

DISSERTATION

EXPLORING PERSONAL, BUSINESS, AND COMMUNITY BARRIERS AND
OPPORTUNITIES FOR FOOD ENTREPRENEURS

Submitted by

Ashley M. Colpaart

Department of Food Science and Human Nutrition

In partial fulfillment of the requirements

For the Degree of Doctor of Philosophy

Colorado State University

Fort Collins, Colorado

Summer 2017

Doctoral Committee:

Advisor: Marisa Bunning

Co-Advisor: Dawn Thilmany McFadden

Garry Auld

Alison Harmon

Jeffery Miller

Michael Carolan

Copyright by Ashley M. Colpaart 2017

All Rights Reserved

ABSTRACT

EXPLORING PERSONAL, BUSINESS, AND COMMUNITY BARRIERS AND OPPORTUNITIES FOR FOOD ENTREPRENEURS

Specialty food businesses, characterized as *local*, *craft* or *artisan*, produce unique and highly differentiated food items often made in small quantities from high-quality ingredients. Nationally, the increasing market demand for specialty food is simultaneously spurring a growth in food entrepreneurship and food businesses that need access to licensed commercial space. Due to their unique values, a subset of food entrepreneurs may be considered ‘social entrepreneurs’ who use their business as a catalyst for social, cultural, or environmental change. This dissertation research model and hypotheses were developed as a triangulation of three innovative approaches to various fields of study influencing how the food sector is evolving to address emerging consumer and supply chain dynamics. These include; a) a new management behavioral concept, Perceived Business Effectiveness, b.) previous research on entrepreneur characteristics, and c.) potential experience and opportunities that may influence food entrepreneurs based on the Community Capital Framework. The primary objectives of this research are to determine the unique mission, values or community capital-based attributes of food entrepreneurs and to evaluate how this set of factors may affect a food entrepreneur’s interest and key criteria when searching for commercial kitchen space. The primary methods included a national survey of food entrepreneurs (n=140) and a pilot program resulting in 4 case studies from Northern Colorado. Multidisciplinary empirical analysis was applied including gamma correlations to compare and contrast various factors and a 2-step probit regression analysis and the calculation of marginal

effects from that model. Survey results found that food entrepreneurs in search of commercial kitchen space had dissatisfaction with finding appropriate space ($p=0.04$), availability of enough days/time to rent ($p=0.00$), location ($p=0.07$), availability of equipment ($p=0.02$), and parking ($p=0.07$). Results also found significant gamma correlations for questions related to food safety, social fairness, and resource mobilization indicators like sourcing locally and participating in the sharing economy. Further, respondents looking for commercial space were 9% more likely than those not looking for space to use a theoretical sharing economy technology to help them find and access commercial kitchen space. The three-month pilot program successfully placed four food entrepreneurs searching for production space in four different commercial kitchens in Northern Colorado. The kitchens included a school district, church, commissary kitchen, and functioning pizza parlor. A major contribution of this work is in the identification of key drivers for food entrepreneurs in the emerging access economy, suggesting that “access” to goods and services may be becoming more desirable than “ownership” of them.

ACKNOWLEDGEMENTS

I want to acknowledge and thank the following people:

- My co-advisors, Dawn and Marisa, for keeping me on track, being responsive, and committing to my completion of this dissertation.
- My committee for their willingness to serve as advisors, providing expertise, and supporting my interdisciplinary approach.
- My fiancé Ben and his son Ethan who put up with my craziness when I hadn't talked to humans all day, required a quiet house, or needed a hug.
- My friend Ben Prytherch for meeting me over breakfast to help with the statistics and Maria Winnie for helping with a power editing session at the last minute.
- My friend Charisse Bowen for validating my work and believing I was “Wonder Woman”.
- My co-founder, Dan Moore, and The Food Corridor team of Rachael Miller, Julie Baker, and Christine Hudson, for pulling more than their weight so I could dedicate time to completing this colossal project.
- My family, including my Papa for calling to ask “how’s your dissertation coming?”, my sister Vanessa for the much needed talks and freak out phone calls, my step-mom Melanie, for teaching me it is ‘life and life only’, my mom Cynthia for reminding me not to forget where I came from, and my brother Ryan and his wife Trina for the support.
- My mentors and dear friends BJ & Stan Friedman for encouraging me to take this wild ride and being by me every step of the way.

