The data used for this study were compiled from a list of active members of the Iowa Food Cooperative provided by the IFC's General Manager. 'Active' status is defined as having made at least one purchase on the online market between November 2014 and October 2015. Participants also had to be a full member for at least six months prior to November 2014 so as to ensure members were committed to the cooperative rather than participating via a six month trial period offered by the IFC.

Participants under the age of 18 are considered minors and have parental guidance or legal guardian(s) which excluded them from this study. Participants under the age of 18 are not as likely to be members of the Iowa Food Cooperative nor are they as likely to make purchasing decisions in the household. After opening the survey link via email, participants were required to accept the informed consent agreement before moving on to the survey itself (Appendix A).

On November 30th, 2015, three days prior to survey launch, a survey pre-invitation notice was distributed to qualifying members of the IFC notifying them about the upcoming

survey (Appendix B). The formal invitation and survey was distributed to members on December 3rd, 2015 via Qualtrics Mailer (Appendix C). Two reminder e-mails containing survey links were also sent during the duration of the study via Qualtrics Mailer on December 10<sup>th</sup> and 17<sup>th</sup>, respectively (Appendices D and E). One final email reminder was sent to members from IFC's General Manager, Gary Huber, on December 22<sup>nd</sup> (Appendix F).

The data were collected via online using Qualtrics Mailer between December 3<sup>rd</sup> and December 31<sup>st</sup> - a duration of four weeks. From a total of 471 surveys sent, two emailed surveys bounced back, four participants opted out, 14 participants partially completed the survey, and 188 participants fully completed the survey. Eliminating the bounced, opted-out, and partial responses resulted in a final response rate of 42%.

### **Analytic Procedures**

A bivariate theoretical framework was used to test the effects of independent predictor variables on participants' intention to purchase locally grown or produced food within the next six months. Prior to analysis, Maximum Likelihood (ML) imputation was used to handle missing data. Characterized as a modern missing data technique, ML is considered superior to traditional missing data techniques due to ML yields creating unbiased estimates when working with missing completely at random (MCAR) and missing at random (MAR) data (Baraldi and Enders 2009). Also, for a given dataset, ML imputation produces the same results every time unlike its close competitor, multiple imputation, which produces different estimates, standard errors, and test statistics each time, potentially leading researchers to varying conclusions about the data (Allison 2012). ML imputation is also considered more powerful than traditional missing data techniques because no data are

removed; “rather than filling in the missing values, [ML] uses all of the available data – complete and incomplete – to identify the parameter values that have the highest probability of producing the sample data” (Baraldi and Enders 2009:18). ML imputation is a commonly used formula with estimates that “are derived using an iterative method that returns the values for the population parameters that 'best' explain the observe data” (O'Connell 2006:13).

The ML imputation procedure used in this research was conducted on all numerical dataset cells; cells that allowed for text-based entry were excluded. Markoc Chain Monte Cralo (MCMC) full-data imputation was used with 200 burn-in iterations before the first imputation and 100 iterations between imputation (Soley-Bori 2013). Out of a total of 15,980 individual case and independent variable cells, 156 cells with missing data were imputed. Post ML imputation, data analysis included exploratory factor analysis and binary regression techniques which will be discussed next.

### *Exploratory Factor Analysis*

Exploratory factor analysis is a variable reduction technique that identifies a number of latent constructs, or dimensions, as well as the underlying factor structure of a given set of variables (Tabachnick and Fidell 2013). Due to the large number of independent variables in the dataset, exploratory factor analysis was first applied as a data reduction method, reducing a large set of variables into a smaller set of variables to be included in binary regression models.

Factor analysis allows for a procedure in which the axes of the chosen factors in a factor solution may be turned in the multidimensional variable space. This is known as rotation. For this research verimax rotation was used. Varimax rotation is considered the

most common type of rotation technique used in behavioral and social science research. With varimax rotation, the objective is to maximize the variance of factor loadings by making high loadings higher and low loadings lower for ease of interpretability of each factor (Tabachnick and Fidell 2013).

Assumptions of EFA were examined prior to factor extraction. Both the application of the TPB as well as a thorough, informative literature review was conducted prior to data collection. These assumptions ensure that the names

$$x = \Lambda_x \xi + \delta$$

and interpretations of factors have face validity. Sample

**Figure 3. EFA Model Equation**

size is adequate at N=188. This analysis uses 5-point

Likert attitudinal scales which produce ordinal data. Therefore, the assumption of continuous data is not met. However, ordinal categories can still be assigned in exploratory factor analysis as long as the original metric is preserved. Further, concerning linearity, none of the variables meet this assumption due to the nature of ordinal data. When using exploratory factor analysis, normality is not a required condition. Homoscedasticity violations are considered non-problematic when using EFA and are also usually not a required condition. Figure 3 represents the basic equation for EFA where  $X$  is the observed independent variable,  $\Lambda_x$  is the regression coefficient,  $\xi$  is the latent variable, and  $\delta$  is the latent residual.

Three separate exploratory factor analyses with varimax rotation were used to determine factor structures of specific attitudes concerning consumption, community, and environment as they apply to locally grown and produced food. Subjective norms, including peer influence, importance, and supportiveness perceived of purchasing local food also consists of three separate exploratory factor analyses for a total of six separate factor analysis solutions.



### *Binary Logistic Regression*

Characteristically, ordinary least squares (OLS) regression only assumes that a dependent variable in a dataset is continuous and normally distributed. However, not all data can be modeled around continuous dependent variables. Instead, when a dependent variable is discrete or dichotomous, with categories, and not normally distributed, discrete choice models may be used (DeMaris 2004). Logistic regression techniques use maximum likelihood estimation (MLE) allowing for less restrictive analysis of data. Therefore, normality is not assumed for both dependent and independent variables (Tabachnick and Fidell 2013). Further, linearity between the dependent variable and independent variables, homoscedasticity and normal errors are not assumed (Tabachnick and Fidell 2013). Correct model specification is based on previous research and theory. It is assumed that all relevant independent variables are included and all irrelevant ones excluded. Moreover, testing for independent errors is not feasible in logistic regression (Tabachnick and Fidell 2013). However, linearity between logits and independent variables is required. Linearity between the log odds and independent variables was conducted using a log crossed-products test. This assumption was not met in full. The following five independent predictor variable were significant suggesting non-linearity with log odds: 1) Belief – environment; SN – others influence; SN – parent(s) and kid(s) influence; PBC – cost; and Past – six months. A sample size of 188 is adequate for logistic analysis at the five cases per independent variable threshold. Figure 4 represents the equation for logistic regression where  $L$  is logit function (logistic regression overall model),  $\ln$  is the natural logarithm,  $P$  is the predictor,  $E$  is the expected probability,  $i$  is the current case,  $\beta_0$  is the intercept, and  $\beta_{Belief} \dots \beta_{Demo}$  are the regression coefficients in the TPB overall model.

$$L_i = \ln \left( \frac{P_i = E(y_i = 1|Z_i)}{1 - P_i = 1 - E(y_i = 1|Z_i)} \right) = \beta_0 + \beta_{Belief} + \beta_{Att} + \beta_{SN} + \beta_{PBC} + \beta_{Purch} + \beta_{Past} + \beta_{Demo}$$

**Figure 4.** *Logistic Regression Overall Model Equation*

As previously mentioned, the IFC sets parameters that producers must abide by if they wish to sell to members (e.g., disclosing the use of hormones or antibiotics in livestock, pesticide or herbicide on crops, etc.). This transparency, in turn, brings reassurance to members who shop at the cooperative ensuring that their purchases adhere to their personal beliefs or attitudes about local food. When asked, “In the next six months or so, how likely is it that you will purchase locally grown or produced food?” participants indicated either ‘very likely’ (87.2%) or ‘likely’ (11.2%) on a 5-point Likert. Due to the nature of the sample, with 98.4% of member participants indicating their intent to purchase local food in the future, binary regression with dichotomized categories was determined the best choice for this analysis (All other answers=0, Very likely=1). The binary regression overall model included 35 predictor variables consisting of four belief variables, six attitude (EFA) variables, nine subjective norm (EFA) variables, three perceived behavioral control variables, two purchasing behavior variables, two past behavior variables, and nine demographic variables.

An overwhelming majority of participants indicated ‘female’ as their gender identity (86.0%), meaning a binary regression analysis with a dichotomous gender dependent variable was not empirically feasible. Instead, intention to purchase locally grown or produced food within the next six months remained the dependent variable with the dummy predictor variable for gender partitioned by gender identity (other=0, female=1) effectively reducing analysis to females only. This was done using a split-case function prior to conducting the

binary regression analysis. This model included all variables featured in the overall model except for “Members who identify as ‘female’” for a total of 34 variables.