TABLE OF CONTENTS

ABSTRACT..... ii
ACKNOWLEDGEMENTS iv
LIST OF TABLES vi
LIST OF FIGURES viii
1. CHAPTER 1- EXPLORING PERSONAL, BUSINESS, AND COMMUNITY BARRIERS
AND OPPORTUNITIES FOR FOOD ENTREPRENEURS 1
 1.1 INTRODUCTION TO THE FOOD SYSTEM: DEFINITIONS AND FRAMEWORKS 1
 1.2 MODERN APPROACHES TO FOOD SYSTEM ANALYSIS, ENGAGEMENT, AND
 PROGRAMS 4
 1.3 STUDY MOTIVATION AND THEORETICAL GROUNDWORK..... 15
 1.4 RESEARCH OVERVIEW, QUESTIONS, AND METHODOLOGY 23
 1.5 REFERENCES 27
2. CHAPTER 2- APPLYING THE COMMUNITY CAPITALS FRAMEWORK TO EXPLORE
THE PERCEIVED BUSINESS EFFECTIVENESS OF FOOD ENTREPRENEURS..... 35
 2.1 INTRODUCTION 35
 2.2 METHODOLOGY 45
 2.3 RESULTS 53
 2.4 LIMITATIONS AND FUTURE RESEARCH 60
 2.5 CONCLUSIONS AND DISCUSSION 61
 2.6 REFERENCES 63
3. CHAPTER 3- IDENTIFYING KEY DRIVERS FOR FOOD ENTREPRENEURS IN THE
EMERGING ACCESS ECONOMY 72
 3.1 INTRODUCTION 72
 3.2 PREVIOUS RESEARCH..... 80
 3.3 RESEARCH METHODS 81
 3.4 SUMMARY DATA 83
 3.5 EMPIRICAL ANALYSIS 94
 3.6 EMPIRICAL RESULTS 96
 3.7 CONCLUSIONS AND IMPLICATIONS 104
 3.8 REFERENCES 107
4. CHAPTER 4- NORTHERN COLORADO FOOD CORRIDOR: A PILOT STUDY AIMED
AT CONNECTING FOOD ENTREPRENEURS WITH UNDERUTILIZED COMMERCIAL
KITCHENS..... 112
 4.1 INTRODUCTION 112
 4.2 METHODS AND DATA 117
 4.3 RESULTS 119
 4.4 DISCUSSION..... 137
 4.5 CONCLUSION 140
 4.6 REFERENCES 142
5. CHAPTER 5- CONCLUSIONS 146
 5.1 KEY FINDINGS 146
 5.2 IMPLICATIONS FOR BUSINESS DEVELOPMENT 147

5.3 POLICY IMPLICATIONS	149
6. APPENDIX A. LIST OF SURVEY QUESTIONS	154
7. APPENDIX B. GAMMA CORRELATION MATRIX	155
8. APPENDIX C. GAMMA PAIR CORRELATIONS.....	156
9. APPENDIX D. SURVEY QUESTION KEY.....	158
10. APPENDIX E. SUMMARY STATISTICS TABLES	160

LIST OF TABLES

TABLE 1.1- EXAMPLES OF BUSINESSES ANCHORED IN THE PEER TO PEER ECONOMY	22
TABLE 2.1- TRANSITIONING PERCEIVED CONSUMER EFFECTIVENESS CONSTRUCTS TO PERCEIVED BUSINESS EFFECTIVENESS CONSTRUCTS	47
TABLE 2.2- SYMBOLIC DIVERSITY QUESTIONS	53
TABLE 2.3- RESOURCE MOBILIZATION	54
TABLE 2.4- QUALITY NETWORKS	55
TABLE 2.5- STRONGEST CORRELATED GAMMA PAIRS AND ASSOCIATED CONSTRUCT	57
TABLE 2.6- STRONGEST CORRELATED GAMMA PAIRS AND ASSOCIATED CONSTRUCT	58
TABLE 3.1A- EFFECT OF DEMOGRAPHICS AND KITCHEN PRIORITIES ON PROBABILITY OF CURRENTLY SEARCHING FOR KITCHEN	97
TABLE 3.1B- EFFECT OF PAST KITCHEN EXPERIENCES ON PROBABILITY OF CURRENTLY SEARCH FOR KITCHEN	98
TABLE 3.1C- EFFECT OF KITCHEN FEATURE PRIORITIES ON THE PROBABILITY OF CURRENT SEARCHING FOR KITCHEN	99
TABLE 3.2- ORDERED PROBIT MODEL (STEP 2)	101
TABLE 4.1- MATCHES BETWEEN COMMERCIAL KITCHENS AND FOOD BUSINESSES	129
TABLE 5.1- KITCHEN AND INCUBATOR TYPES	152

LIST OF FIGURES

FIGURE 1.1- SIMPLE FRAMEWORK OF THE FOOD SYSTEM.....	2
FIGURE 1.2- INCREASED COMPLEXITIES IN THE FOOD SYSTEM.....	2
FIGURE 1.3- VENN DIAGRAM FRAMEWORK OF THE FOOD SYSTEM.....	4
FIGURE 1.4- COMMUNITY CAPITALS FRAMEWORK.....	17
FIGURE 1.5- SPIRALING-UP: MAPPING COMMUNITY TRANSFORMATION WITH COMMUNITY CAPITALS FRAMEWORK	18
FIGURE 1.6- EXAMPLES OF LABELS INFLUENCED BY PCE	21
FIGURE 1.7- EXPLORING PERSONAL, BUSINESS, AND COMMUNITY BARRIERS AND OPPORTUNITIES FOR FOOD ENTREPRENEURS: A CONTEXTUAL FRAMEWORK.....	23
FIGURE 3.1- REPORTED NUMBER OF YEARS IN BUSINESS.....	84
FIGURE 3.2- REPORTED AGE RANGE OF PRIMARY OPERATOR IN YEARS	85
FIGURE 3.3- REPORTED TYPE OF PRIMARY FOOD BUSINESS.....	86
FIGURE 3.4- REPORTED CURRENT STATUS ACCESSING A COMMERCIAL KITCHEN	87
FIGURE 3.5- RESPONSE TO THE QUESTION “ARE YOU CURRENTLY SEARCHING FOR KITCHEN SPACE?”	88
FIGURE 3.6- REPORTED WILLINGNESS TO TRAVEL ONE WAY, BY RANGES OF MILES, TO USE A COMMERCIAL KITCHEN	89
FIGURE 3.7- PREFERRED RANKING OF IDEAL HOURS FOR ACCESS TO KITCHEN ..	90
FIGURE 3.8- REPORTED SATISFACTION OF ATTRIBUTES RELATED TO COMMERCIAL KITCHENS	91
FIGURE 3.9- IMPORTANT FEATURES WHEN CHOOSING COMMERCIAL KITCHEN SPACE	92
FIGURE 3.10- REPORTED LIKELIHOOD TO USE THE FOOD CORRIDOR	93
FIGURE 3.11- CROSS TABULATION OF LIKELIHOOD TO USE THE FOOD CORRIDOR CROSSED WITH THOSE REPORTING LOOKING FOR COMMERCIAL KITCHEN SPACE.....	94
FIGURE 3.12- KEY STATISTICALLY SIGNIFICANT VARIABLES INFLUENCING CURRENT NEED FOR COMMERCIAL KITCHEN SPACE	100
FIGURE 3.13- KEY STATISTICALLY SIGNIFICANT VARIABLES INFLUENCING LIKELIHOOD TO USE THE FOOD CORRIDOR	102
FIGURE 4.1- SCREEN SHOT OF THE FOOD CORRIDOR.....	115
FIGURE 4.2- SCREEN SHOT OF COMMERCIAL KITCHEN PROFILE PAGE.....	115
FIGURE 4.3- LOCATIONS OF PARTICIPATING KITCHENS	120
FIGURE 4.4- WHO ARE YOUR IDEAL USERS?.....	121
FIGURE 4.5- WHAT TYPES OF EQUIPMENT DO YOU HAVE AVAILABLE?	123
FIGURE 4.6- WHAT OTHER NOTABLE OFFERINGS ARE AVAILABLE?	125
FIGURE 4.7- DOES YOUR KITCHEN OFFER SPECIALTY PRODUCTION?.....	126
FIGURE 4.8- WHAT DOCUMENTATION IS REQUIRED?	127