The binary regression residence model partitioned participants who indicated living in Iowa for 31 or more years from the total sample size used in the overall model which included all years of Iowa residency. This was done using a split-case function prior to conducting the binary regression analysis (Under 1 year to 10 years=0, 31+ years=1). The binary regression residence model included all variables featured in the overall model except for “Duration of time lived in Iowa” for a total of 34 variables.

### **Limitations**

There are several limitations with this research that are worth noting. First, members of the IFC are considered a unique sample. They were purposefully chosen, rather than randomly chosen, meaning significant findings of this research cannot be generalized to the greater population. However, their attitudes and beliefs can be useful when studying the highly contextual topic of local food if done so with transparency, thoughtfulness, and consideration to the detail that this particular research was conducted in a Midwestern state.

Secondly, participation in this study was voluntary and may have led to overrepresentation of strong beliefs and attitudes. Reporting of results should be conducted with caution. Lastly, proponents of - and participation in - local food systems and local food systems discourse are disproportionately white and middle-class and, more arguably, female (Divine and Lepisto 2005; Gracia et al. 2012; Penney and Prior 2014). The same holds for the sample of members who participated in the Iowa Food Cooperative Member Survey. A randomly selected state or nationwide sample could be more representative of the general

population. Alternatively, specifically targeting underrepresented groups, such as low income or people of color, could provide valuable insight to the challenges of participating in local food systems.

## **CHAPTER 4**

### **RESULTS**

This research implemented a self-reporting online questionnaire inspired by Ajzen's (2006) Theory of Planned Behavior (TPB) model to evaluate Iowa Food Cooperative (IFC) members' salient beliefs, attitudes, subjective norms, perceived behavioral controls, past behaviors, purchasing behaviors, and intentions to purchase locally grown or produced food. This chapter will begin with a description of the demographic distribution of the sample. Following demographics, I will present how participants defined and interpreted the meaning of 'local' as well as the results of a series of statistical functions used to determine IFC members' intention to purchase locally grown or produced food within the next six months.

#### **Description of the Sample**

As indicated in Chapter 3, Maximum Likelihood (ML) imputation was used to handle missing data. With a total imputed sample size of 188 participants, 86.0% of respondents identified as female, 12.9% identified as male, and 1.1% indicated a non-binary gender identity. Approximately four percent of respondents were ages 18 to 29, 40.4% were ages 30 to 49, 50.0% were ages 50 to 69, and 7.3% indicated an age of 70+ years. An overwhelming majority of respondents (97.9%) indicated a white racial identity. One percent of respondents indicated Hispanic ethnicity. Nearly three percent of respondents indicated a high school or equivalent level of education, 13.3% had some college, nine percent had an associate's degree, 37.8% had a bachelor's degree, and 36.7% had a doctoral or specialized degree. Approximately four percent of respondents earned less than \$25,000 annually, nearly ten percent earned \$25,000 to \$49,000, 21.8% earned \$50,000 to \$74,000, 20.7% earned \$75,000 to \$99,000, 26.6% earned \$100,000 to

\$149,000, and 10.1% earned \$150,000 to \$200,000. Just over three percent of participants earned \$201,000 to \$250,000 and close to four percent indicated an annual income of \$251,000 or greater. Nine percent of respondents indicated having lived in Iowa between one and ten years, 12.2% indicated 11 to 20 years, 11.2% indicated 21 to 30 years, and 67.6% of participants indicated having lived in Iowa for 31+ years. Table 1 presents the full distribution of demographic variables.

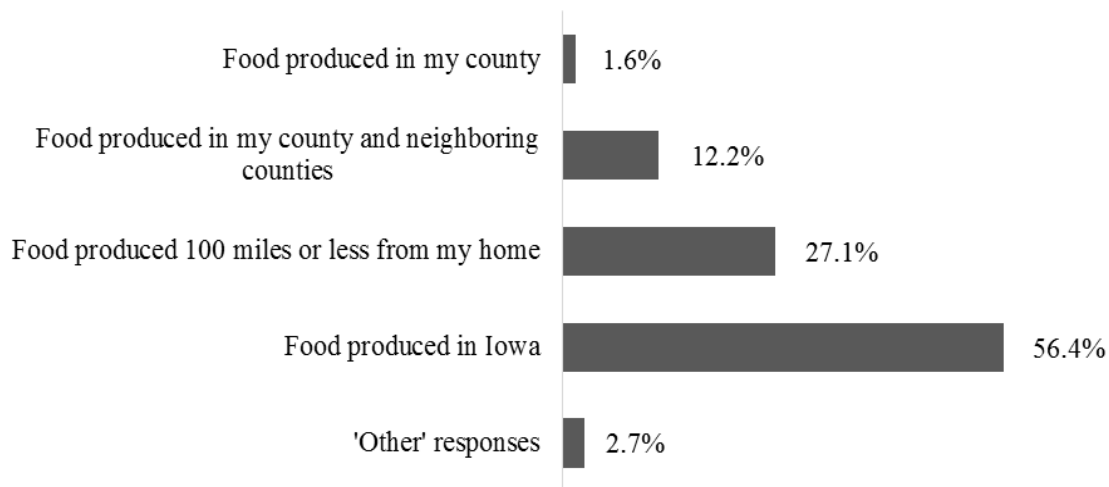
**Table 1. Distribution of Demographic Variables**

Variable	Percent of Respondents	Variable	Percent of Respondents
<b>Gender</b>		<b>Education</b>	
Female	86.0	High school or equivalent	3.2
Male	12.9	Some college, no degree	13.3
Non-binary	1.1	Associate's degree	9.0
<b>Age</b>		Bachelor's degree	37.8
18 – 29	4.2	Master's degree	25.0
30 – 49	40.4	Doctoral degree	11.7
50 – 69	50.0	<b>Resident of Iowa</b>	
70+	5.3	1 – 10 years	9.1
<b>Race</b>		11 – 20 years	12.2
White	97.9	21 – 30 years	11.2
Other Race	2.1	31+ years	67.6
<b>Ethnicity</b>		<b>IFC Membership</b>	
Non-Hispanic	98.9	Less than 1 year	12.8
Hispanic	1.1	1 – 2 years	34.0
<b>Annual Income</b>		3 – 4 years	23.4
Under \$25,000	4.3	5 – 6 years	15.4
\$25,000 – \$49,000	9.6	7+ years	14.4
\$50,000 – \$74,000	21.8	<b>Household Size</b>	
\$75,000 – \$99,000	20.7	1 – 2 people	67.0
\$100,000 – \$149,000	26.6	3 – 4 people	25.5
\$150,000 – \$200,000	10.1	5 – 6 people	6.4
\$201,000 – \$250,000	3.2	7+ people	1.1
\$251,000+	3.7		

*N*=188

### Local Defined

When asked, “Local food means different things to different people. How do you define ‘local’ food? Use the ‘other’ space to qualify, elaborate, or give a different answer” well over half (56.4%) of respondents indicated “food produced in Iowa.” The next most common participant definition of ‘local’ was “food produced 100 miles or less from my home” (27.1%). Participants who chose ‘other’ definitions of local (2.7%) provided insight into the variable understandings of the notion of ‘local’ and will be discussed further in the discussion portion of this thesis (Chapter 5). Figure 5 represents members’ indicated definition of ‘local.’



**Figure 5.** *Local Defined*

### Exploratory Factor Analysis

Prior to binary regression, I used exploratory factor analysis (EFA) as a data reduction method, condensing variables into like-groupings known as factors, to be included in the overall binary regression model. EFA was applied to individual variables within three attitude constructs (Consumption, Community, and Environment) and three subjective norm constructs (Influence,

Importance, and Supportiveness). Twenty-one individual attitude statements were reduced to six factor solutions. Twenty-one individual subjective norm statements were reduced to nine factor solutions. A more thorough discussion of EFA procedures will be discussed next.

### *Attitudes*

The Consumption EFA solution consisted of three separate factors that partially met the Kaiser-Guttman Rule to retain factors with eigen values over 1 (KMO=0.86) accounting for 75.6% of the total model variance explained. The first factor of this solution consisted of three items and individually accounted for 52.9% of the variance in the model (eigen value=4.23). This factor was labeled ‘Health, Natural, and Nutrition.’ The second factor consisted of three items and individually accounted for 12.6% of the variance in the model (eigen value=1.00) and was labeled ‘Fresh, Taste, Look.’ The third factor consisted of two items and individually accounted for 10.1% of the variance in the model (eigen value=0.81). This third factor contained one cross-loading. ‘Safer’ had a factor-loading of 0.51 for factor one ‘Health, Natural, and Nutrition’ as well as for factor three. Concern with a low eigen value coupled with a cross-loading encouraged a second factor analysis of consumption with a 2-factor solution rather than the 3-factor solution. This second analysis had lower overall variance explained and the 2-factor solution was conceptually and logically blurry when determining factor labels. Retaining the 3-factor solution, I decided that ‘safer’ pertained more to the trust in knowing how food was produced, as suggested by factor three, rather than how healthful, natural, or nutritious local food is, as suggested for factor one (Risku-Norja and Muukka 2013). The third factor was named ‘Safety and Trust.’