CHAPTER 1. EXPLORING PERSONAL, BUSINESS, AND COMMUNITY BARRIERS AND OPPORTUNITIES FOR FOOD ENTREPRENEURS

1.1 Introduction to the Food System: Definitions and Frameworks

A system is defined as interacting components that together form a complex whole. A food system, therefore, is a system encompassing all activities and resources that go into producing, distributing, and consuming food; and all the relationships and feedback loops between the system components (Neff, 2014). Conceptual frameworks are often used to illustrate and understand the complexity of the food system and can be applied to identify ways for a community to leverage existing resources to implement more regionally sustainability in food and adjacent community sectors. Below are examples of food system frameworks ranging from simple (Figure 1.1) to complex (Figure 1.2). The first is from the City and County of San Francisco's Food System (2017) website used to discuss and implement food system policy changes. Notice the 5-step linear model is circular, conveying how a feedback loop exists which feeds waste from the total system back into an instrument of production.

The term food system is used frequently in discussions about nutrition, food, health, agriculture, and community economic development. So, the food system may also be visually represented by those issue areas, rather than the economic functions in Figure 1.1. An example of this is in food production. Because food production occurs in the natural environment, how food is produced will have impacts on resources like land, air, and water. Similarly, how we decide to produce food will also have impacts on humans that live near or work in food production. Finally, with a focus on efficiencies and cost of inputs for producers, how we produce or grow food will have impacts on price and access.

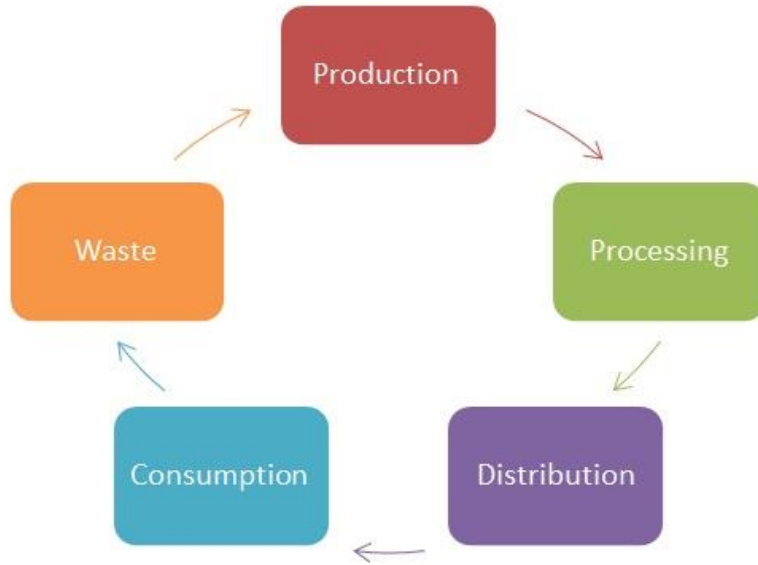


Figure 1.1. Simple framework of the food system. Source: City and County of San Francisco, 2017.