The Community EFA solution consisted of two factors that met the Kaiser-Guttman Rule to retain factors with eigen values over 1 ( $KMO=0.86$ ) accounting for 75.2% of the total model variance explained. The first factor of this solution consisted of four items and individually accounted for 61.1% of the variance in the model (eigen value=4.28). This factor was labeled ‘Community – Social Wellbeing.’ The second factor consisted of three items and individually accounted for 14.1% of the variance in the model (eigen value=0.99) and was labeled ‘Community – Economic Wellbeing.’

The Environmental/Sustainable EFA solution consisted of one factor that met the Kaiser-Guttman Rule to retain factors with eigen values over 1 ( $KMO=0.85$ ) accounting for 65.3% of the total model variance explained. This factor consisted of six items and was labeled ‘Environment’ (eigen value=3.92). Table 2 summarizes the three factor solutions for participant attitudes.

**Table 2. Three Factor Solutions for Participant Attitudes**

Consumption			
KMO=0.86    Total % var exp.=75.6%			
Variable	Safety and Trust	Fresh, Taste, and Look	Health, Natural, and Nutrition
More healthful	0.15	0.29	<b>0.85</b>
More natural	0.17	0.16	<b>0.81</b>
More nutritious	0.12	0.27	<b>0.85</b>
More fresh	0.22	<b>0.75</b>	0.22
Better tasting	0.12	<b>0.86</b>	0.18
Better looking	0.07	<b>0.71</b>	0.27
Safer	<b>0.51</b>	0.44	<i>0.51</i>
More trustful	<b>0.94</b>	0.16	0.17
Eigen value	4.23	1.00	0.81
% var/cov exp.	52.9%	12.6%	10.1%
Community			
KMO=0.86    Total % var exp.=75.2%			
Variable	Social Wellbeing		Economic Wellbeing
More money stays in my community	0.22		<b>0.84</b>
A more economically viable community	0.33		<b>0.84</b>
Stimulating rural employment	0.23		<b>0.82</b>
Providing a fair income for the farmer/producer	<b>0.69</b>		0.47
Establishing relationships with farmers/producers who provide my food	<b>0.71</b>		0.29
Supporting economically sustainable farming practices	<b>0.85</b>		0.32
Supporting socially sustainable farming practices	<b>0.91</b>		0.16
Eigen value	4.28		0.99
% var/cov exp.	61.1%		14.1%
Environment			
KMO=0.85    Total % var exp.=65.3%			
Variable	Environment		
Promoting greater biodiversity	<b>0.73</b>		
Production practices that are better for the environment	<b>0.85</b>		
Food less likely to be treated with chemicals or contain residues from pesticides, herbicides, or fertilizers	<b>0.70</b>		
Supporting environmentally sustainable farming practices	<b>0.89</b>		
Support animal health and welfare	<b>0.83</b>		
Improving soil and water quality	<b>0.83</b>		
Eigen value	3.92		
% var/cov exp.	65.3%		
<b>Bold=High factor-loading</b>			
<i>Italics=Cross-loading</i>			

### *Subjective Norms*

The Influence EFA solution consisted of three factors that partially met the Kaiser-Guttman Rule to retain factors with eigen values over 1 (KMO=0.73) accounting for 67.0% of the total model variance explained. The first factor of this solution consisted of four items and individually accounted for 35.8% of the variance in the model (eigen value=2.51). This factor was labeled 'Others.' The second factor consisted of two items and individually accounted for 18.9% of the variance in the model (eigen value=1.32). This factor was labeled 'Parent(s) and Kid(s).' The third factor solution consisted of one item and accounted for 12.3% of the variance in the model (eigen value=0.86). Concern with an eigen value under 1 prompted a second factor analysis of influence with a 2-factor solution rather than the current 3-factor solution. The 2-factor solution of influence had lower total model variance explained (54.7%) as well as a cross-loading on item 'My child(ren).' A 3-factor solution was retained for this analysis. This factor was labeled 'Partner or Spouse.'

The Importance EFA solution also consisted of three factors that partially met the Kaiser-Guttman Rule to retain factors with eigen values over 1 (KMO=0.71) accounting for 62.6% of the total model variance explained. The first factor of this solution consisted of four items and individually accounted for 32.5% of the variance in the model (eigen value=2.27). This factor was labeled 'Others.' The second factor consisted of two items and individually accounted for 17.4% of the variance in the model (eigen value=1.22). This factor was labeled 'Partner or Spouse and Kid(s).' The third factor in this solution consisted of one item and individually accounted for 12.7% of the variance explained in the model (eigen value=0.89). Again, an eigen value under 1 prompted a second analysis of importance with a 2-factor solution. The present 3-

factor solution was retained due to lower overall model variance explained with the 2-factor solution (49.9%). This third factor was labeled 'Parent(s).'

Finally, the Supportiveness EFA solution consisted of three factors that partially met the Kaiser-Guttman Rule to retain factors with eigen values over 1 (KMO=0.75) accounting for 65.1% of the total model variance explained. The first factor of this solution consisted of three items and individually accounted for 36.0% of the variance in the model (eigen value=2.52). This factor was labeled 'Others.' The second factor consisted of two items and individually accounted for 17.2% of the variance in the model (eigen value=1.20). This factor was labeled 'Parent(s) and Friend(s).' Finally, the last factor in this 3-factor solution consisted of two items and accounted for 12.0% of the variance in the model (eigen value=0.84). Once more, a low eigenvalue encouraged a second analysis of supportiveness with a 2-factor solution. As with the previous analyses, the present 3-factor solution was retained due to lower overall model variance explained with the 2-factor solution (53.1%). This factor was labeled 'Partner or Spouse and Kid(s).' Table 3 summarizes the three factor solutions for subjective norms.

**Table 3. Three Factor Solutions for Subjective Norms**

<b><i>Influence</i></b>			
KMO= 0.73    Total % var exp.=67.0%			
<b>Variable</b>	<b>Others</b>	<b>Parent(s) and Kid(s)</b>	<b>Partner or Spouse</b>
My partner or spouse	-0.01	0.11	<b>0.98</b>
My child(ren)	0.12	<b>0.79</b>	0.18
My parent(s)	0.09	<b>0.82</b>	-0.01
My friend(s)	<b>0.78</b>	-0.02	0.00
My neighbor(s)	<b>0.63</b>	0.33	-0.05
My colleagues/coworkers	<b>0.83</b>	0.01	-0.05
My healthcare provider(s)	<b>0.62</b>	0.36	0.21
<b>Eigen value</b>	2.51	1.32	0.86
<b>% var/cov exp.</b>	35.8%	18.9%	12.3%
<b><i>Importance</i></b>			
KMO=0.71    Total % var exp.=62.6%			
<b>Variable</b>	<b>Others</b>	<b>Partner or Spouse and Kid(s)</b>	<b>Parent(s)</b>
My partner or spouse	0.03	<b>0.81</b>	0.00
My child(ren)	0.14	<b>0.75</b>	0.16
My parent(s)	0.12	0.13	<b>0.95</b>
My friend(s)	<b>0.58</b>	0.20	0.22
My neighbor(s)	<b>0.78</b>	0.14	-0.20
My colleagues/coworkers	<b>0.77</b>	-0.12	0.14
My healthcare provider(s)	<b>0.67</b>	0.11	0.12
<b>Eigen value</b>	2.27	1.22	0.89
<b>% var/cov exp.</b>	32.5%	17.4%	12.7%
<b><i>Supportiveness</i></b>			
KMO=0.75    Total % var exp.=65.1%			
<b>Variable</b>	<b>Others</b>	<b>Parent(s) and Friend(s)</b>	<b>Partner or Spouse and Kid(s)</b>
My partner or spouse	0.09	-0.08	<b>0.86</b>
My child(ren)	0.05	0.38	<b>0.66</b>
My parent(s)	0.09	<b>0.79</b>	0.24
My friend(s)	0.33	<b>0.72</b>	-0.06
My neighbor(s)	<b>0.79</b>	0.06	0.11
My colleagues/coworkers	<b>0.70</b>	0.41	-0.11
My healthcare provider(s)	<b>0.75</b>	0.14	0.13
<b>Eigen value</b>	2.52	1.20	0.84
<b>% var/cov exp.</b>	36.0%	17.2%	12.0%

**Bold=High factor-loading***Italics=Cross-loading*

### **Binary Regression Analysis**

For this research, binary regression was determined the best choice of analysis due to the overwhelming majority (98.4%) of participants indicating a high likeliness of purchasing locally grown or produced food in the near future. This research features three separate binary regression analyses: 1) the overall model including all participants; 2) the female-only model featuring only female responses; and 3) the residence model featuring participants who have lived in Iowa for 31 or more years.