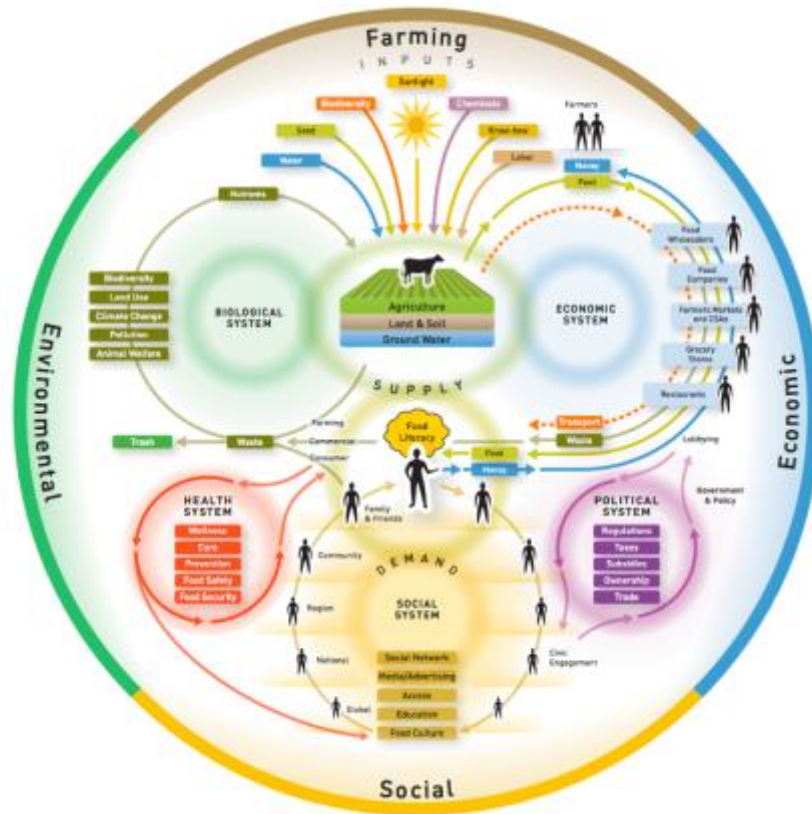


Figure 1.2. Increased complexities in the food system. Source: Worldlink, 2009.

More specifically, the connections between food systems and broader public issues is commonly represented by the 3-pillars of a sustainable food system often called the “triple bottom line,” including environmental, economic, and social sustainability. The three pillars are described below.

1. Environmental- includes natural resources, resiliency, land in production, and biodiversity
2. Economic- includes development, job creation, financial resources, externalities, infrastructure, competition, and consolidation
3. Social- includes connectivity, health, knowledge, political systems, community and culture

Figure 1.3 from the San Diego Food System Alliance (2017) is portrayed as a Venn diagram showing the impact that different activities in the food system have on the larger set of community issues. For example, how a community consumes food is shown to have impact on the economic vitality and on the social equity and human health sectors of a community. Similarly, how a community produces food is shown to have impacts on the economic vitality and the environmental health of a community. The Venn diagram is simple, yet effective in showing the converging food system impacts, implications or externalities that may jointly influence more than one realm of issues.