#### *Overall Model*

##### Model Fit

Several components of the analysis were used to examine the fitness of the overall model including a -2 Log Likelihood of 80.67, a Cox & Snell pseudo  $R^2$  of 0.29, and a Nagelkerke pseudo  $R^2$  of 0.53. From an empirical standpoint the predictors showed satisfactory model fitness with explained variation in the dependent variable ranging from 29.0% to 53.0%. However, a Hosmer and Lemeshow  $X^2$  result of 17.21 was significant at  $p < 0.05$  suggesting inadequate model fitness. Finally, a model with 35 predictors (35 degrees of freedom) fit significantly better than a model with no predictors with overall percentage of cases that are correctly predicted increasing from 87.1% for the null model to 90.3% for the full model.

##### Effects of Predictor Variables

For a more meaningful interpretation of the predictor variables and the effects on the dependent variable, the odds ratio generated in the analysis will be used as a percentage. An odds ratio of 1 indicates no change in the odds of the event occurring. An odds ratio greater than 1 indicates an increase in the event occurring while an odds ratio less than 1 indicates a decrease or reduction in the odds of the event occurring.

In the overall model the effects of four predictor variables were statistically significant. First, participants with a held belief that purchasing locally grown or produced food is better for the environment than non-local food increased intention to purchase locally grown or produced food within the next six months by 5.18%. Second, with reference to subjective norms, participant perception of parent(s) and kid(s) held belief of the importance of purchasing local food increased intention to buy local within the next six months by 9.43%. Next, with reference to perceived behavioral controls, participant perception of the ability to afford locally grown or produced food increased intention to buy local by 4.08%. Finally, participant behavior of purchasing local food within the *last* six months increased intention to purchase locally grown or produced food within the *next* six months by 2.75%.

#### *Female-Only Model*

##### Model Fit

Several components of the analysis were used to examine the fitness of the female-only model including a -2 Log Likelihood of 69.72, a Cox & Snell pseudo  $R^2$  of 0.31, and a Nagelkerke psuedo  $R^2$  of 0.56. From an empirical standpoint the predictors showed satisfactory model fitness with explained variation in the dependent variable ranging from 31.0% to 56.0%. However, a Hosmer and Lemeshow  $X^2$  result of 22.79 was significant at  $p < 0.05$  suggesting inadequate model fitness. Finally, a model with 34 predictors (34 degrees of freedom) fit significantly better than a model with no predictors with overall percentage of cases that are correctly predicted increasing from 86.3% for the null model to 91.9% for the full model.

##### Effects of Predictor Variables

The effects of six predictor variables were statistically significant in the female-only model. First, female participant held belief that purchasing locally grown or produced food is

better for the environment than food from non-local sources increased intention to purchase locally grown or produced food within the next six months by 6.17%. This is an increase from the overall model by 0.99%.

Second, concerning subjective norms, female participant perception of parent(s) and kid(s) held belief of the importance of purchasing local food increased intention to buy local within the next six months by 14.76%. This is an increase from the overall model by 5.33%. Additionally, female participant perception of partner or spouse's held belief of the importance of purchasing local food increased intention to buy local within the next six months by 3.48%.

Next, concerning perceived behavioral controls, female participant perception of the ability to afford locally grown or produced food increased intention to buy local by 5.68%. This is an increase from the overall model by 1.60%. Finally, female participant purchasing behavior, specifically dollar amount typically spent at each distribution cycle, increased intention to buy local within the next six months by 2.29%. Table 4 presents a comparison of the effects of the predictor variables in both the overall and female-only models on intention to purchase locally grown or produced food within the next six months.



**Table 4. Binary Regression Overall and Female-Only Model Comparisons – Effects of Predictor Variables on Intent to Purchase Local Food Within Next 6 Months**

Variable	Overall		Female-Only	
	(b)	Odds Ratio Exp(b)	(b)	Odds Ratio Exp(b)
<b>Beliefs</b>				
Health and Quality	0.55	1.73	0.06	1.06
Environment	1.64**	5.18	1.82**	6.17
Community Social Wellbeing	1.04	2.84	-1.81	0.16
Community Economic Wellbeing	-1.17	0.31	0.90	2.45
<b>Attitudes (EFA)</b>				
Health, Natural, and Nutritious	-0.49	0.61	-0.28	0.75
Fresh, Taste, and Look	-0.69	0.50	-0.60	0.55
Safety and Trust	-0.10	0.91	-0.10	0.90
Environment	-0.21	0.81	0.24	1.28
Community Social Wellbeing	0.35	1.42	-0.13	0.88
Community Economic Wellbeing	0.64	1.90	0.36	1.44
<b>Subjective Norms (EFA)</b>				
Other Influence	-0.57	0.57	-0.50	0.60
Parent(s) and Kid(s) Influence	2.24***	9.43	2.69***	14.76
Partner or Spouse Influence	0.74	2.09	1.25**	3.48
Other Importance	-0.21	0.81	-0.24	0.79
Partner or Spouse and Kid(s) Importance	-0.95	0.39	0.86	0.42
Parent(s) Importance	-0.66	0.52	0.06	1.06
Other Support	-0.18	0.84	-0.22	0.80
Parent(s) and Friend(s) Support	0.84	2.31	0.57	1.77
Partner or Spouse and Kid(s) Support	-0.38	0.68	-0.58	0.56
<b>Perceived Behavioral Control</b>				
Time to shop for locally grown or produced food	0.31	1.37	-0.11	0.90
Access to locally grown or produced food	-0.97	0.38	-0.97	0.38
Ability to afford locally grown or produced food	1.41**	4.08	1.74***	5.68
<b>Purchasing Behavior</b>				
Frequency of participation in distribution cycles	0.23	1.26	0.32	1.38
Typical dollar amount spent each distribution cycle	0.52	1.69	0.83*	2.29
<b>Past Behavior</b>				
How often local food was purchased in past month	0.07	1.08	0.38	1.46
How often local food was purchased in past six months	1.01**	2.75	0.89*	2.44

**Table 4. (continued)**

Variable	Overall		Female-Only	
	(b)	Odds Ratio Exp(b)	(b)	Odds Ratio Exp(b)
<b>Demographics</b>				
Duration of membership to the cooperative in years	-0.08	0.93	-0.07	0.94
Years lived in Iowa	0.25	1.29	0.10	1.11
Total household size	-0.59	0.55	-0.40	0.67
Highest level of education completed	0.54	1.71	0.56	1.75
Total annual household income earned	-0.14	0.87	-0.29	0.75
Age of member	-0.27	0.77	-0.12	0.89
Races other than 'white'	-1.79	0.17	-1.68	0.19
Ethnic Latino/a origin	17.32	-	16.88	-
Members who identify as 'female'	-3.08	0.05	N/A	N/A
<hr/>				
<i>Fit Statistics</i>	<i>Overall</i>		<i>Female-Only</i>	
-2LL	80.67		69.72	
Cox & Snell pseudo R <sup>2</sup>	0.29		0.31	
Nagelkerke pseudo R <sup>2</sup>	0.53		0.56	
Hosmer and Lemeshow X <sup>2</sup>	17.21**		22.79***	
Null Model	87.1%		86.3%	
Full Model	90.3%		91.9%	

p value \* < 0.1; \*\* < 0.05; \*\*\* < 0.01

## *Residence Model*

### Model Fit

Several components of the analysis were used to examine the fitness of the residence model including a -2 Log Likelihood of 42.22, a Cox & Snell pseudo  $R^2$  of 0.39, and a Nagelkerke psuedo  $R^2$  of 0.72. From an empirical standpoint the predictors show decent model fitness with explained variation in the dependent variable ranging from 39.0% to 72.0%. A Hosmer and Lemeshow  $X^2$  result of 4.17 was non-significant suggesting overall good model fitness. Finally, a model with 34 predictors (34 degrees of freedom) fit significantly better than a model with no predictors with overall percentage of cases that are correctly predicted increasing from 87.1% for the null model to 96.5% for the full model.

### Effects of Predictor Variables

The effects of 13 predictor variables were statistically significant in the residence model. Participants who have lived in Iowa for 31+ years with the held belief that purchasing locally grown or produced food is better for the environment than food from non-local sources increased intention to buy local within the next six months by 136.36%. This is a dramatic increase from both the overall and female-only models.

Next, there were two significant findings with member attitudes. Interestingly, participants who have lived in Iowa for 31+ years with the held belief that purchasing locally grown or produced food is more fresh, better tasting, and better looking than non-local food slightly decreased intention to buy local within the next six months by 0.07%. Further, participant attitudes about community economic wellbeing increased intention to buy local within the next six months by 7.40%.

There were four significant findings of purchase intent regarding subjective norms. Participant perception of relevant others, including friend(s), neighbor(s), colleagues/coworkers, and healthcare provider(s), held belief of the importance of purchasing local food slightly decreased intention to buy local within the next six months by 0.11%. Alternatively, participant perception of both parent(s) and kid(s) and partner or spouse's held belief of the importance of purchasing local increased intention to buy local within the next six months by 212.90% and 16.98%, respectively. Finally, participant perception of parent(s) and friend(s) supportiveness of their decision to purchase local food increased intention to buy local within the next six months by 13.40%.

There were two significant perceived behavioral control predictors. Participant perception of ability to access local food slightly decreased intention to purchase locally grown or produced food within the next six months by 0.04% while perception of ability to afford local food considerably increased intention to buy local within the next six months by 71.0%.

Much like the overall model, participant behavior of purchasing local food within the *last* six months increased intention to purchase locally grown or produced food within the *next* six months by 11.81%. Additionally, as participant level of education and age increased, intention to buy local increased by 4.06% and 0.31% respectively. Finally, participants who have lived in Iowa for 31+ years who identified as female were found to be significant but with inconclusive results. This is mostly likely due to the overwhelming majority of the sample being female. Table 5 represents the effects of the predictor variables in the residence model on intention to purchase locally grown or produced food within the next six months.

Chapter 5, the final chapter of this thesis, will feature a discussion of key findings of this research. Following this, I will conclude this study with a summary of the thesis in whole as well as provide recommendations for further research.

**Table 5. Binary Regression IA Residence 31+ Years Model – Effects of Predictor Variables on Intent to Purchase Local Food Within Next 6 Months**

Variable	(b)	Odds Ratio Exp(b)
<b>Beliefs</b>		
Health and Quality	0.06	1.06
Environment	4.92***	136.35
Community Social Wellbeing	-1.06	0.35
Community Economic Wellbeing	1.88	6.54
<b>Attitudes (EFA)</b>		
Health, Natural, and Nutritious	-0.91	0.40
Fresh, Taste, and Look	-2.66**	0.07
Safety and Trust	-0.80	0.45
Environment	0.76	2.15
Community Social Wellbeing	0.02	1.02
Community Economic Wellbeing	2.00**	7.40
<b>Subjective Norms (EFA)</b>		
Other Influence	-2.20**	0.11
Parent(s) and Kid(s) Influence	5.36***	212.90
Partner or Spouse Influence	2.83**	16.98
Other Importance	-1.95	0.14
Partner or Spouse and Kid(s) Importance	-1.26	0.28
Parent(s) Importance	-1.41	0.25
Other Support	1.12	3.06
Parent(s) and Friend(s) Support	2.60*	13.40
Partner or Spouse and Kid(s) Support	-2.29	0.10
<b>Perceived Behavioral Control</b>		
Time to shop for locally grown or produced food	0.87	2.38
Access to locally grown or produced food	-3.22**	0.04
Ability to afford locally grown or produced food	4.26***	71.00
<b>Purchasing Behavior</b>		
Frequency of participation in distribution cycles	0.30	1.34
Typical amount spent each distribution cycle	0.51	1.66
<b>Past Behavior</b>		
How often local food was purchased in past month	-0.30	0.74
How often local food was purchased in past six months	2.47**	11.81
<b>Demographics</b>		
Duration of membership to the cooperative in years	-0.48	0.62
Total household size	-0.70	0.50
Highest level of education completed	1.40**	4.06
Total annual household income earned	-0.22	0.80
Age of member	-1.18**	0.31
Races other than 'white'	-4.72	0.01
Ethnic Latino/a origin	7.57	-
Members who identify as 'female'	-12.82**	0.00
<b>Fit Statistics</b>		
-2LL	42.22	
Cox & Snell pseudo R <sup>2</sup>	0.39	
Nagelkerke pseudo R <sup>2</sup>	0.72	
Hosmer and Lemeshow X <sup>2</sup>	4.17	
Null Model	87.1%	
Full Model	96.5%	

p value \* < 0.1; \*\* < 0.05; \*\*\* < 0.01

## **CHAPTER 5**

### **DISCUSSION AND CONCLUSION**

#### **Summary**

The objective of this research was to better understand the social-psychological motivations that influence a consumer's intention to purchase locally grown or produced food rather than non-local food. Using a quantitative approach, I sought to understand the broad beliefs that consumers hold about local food, the explicit attitudes that shape consumer beliefs, peer interactions and influences on purchase intent, as well as barriers that affect the ability to buy locally grown or produced food. To do so, I surveyed a purposive sample of members from the Iowa Food Cooperative (IFC).

In Chapter 2 I reviewed literature on the theoretical framework used in this research - The Theory of Planned Behavior (TPB). I also reviewed literature on local food system versus national and global industrialized food systems, discussed several types of common local food outlets, and explored the different ways in which 'local' is commonly defined. By bridging these two topics together, this literature showed that while the TPB has been used in alternative agriculture food studies, local food often gets compared and contrasted with organic or conventional food products, rather than as a standalone topic. Attributes of local also get intermingled with attributes of other types of alternative agriculture attributes (i.e., sustainable, natural, better tasting, etc.). Further, when discussing consumer participation in alternative agriculture markets on the aspect of gender, the attitudes, beliefs, and values of men and women are often compared and contrasted. In some instances, research suggests that women are more likely to have attitudes and beliefs that local is better than non-local food and are also more likely than men to buy local.

Chapter 3 described my methodology. I used an online instrument to survey members of the IFC in order to gain a better understanding of consumer beliefs and attitudes about locally grown and produced food and how those beliefs and attitudes shaped their intention to buy local. I used exploratory factor analysis (EFA) and binary logistic regression to analyze my data.

I presented the results of my data analysis in Chapter 4. I discussed the demographic distribution of my sample. The majority of participants were older, white females with mid to high levels of education and income. I also identified the ways in which participants defined ‘local.’ The majority of participants indicated local means food grown or produced within the state of Iowa. Next, I briefly discussed EFA procedures used as a data reduction method. Finally, I presented the results of three binary regression models: the overall model including all participants; the female-only model including only female responses; and the residence model including only participants who have lived in Iowa for 31 or more years.

In this chapter I will discuss the key findings and implications of my research and conclude with recommendations for future research.

## **Key Findings**

### *Defining Local*

Over half of respondents in this study defined ‘local’ as food grown or produced within the political boundary of Iowa. Further, the second most common definition of ‘local’ was also based on proximity; participants indicated food grown or produced within 100 miles or less from their home. Seven participants also expounded on their definition of ‘local’, all of which were based on varying forms of proximity. For example:



*Food produced in Iowa and contiguous states. I also consider food 'local' if I have purchased it from a local source while traveling (e.g., I bring beans and chilies back from New Mexico when I travel there).*

This definition of 'local' suggests that proximity is relative. While political boundaries are the defining factor of local food, where the consumer is situated at the time of purchase is also indicative of purchase intent. Alternatively:

*I don't use 'political' boundaries like county, city, or state. Distance isn't too bad, but I don't think something from 101 miles away isn't local. If I had my way, it would be defined by watershed.*

This example definition of 'local' does not give consideration to the political boundary of Iowa as a way to describe local food. Rather, Iowa's watersheds, or areas of land that drain into streams or lakes, is the primary indicator of where 'local' food is grown. In the same way, literature on the lexicon of 'local' food includes classification of 'local' by foodshed, or a geographical region that produces food for that area's population. Foodsheds are sometimes referred to as comparable to watersheds; one traces the flow of food to a population, the other traces the flow of water in a particular area (Ackerman-Leist 2013). Interestingly, none of the longer, more thorough definitions of 'local', such as these two statements, referenced the two other common ways in which 'local' is defined: by relationships and by values.

The outcomes of this research contribute to the field of sociology by advancing the understanding and nuances of what 'local' food means to consumers. Knowing consumers largely consider proximity as the definition of 'local' may help create a stronger foundation to standardize the identity of local food systems. Also, by understanding consumer perceptions of 'local', dominant local food systems discourse, driven by values and ethical solutions to industrial global food systems, can still maintain the core principles that shape

the system while allowing consumers to better understand what ‘local’ means beyond proximity.

### *Consumer Beliefs and Attitudes about Local*

Recall that participants in this study were purposively chosen because they actively participate in local food systems. As such, I reasoned that participants already hold specific attitudes and beliefs about local food that influence their intention to buy local. This research suggests that consumers perceive buying local as being better for the environment rather than buying non-local food. When given the opportunity to elaborate on environmental themes, participants indicated motivational factors such as “*smaller carbon footprint*” and how current “*local farming practices (corn/soybean) are destroying the aquifers and land.*” This finding is consistent with prior research which suggests that positive environmental and sustainable impacts of alternative agriculture systems are strong motivational factors on consumer purchase intention (Aoki 2015; Burchardi et al. 2005; Miroso and Lawson 2012; Robinson and Smith 2002; Yue and Tong 2009).