With increasing complexity, conceptual frameworks attempt to encompass feedback loops, system dynamics, and diverse actors or participants in the system. Frameworks and studies aim to facilitate an understanding of the environmental, health, social and economic effects associated with all components of the food system and how these effects are linked. This encourages the development of improved data collection and methodologies that help identify

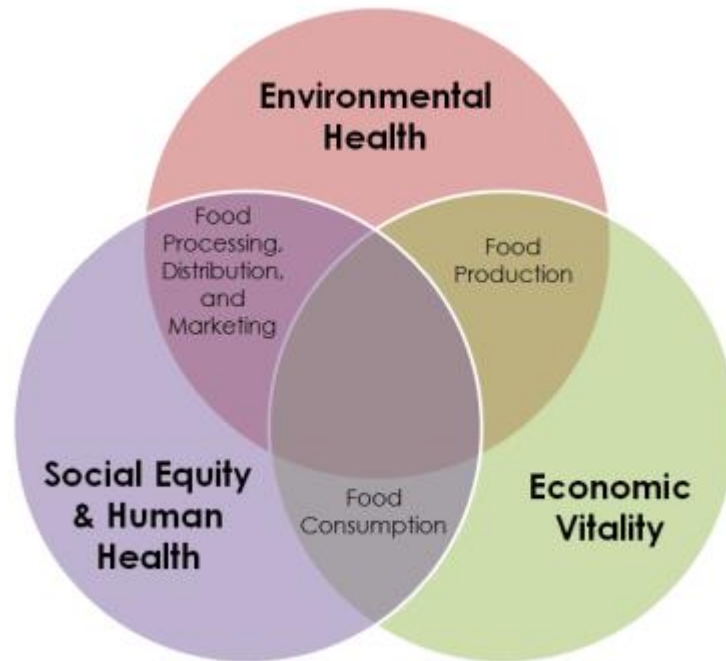


Figure 1.3. Venn diagram framework of the food system. Source: San Diego Food System Alliance, 2017.

and measure effects and to inform decision making in food and agricultural practices and policies in ways to minimize unintended health, environmental, social and economic consequences (Institute of Medicine & National Research Council, 2015). Figure 1.2 displays a complex food system framework that encompasses tradeoffs and systematic impacts.

1.2 Modern Approaches to Food System Analysis, Engagement, and Programs

Modern approaches to facilitating local food systems are robust. Due to varying priorities and stakeholders, a variety of criteria and tools for evaluation of outcomes associated with these systems have emerged in the literature and in communities. Below is a brief overview of the established and emerging methodologies being used to analyze, engage, and implement food system activities in the U.S. Their inclusion here is an effort to provide a broad scope of the

important work occurring in the food system sector as well as to more effectively frame this dissertation within the larger body of work occurring at a national level.

1.2.1 Food system analysis. Tools to analyze a food system, like frameworks, range from simple to complex. Some tools will be used to analyze a part of the whole, while others aim to better address system dynamics. More recently, toolkits for best practices have been developed to support communities in accessing relevant and accurate methodologies from which to make policy recommendations.

1.2.1.1 Food system assessments. A primary starting point for addressing food systems is a food system assessment (FSA). An FSA supports the analysis of inputs to production, distribution, processing, consumption and waste. The scope and defined population or region for the FSA is often defined by the funding source for the project. Typically, the FSA's aim is to focus on agricultural or food production capabilities, food security, or economic development. Because of the dynamic nature of food systems, an FSA can be used to explore and identify social, economic, and environmental policies or programs that can be uniquely leveraged by a community to improve the food system. According to a report published by Tufts University (2017), food system assessments can be conducted with a focus on a variety of key drivers or issues including: foodsheds, food security, community food asset mapping, food deserts, land inventory, local food economies, and food industries ("Food Systems Assessments," 2017). Limitations to FSA approaches include the challenges of drawing generalizable findings from mixed methodologies, variation in scope, ill-defined scope, breadth or narrowness of focus, limited funding and resources to address complexity of system, and misappropriation of methods or conflated results.