Fascinatingly, participant attitudes about the freshness, taste, and look of local food was negatively associated with intention to buy local. This is counterintuitive to other findings that suggest consumers commonly consider aesthetics of local food as being more fresh, better tasting, and better looking than the conventional counterpart which makes for a more preferable purchasing option (Dunne et al. 2010; Penney and Prior 2014; Yue and Tong 2009). Then again, other research suggests that consumers may be more willing to purchase cosmetically imperfect produce if they have prior knowledge that pesticides or other chemicals have not be applied to crops (Bunne et al. 1990). Further, from a producer

perspective, farmers and business start-ups are willing to sell imperfect produce at a discount to consumers to prevent food waste (Siegrist 2016).

Participants also showed that they are more likely to buy locally grown or produced food based on positive impacts to community economic wellbeing. Again, participants were allowed to expand on their responses, several of which shared explicit attitudes about the community impact of purchasing local food. One participant indicated that buying local *“supports local economy and rural communities.”* Similarly, another participant said, *“I strongly believe and support the positive economic benefits of locally grown foods - support for local, family farmers, and Iowa's rural communities.”*

There are several other participant responses worth noting that help connect attitudes, beliefs, values and relationships to the definition of local. One participant indicated that buying local helps her *“feel better mentally by contributing to greater good”* while another participant indicated that buying local is *“more in line with [her] values.”* When reflecting on consumer/producer interactions one participant said, *“most of my thoughts regarding local food are based on the fact that consumers are more able to contact farmers directly.”* Another participant mentioned that *“there's a connection with the producers that is equivalent to kin.”*

Why is it, then, that when defining ‘local’, descriptions are limited to a geographically localized area measured by proximity? In other words, if participant intention to buy local can be anticipated based on beliefs and attitudes shaped by their values or connections to producers, why do consumer definitions of ‘local’ leave out these seemingly important narratives? As previously mentioned, creating a more standardized definition of

local based on proximity may allow for better translation of these beliefs and attitudes, shaped by values, to come through in dominant local food systems discourse.

Understanding the key beliefs and attitudes towards local food that influence purchase intent of consumers also has practical marketing use for the IFC. By knowing that consumer intentions to buy local are driven by environmental impacts and community economic wellbeing, the IFC can place more emphasis on these attributes in social media, advertisements, or other recruiting methods to target individuals who align with these values with the potential to boost both membership and sales totals. These attributes can also be used as an educational platform for consumers outside of local food systems to propagate local foods discourse as an alternative to industrial and global methods of food production.

### *Social Interactions*

Parents, children, and partners/spouses all had influence on participant intention to buy locally grown or produced food. Interestingly, participants were less likely to buy locally grown or produced food based on influence of others in their social sphere including friends, neighbors, colleagues and coworkers, and healthcare providers. These findings suggest that social peers within the family/private sphere have substantial weight or are more influential on consumers and that a consumer's perception of peer influence is a strong indicator of purchasing decisions.

Further, based on the dimension of gender, the sway of peers within the family or private sphere was stronger for female participants suggesting that women are more likely to buy local food based on perceived influence from parents, children, and partner/spouse. These findings are consistent with the gendered dimensions of provisioning and labor both in local food systems as well as broader consumer culture in the United States (Allen and Sachs

2007; Som Castellano 2014; U.S. Bureau of Labor Statistics 2015). However, while there is research suggesting that women occupy roles with lesser power and prestige in the public sphere compared to men within the alternative agriculture movement (Allen and Sachs 2007), more research is needed on the social interactions, food provisioning, and the divisions of labor between men and women in the private sphere that specifically focuses on local food or food produced in an alternative manner.

### *Consumers in Local Food Systems*

The majority of participants in this study were older, white, educated females. This finding is consistent with past research on consumer participation in alternative agriculture networks (Divine and Lepisto 2005; Feldmann and Hamm 2014; Gracia et al. 2012; Penney and Prior 2014). Education, in particular, is a substantial measure of intention to purchase locally grown or produced food. Further, considering these demographic characteristics, participant perception of their ability to afford locally grown or produced food positively influenced intention to buy local. Taken together, education, affordability, and other demographic characteristics maintain the status quo that proponents and participants in local food systems are disproportionally white and middle class.

This key finding adds to the understanding of who commonly participates in local food systems. Taken another way, this research provides justification and direction for further study of potential consumers who do not participate in local food systems; specifically targeting underrepresented groups, such as low income or people of color, could provide valuable insight to the challenges of participation.

### **Recommendations for Future Research**

Bearing in mind the findings from this research, there are several suggestions for future research on consumer participation in local food systems.

Firstly, knowing how participants defined ‘local’ post data analysis, I would amend item 1, “Local food means different things to different people. How do you define ‘local’ food? Use the ‘other’ space to qualify, elaborate, or give a different answer” to include answer choices that reflect definitions of ‘local’ based on values and relationships. Though consumers were given the chance to elaborate on their definition, providing answer options that characterize ‘local’ based on all three common ways in which ‘local’ is defined may further shape or outline current understandings of how consumers perceive local food. I would also provide the opportunity for participants to select multiple answers that help define their perception of ‘local.’ This item could follow up with another item about ‘local’ in which participants are allowed to rank or categorize various dimensions of local food to get a more well-rounded understanding of how participants define ‘local’ food.

Secondly, considering the IFC as a unique vessel for research, further study of the IFC's ‘Producer Profiles’, small blurbs about farm operations, may provide valuable insight to the ways in which producers portray their growing practices and operations to consumers. A qualitative analysis, or even a mixed method analysis, of the producer profiles and producer practices may contribute to emerging dominant discourses of local food systems. At the very least, a compare/contrast with consumer attitudes and beliefs about the environment, aesthetic attributes of local food, and community economic wellbeing with the producer practices may aid in the legitimacy of consumer held beliefs found in this study.

Thirdly, because the sample used in this study was highly specialized, it cannot be generalized to the greater population and must be considered carefully when discussing dominant discourse in the local food movement. Fascinatingly, although recognized on a national level (i.e. USDA data on farmers' markets), the local foods movement is highly dependent on contextual stories. No two local food outlets are completely alike. Qualitative case studies conducted across the country may help to develop a better portrait of different types of local food networks and how 'local' may be defined when situated in a deeper context. National quantitative surveys of consumers' beliefs, attitudes, or values about local food can more accurately be applied and defended when making broad generalizations.

Finally, qualitative analysis may better serve in understanding the differences in participation of local food systems. Specifically concerning gendered interactions, I recommend in-depth qualitative analysis to research the reasons why men and women may or may not participate in purchasing locally grown and produced food as well as the social interactions between men and women within the private sphere. This can be done in several ways; mixed gender or gender-specific focus groups or individual interviews.

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## APPENDIX A

## IOWA FOOD COOPERATIVE MEMBER SURVEY

**Informed Consent**

Hello, my name is Andrea Raygor. Thank you for participating in the Iowa Food Cooperative Member Survey that I am conducting as part of my Sociology M.S. thesis project. The purpose of this project is to learn about consumer beliefs, attitudes, and intentions to purchase local food. More specifically, I hope to learn about your thoughts and opinions, both positive and negative, about local food and how your beliefs and attitudes affect your intentions to purchase local food from the Iowa Food Cooperative and other local food retailers. Further, I am working with Iowa Food Cooperative staff on this project because the IFC is interested in ideas to generate more sales and create better experiences for its members. I am inviting you to participate because you are an active member of the Iowa Food Cooperative and have made at least one local food purchase between November 2014 and October 2015 and have been a member at least six months prior to November 2014. Your participation is completely voluntary. There are no penalties or consequences of any kind if you decide that you do not wish to participate. If you agree to participate, you will complete the survey that follows. If you later change your mind, you may exit the survey at any time. You may also skip any question you do not wish to answer. You are encouraged to ask questions at any time during this project. You must be at least 18 years old to complete this survey. There are no foreseeable risks to you as a participant in this study. The only cost from participating is the time (about 10 to 20 minutes) it takes to complete the survey. By participating in this survey, you are allowing the Iowa Food Cooperative to hear your voice and collectively, as members, help shape shopping experiences in the future. Also, the information gained from this project may benefit society by advancing knowledge about the attitudes and beliefs people have about locally grown or prepared food and what factors influence their intention to purchase locally grown or prepared food. I will keep records identifying participants confidential and not publicly available to the extent permitted by applicable laws and regulations. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy study records for quality assurance and data analysis. These records may contain private information. Beyond this, your responses will be stored on password-protected computers accessible only to me and my research supervisors. Data collected from this survey may be released to other investigators for research purposes. Future investigators will not be given identifiers linking data to specific respondents, but rather randomly generated alphanumeric codes marking unique records that will not link back to you in any way. Future investigators will be required to complete a data sharing agreement contractually obligating them to use data without identifiers and to store such information on a secure, password-protected network. You may address questions or concerns about the survey or your participation in this project to me (adraygor@iastate.edu), my faculty supervisors, Dr. David Peters (dpeters@iastate.edu) and Dr. Betty Wells (bwells@iastate.edu), or Gary Huber from the Iowa Food Cooperative ([REDACTED]). Address questions about the rights of research subjects or research-related injury to the IRB Administrator, (515) 294-4566, IRB@iastate.edu, or Director, (515) 294-3115, Office for Responsible Research, 1138 Pearson Hall, Iowa State University, Ames, Iowa 50011. Thank you very much for your time. Please print a copy of this page for your records. Click here for a printer-friendly version of the informed consent.