1.2.1.2. Life cycle assessment. Life cycle assessment, or analysis, (LCA) is defined by Wikipedia (2017) as a “technique to assess environmental impacts associated with all the stages of a product's life from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling” (“Life-Cycle Assessment,” 2017). The approach is often used to evaluate the environmental impact of products, in this case food products. The methodology has become so popular that, in 2006, the International Organization for Standardization, or ISO, published standards that specify requirements and guidelines for conducting a LCA (“ISO 14044:2006,” 2017). In 2016, the 10th International Conference on Life Cycle Assessment of Food was held at the University College Dublin and invited professionals and practitioners to discuss new developments in life cycle assessment in the context of agrifood systems. Breakout topics included water and eutrophication; biodiversity; soil, carbon and pesticides; meat production, dairy production, seafood and aquaculture; crops and fruits, feed and fertilizer, methods and data, diet and nutrition; and labeling and communications (Conference Partners Ltd., 2015).

1.2.1.3. The economics of local food systems toolkit. In March of 2016, the United States Department of Agriculture (USDA) Agricultural Marketing Service (AMS) published a Toolkit called *The Economics of Local Food Systems* to help support communities looking to expand local food marketing activities as a critical component of their economic development strategies. The Toolkit contains the latest evidence-based resources to support the planning, assessment, and evaluation for food system work. According to the authors, the “toolkit reflects the intention of the USDA AMS to expand its current role as a technical assistance provider to food system practitioners, economic developers, and community stakeholders. We expect this effort will support more appropriately targeted financial investments, as this Toolkit is designed to help

communities' better measure the expected economic impact of planned local food system activities, and thereby support better-informed policy and regulatory decisions on the local, State, and Federal level" (Thilmany et al., 2017).

Tools for measuring economic impact of local and regional food systems have improved significantly. In their report, *Critical Examination of Economic Impact Methodologies*, Meter and Goldenberg (2015), discuss the "multiplier" as "the measure of how many times a dollar earned in a given geographic area cycles through that locale before it leaves" (Meter & Goldenberg, 2015). It was later proposed that there are alternative approaches that may be appropriate, "since the multiplier is a measure of community linkages, with the more highly linked communities achieving high multipliers, it would be useful to measure the strength of social and commercial networks" (Meter, 2016).

1.2.1.4. Local food vitality index. Perhaps the latest tool to emerge was recently proposed in the *Journal of Food Distribution Research* in March 2017 by Woods, Rossi, and David of the University of Kentucky. The authors developed the Local Food Vitality Index (LFVI) to address the gaps and weaknesses in other indices that either use secondary data, are limited in generalizability across geographic regions, focus too heavily on quantity versus quality, and are oftentimes difficult to apply to actors in a local food system. In their words, the LFVI "allows food systems participants and economic development interests to gain a resident consumer perspective of what elements are working well but also determine how individual elements might contribute to the overall score provided for the community in question." To do this, consumers were asked to rate aspects of their food scene on a 1-5 Likert scale from Extremely Poor to Excellent. Components were classified into three categories, food market channels, community engagement, and local food promotion and results were analyzed against a baseline pooling via a

regression analysis. The authors (Woods et al., 2017, p. 40) believe the “index approach will help local food system development stakeholders quickly assess areas of need, high performance, or potential growth.”

1.2.2 Food system engagement. There are numerous types of food system networks aimed at facilitating businesses or stakeholders, developing or evaluating policy, engaging community groups, or developing or funding new programs, and organizing advocacy efforts. Examples include the North American Food Systems Network, the Indigenous Food Systems Networks, and the Sustainable Agriculture and Food Systems Funders. A few of the most common and effective types of networks are outlined below.

1.2.2.1. Business associations. Ranging from producer groups, like farmer cooperatives and collective marketing groups, to ecosystem services and educational providers, business associations aim to coordinate industry. For example, Naturally Boulder, is a non-profit organization established in 2005 by the City of Boulder, Colorado and Boulder Economic Council as an economic development initiative. Today, they have over 1,000 members and more than 100 sponsoring companies. According to their webpage, the purpose of the group is to serve as a voice for the natural food products industry and “offer year-round education programming and networking events, mentoring for entrepreneurs, and celebrations that bring together Colorado’s natural products community” (“History of Naturally Boulder,” 2017).