- ☐ Agree (1)
- ☐ I Disagree (2)

Q1 Local food means different things to different people. How do you define “local” food? Use the “other” space to qualify, elaborate, or give a different answer:

- ☐ Food produced in my county
- ☐ Food produced in my county and neighboring counties
- ☐ Food produced 100 miles or less from my home
- ☐ Food produced in Iowa
- ☐ Other: \_\_\_\_\_

Q2 What percent of your local food purchases come from the following? Response must total 100.

- \_\_\_\_\_ Conventional supermarket or grocery store
- \_\_\_\_\_ Iowa Food Cooperative
- \_\_\_\_\_ Farmers' market
- \_\_\_\_\_ Natural foods store
- \_\_\_\_\_ Community Supported Agriculture (CSA)
- \_\_\_\_\_ U-Pick, roadside, or on-farm market stand
- \_\_\_\_\_ Other (Please specify): \_\_\_\_\_

Q3 Who makes the majority of local food purchases in your household? Please rank from 1 to 5 where 1 is never and 5 is always.

- \_\_\_\_\_ Me
- \_\_\_\_\_ My partner or spouse
- \_\_\_\_\_ My child(ren)
- \_\_\_\_\_ My parent(s)
- \_\_\_\_\_ Other (Please specify): \_\_\_\_\_

Q4 I believe that food grown or produced locally is better \_\_\_\_\_ than food from non-local sources.

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
for my health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
for the environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
in quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
for my community's economic well-being (re-circulating money, creation of food-based business, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
for my community's social well-being (food security, farmer-consumer relationship, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q5 How influential do you think the following people are on your decision to purchase locally grown or produced food?

[illegible]



Q6 How do you think the following people rate the importance of purchasing locally grown or produced food?

	Extremely Important	Very Important	Somewhat Important	Slightly Important	Not at all Important	Not Applicable
My partner or spouse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My child(ren)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My parent(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friend(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My neighbor(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My colleagues/coworkers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My healthcare provider(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please specify):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q7 How supportive do you think the following people are when deciding to purchase locally grown or produced food?

	Extremely Supportive	Very Supportive	Somewhat Supportive	Slightly Supportive	Not at all Supportive	Not Applicable
My partner or spouse	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My child(ren)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My parent(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My friend(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My neighbor(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My colleagues/coworkers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My healthcare provider(s)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please specify):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q8 Typically, I have enough time to shop for locally grown or produced food.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neither Agree nor Disagree
- ☐ Disagree
- ☐ Strongly Disagree

Q9 Typically, I can gain access to locally grown or produced food.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neither Agree nor Disagree
- ☐ Disagree
- ☐ Strongly Disagree

Q10 Typically, I can afford to purchase locally grown or produced food.

- ☐ Strongly Agree
- ☐ Agree
- ☐ Neither Agree nor Disagree
- ☐ Disagree
- ☐ Strongly Disagree

Q11 In the past month or so, how often did you purchase locally grown or produced food?

- ☐ Daily or almost daily
- ☐ 2-3 times a week
- ☐ Once a week
- ☐ 2-3 times
- ☐ Once
- ☐ Never
- ☐ Other (Please specify): \_\_\_\_\_

Q12 In the past six months or so, how often did you purchase locally grown or produced foods?

- ☐ Many (4+) weeks per month
- ☐ Several (3) weeks per month
- ☐ Few (1-2) weeks per month
- ☐ Less than 7 days per month
- ☐ Never
- ☐ Other (Please specify): \_\_\_\_\_

Q13 In the next month or so, how likely is it that you will purchase locally grown or produced food?

- ☐ Very Likely
- ☐ Likely
- ☐ Undecided
- ☐ Unlikely
- ☐ Very Unlikely

Q14 In the next six months or so, how likely is it that you will purchase locally grown or produced food?

- ☐ Very Likely
- ☐ Likely
- ☐ Undecided
- ☐ Unlikely
- ☐ Very Unlikely

Q15 How many distribution cycles did you purchase local food from the Iowa Food Cooperative between November 2014 and October 2015?

- ☐ 1 - 4 cycles
- ☐ 5 - 8 cycles
- ☐ 9 - 12 cycles
- ☐ 13 - 17 cycles
- ☐ 18 - 23 cycles

Q16 When making purchases through the Iowa Food Cooperative, how much do you typically spend each distribution cycle?

- ☐ Less than \$30
- ☐ \$30 to \$50
- ☐ \$51 to \$70
- ☐ \$71 to \$99
- ☐ \$100+

Q17 How strongly do you agree or disagree with the following statements about your consumption of local food versus non-local food?

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
More healthful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More natural	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More nutritious	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More fresh	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better tasting	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Better looking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
More trust in knowing how the food has been grown or produced	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please specify):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q18 How strongly do you agree or disagree with the following statements about the environmental/sustainable impact of local food versus non-local food?

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Promoting greater biodiversity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Production practices that are better for the environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food less likely to be treated with chemicals or contain residues from pesticides, herbicides, or fertilizers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supporting environmentally sustainable farming practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supporting animal health and welfare	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improving soil and water quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please specify):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q19 How strongly do you agree or disagree with the following statements concerning the community impact of local food versus non-local food?

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
More money stays in my community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A more economically viable community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stimulating rural employment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Providing a fair income for the farmer/producer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Establishing relationships with farmers/producers that provide my food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supporting economically sustainable farming practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Supporting socially sustainable farming practices	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other (Please specify):	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q20 How long have you been a member of the Iowa Food Cooperative?

- ☐ Less than 1 year
- ☐ 1-2 years
- ☐ 3-4 years
- ☐ 5-6 years
- ☐ 7+ years

Q21 How long have you lived in Iowa?

- ☐ Under 1 year
- ☐ 1 - 5 years
- ☐ 6 - 10 years
- ☐ 11 - 20 years
- ☐ 21 - 30 years
- ☐ 31+ years

Q22 What is your total household size?

- ☐ 1-2 people
- ☐ 3-4 people
- ☐ 5-6 people
- ☐ 7+ people

Q23 What gender do you identify with?

- ☐ Female
- ☐ Female to male transgender
- ☐ Male
- ☐ Male to female transgender
- ☐ Genderqueer/Androgynous
- ☐ Other (Please specify): \_\_\_\_\_

Q24 In what year were you born?

Q25 Are you of Hispanic or Latino/a origin?

- ☐ Yes
- ☐ No

Q26 Which race do you identify with?

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Black or African American
- ☐ Native Hawaiian or other Pacific Islander
- ☐ White
- ☐ Other (Please specify): \_\_\_\_\_

Q27 What is the highest level of education that you have completed?

- ☐ High school graduate (includes equivalency)
- ☐ Some college, no degree
- ☐ Associate's degree
- ☐ Bachelor's degree
- ☐ Master's degree
- ☐ Doctoral degree
- ☐ Other (Please specify): \_\_\_\_\_

Q28 What is your annual household income?

- ☐ Under \$25,000
- ☐ \$25,000 to \$49,000
- ☐ \$50,000 to \$74,000
- ☐ \$75,000 to \$99,000
- ☐ \$100,000 to \$149,000
- ☐ \$150,000 to \$200,000
- ☐ \$201,000 to \$250,000
- ☐ Over \$250,000

Q29 Please use this space for additional comments you may have about locally grown or produced food:

## APPENDIX B

## INSTITUTIONAL REVIEW BOARD (IRB) APPROVAL

**IOWA STATE UNIVERSITY**  
OF SCIENCE AND TECHNOLOGY

Institutional Review Board  
Office for Responsible Research  
Vice President for Research  
1138 Pearson Hall  
Ames, Iowa 50011-2207  
515 294-4500  
FAX 515 294-4267

**Date:** 8/17/2015

**To:** Andrea Raygor  
E016 Lagomarcino Hall

**CC:** Dr. David J Peters  
304 East Hall  
Dr. Betty Wells  
303D East Hall

**From:** Office for Responsible Research

**Title:** Iowa Food Cooperative Member Survey

**IRB ID:** 15-465

**Study Review Date:** 8/17/2015

The project referenced above has been declared exempt from the requirements of the human subject protections regulations as described in 45 CFR 46.101(b) because it meets the following federal requirements for exemption:

- (2) Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey or interview procedures with adults or observation of public behavior where
  - Information obtained is recorded in such a manner that human subjects cannot be identified directly or through identifiers linked to the subjects; or
  - Any disclosure of the human subjects' responses outside the research could not reasonably place the subject at risk of criminal or civil liability or be damaging to their financial standing, employability, or reputation.

The determination of exemption means that:

**You do not need to submit an application for annual continuing review.**

**You must carry out the research as described in the IRB application.** Review by IRB staff is required prior to implementing modifications that may change the exempt status of the research. In general, review is required for any modifications to the research procedures (e.g., method of data collection, nature or scope of information to be collected, changes in confidentiality measures, etc.), modifications that result in the inclusion of participants from vulnerable populations, and/or any change that may increase the risk or discomfort to participants. Changes to key personnel must also be approved. The purpose of review is to determine if the project still meets the federal criteria for exemption.

Non-exempt research is subject to many regulatory requirements that must be addressed prior to implementation of the study. Conducting non-exempt research without IRB review and approval may constitute non-compliance with federal regulations and/or academic misconduct according to ISU policy.

**Detailed information about requirements for submission of modifications can be found on the Exempt Study Modification Form.** A Personnel Change Form may be submitted when the only modification involves changes in study staff. If it is determined that exemption is no longer warranted, then an Application for Approval of Research Involving Humans Form will need to be submitted and approved before proceeding with data collection.

Please note that you must submit all research involving human participants for review. **Only the IRB or designees may make the determination of exemption**, even if you conduct a study in the future that is exactly like this study.

Please be aware that **approval from other entities may also be needed**. For example, access to data from private records (e.g. student, medical, or employment records, etc.) that are protected by FERPA, HIPAA, or other confidentiality policies requires permission from the holders of those records. Similarly, for research conducted in institutions other than ISU (e.g., schools, other colleges or universities, medical facilities, companies, etc.), investigators must obtain permission from the institution(s) as required by their policies. **An IRB determination of exemption in no way implies or guarantees that permission from these other entities will be granted.**

Please don't hesitate to contact us if you have questions or concerns at 515-294-4566 or [IRB@iastate.edu](mailto:IRB@iastate.edu).



## APPENDIX C

## PRE-SURVEY INVITATION NOTICE

Dear Iowa Food Cooperative Member,

My name is Andrea Raygor. I am a graduate student with the department of Sociology at Iowa State University and am writing to ask for your help with an important project to better understand your beliefs, attitudes, and intentions as a consumer to purchase local food. I am working with the Iowa Food Cooperative staff on this project because they are interested in ideas to generate more sales and create better experiences for its members.

In the next few days you will receive an invitation to participate in this project and will be asked to complete a survey. The survey will contain questions about your opinions, thoughts, and purchasing behavior concerning locally produced and prepared food.

I would like to do everything I can to make it easy and enjoyable for you to participate in this project. I am writing in advance because many people like to know ahead of time that they will be asked to fill out a questionnaire. This research can only be successful with the generous help of people like you!

Please know that participation in the survey is completely voluntary and you may choose not to answer any question with which you are uncomfortable. If you have any questions or concerns about your participation in this study, or the survey itself, please contact me at [adraygor@iastate.edu](mailto:adraygor@iastate.edu) or Gary Huber at [REDACTED]

I hope you will take 10-20 minutes of your time to help me and the IFC staff. Most of all, I hope that you enjoy the questionnaire and the opportunity to voice your thoughts and opinions about local food.

Best wishes,

Andrea Raygor

Master's student in Sociology  
Iowa State University

APPENDIX D  
FORMAL SURVEY INVITATION

Dear Iowa Food Cooperative Member,

You are invited to participate in the Iowa Food Cooperative member survey. The purpose of this survey is to better understand your beliefs, attitudes, and intentions as a consumer to purchase locally produced and prepared food. Both the IFC staff and I are very interested in your opinions and hope you will complete this survey.

Follow this link to the Survey:

[\\${!://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${!://SurveyURL}](#)

Follow the link to opt out of future emails:

[\\${!://OptOutLink?d=Click here to unsubscribe}](#)

The survey should only take about 10-20 minutes to complete.

Please note that you must be 18 years old or older to complete this survey.

When opening the survey, please review the "Informed Consent" section as it will let you know of your rights as a research participant. Communicating this information is a standard procedure in the research process. Once you have reviewed this information, you will need to indicate whether or not you agree to participate in the study in order to advance to the survey questions.

Your participation in this survey is completely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of this data. Should you have any further questions or comments, please feel free to contact me at [adraygor@iastate.edu](mailto:adraygor@iastate.edu) or Gary Huber at [REDACTED]

We appreciate your time and consideration in completing this survey. Thank you for participating in this project!

Sincerely,

Andrea Raygor

Master's student in Sociology  
Iowa State University

APPENDIX E

REMINDER EMAIL 1

Dear Iowa Food Cooperative Member,

I recently sent you an email inviting you to respond to a survey about your opinions, thoughts, and purchasing behavior concerning local food. Your responses to this survey are important and will help to better understand beliefs, attitudes, and intentions as a consumer to purchase locally produced and prepared food as well as help IFC staff to generate more sales and better your shopping experiences.

Follow this link to the Survey:

[\\${://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${://SurveyURL}](#)

Please note that you must be 18 years old or over to complete this survey.

This survey is brief and should only take you about 10-20 minutes to complete. If you have already completed the survey, we appreciate your participation. If you have not yet responded to the survey, we encourage you to take a moment and complete the survey.

When opening the survey, please review the “Informed Consent” section as it will let you know of your rights as a research participant. Communicating this information is a standard procedure in the research process. Once you have reviewed this information, you will need to indicate whether or not you agree to participate in the study in order to advance to the survey.

Your participation in this survey is completely voluntary and all of your responses will be kept confidential. No personally identifiable information will be associated with your responses in any reports of this data. Should you have any further questions or comments, please feel free to contact me at [adraygor@iastate.edu](mailto:adraygor@iastate.edu) or Gary Huber at [REDACTED]

Your response is important. I appreciate your time and consideration in completing this survey. Thank you for participating in this project!

Sincerely,

Andrea Raygor

Master's student in Sociology  
Iowa State University

## APPENDIX F

## REMINDER EMAIL 2

Dear Iowa Food Cooperative Member,

The holiday season can be a busy time for everyone. I am hoping you may be able to give about 10-20 minutes of your time to help me and the IFC staff collect important information about your opinions, thoughts, and purchasing behavior of local foods.

Follow this link to the Survey:

[\\${!://SurveyLink?d=Take the Survey}](#)

Or copy and paste the URL below into your internet browser:

[\\${!://SurveyURL}](#)

Please note that you must be 18 years old or over to complete this survey.

If you have already completed the survey, we really appreciate your participation. If you have not yet responded, we would like to urge you to complete the survey. The survey is planned to end in one week, so I wanted to email everyone who has not yet responded to make sure you had a chance to participate.

Your response is important. We appreciate your time and consideration in completing this survey. Thank you for participating in this project!

Sincerely,

Andrea Raygor

Master's student in Sociology  
Iowa State University

## APPENDIX G

## FINAL REMINDER EMAIL

Iowa Food Cooperative [REDACTED]

to me ▾

**ISU Research Project Survey Request**

We are working with an ISU graduate student (Andrea Raygor) on a project looking at factors affecting the local food purchasing habits of our consumer member-owners. Our interest is to better understand the motivations and supports that influence both the frequency of purchases and purchase amounts.

She's sent three emails so far to a targeted group of our members, with the last one sent last Thursday (Dec. 17th). You should have gotten this email. She would like to try to get another 100 responses to the survey, so I offered to send this email to folks who had either not yet started or finished the survey.

So, if you could take a moment to find Andrea's last email and use the hotlink it contained to the online survey instrument to access and then complete the survey, it would help us. If you would like to contact Andrea for any reason, her email address is [adraygor@iastate.edu](mailto:adraygor@iastate.edu)

Thanks very much, and Happy Holidays!

Gary Huber

You are receiving this email because you provided your address as part of membership with the Iowa Food Cooperative. If you want to change your email address on file please reply with your new address.

[Unsubscribe](#) [adraygor@iastate.edu](mailto:adraygor@iastate.edu) from this list.

Our mailing address is:  
Iowa Food Cooperative  
4944 Franklin Ave  
Des Moines, IA 50310

[Add us to your address book](#)

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[Update your profile](#)