1.2.2.2. Food clusters. Like business associations, food clusters converge the stakeholders of a sector to facilitate knowledge and technology transfer and elevate regional production. Unlike business associations, clusters aim to leverage businesses, markets, and networks for specific economic development goals. Examples of industry clusters include the wine industry in northern California or the brewing industry in northern Colorado. In the food

sector, a food processing cluster consists of enterprises whose principal activities are the growing, harvesting, processing, and/or distribution of food. For example, the Northern Colorado Food Cluster’s mission is, “to promote food systems-led community economic development and industry integration in the northern Colorado region. By convening actors in the agrifood supply chain, they are fostering cross-sectional collaboration, leveraging resources, and strengthening regional assets to support food supply chain businesses.” Another version of a food cluster is the food innovation district, which is a geographically concentrated cluster of food-oriented businesses, services, and community activities. According to a report from the Center for Regional Food Systems, the districts can be “large or small, urban or rural, and range from single multi-tenant facilities to several blocks in a village or city center” (Cantrell, Colasanti, Goddeeris, Lucas, & McCauley, 2013).

1.2.2.3. Food policy councils (FPC). FPCs exist at the municipal, city, or state level, and consist of representatives and stakeholders from many sectors of the food system who analyze, develop, and advocate for food policies. The Johns Hopkins Center for a Livable Future Food Policy Network project maintains the most comprehensive directory of food policy councils across North America. They reported the growth in Food Policy Councils in the United States peaked in 2013 with 282 reported active in 2015 (Center for a Livable Future, 2015). According to their report, most FPCs are organized as independent grassroots coalitions or are housed in another nonprofit organization. Some are embedded in government agencies which can provide both strengths and weaknesses. The top priorities reported by FPCs were healthy food access, urban food production, education, networking, and procurement. Many FPCs reported capacity needs including funding, organizational development and policy training, and guidance (Sussman & Bassarab, 2017).

1.2.3 Food system implementation. Between 2009 and 2015, USDA invested over \$1 billion in more than 40,000 local and regional food businesses and infrastructure projects (“USDA Results: Local and Regional Food Systems,” 2017). Specifically, the Department made over 900 investments in local food infrastructure planning grants or projects since 2014 including food hubs, local processing facilities, and distribution networks to help connect farmers and consumers and create jobs all along the supply chain for local food (“USDA Results: Local and Regional Food Systems,” 2017). The following implementation types or projects focus on direct to consumer or retail sales channels.

1.2.3.1. Community supported agriculture (CSA). This is a direct to consumer market where individuals pledge support as shareholders to a farm operation, enabling growers and consumers to mutually support and share the risks and benefits of farming. In return for the investment in advance of the season, a shareholder receives a share of the farm’s production throughout the season (National Agriculture Library, 2017). The concept of community supported agriculture is said to have roots in Japan in the 1960’s when a group of women made arrangements directly with farmers for local food (Schnell, 2007). In the United States, the first reported CSAs began to develop on the East Coast of the United States in the mid-1980s in the Berkshire mountains of Massachusetts (Henderson & Van En, 2007). According to Penn State Extension (2017), it is estimated that between 30,000 and 50,000 U.S. consumers belong to a CSA and many range from smaller operations with only a few shareholders to larger CSAs with hundreds, or even thousands of members or subscribers (Community Supported Agriculture, 2017). While the model is still novel, a new report out by USDA Agricultural Marketing Service (AMS; 2017) says that CSAs are being challenged by an increasingly crowded local food marketplace. Because of this, farmers often have a diversified marketing strategy, that includes

CSAs, but not exclusively. Reported opportunities for diversification from the CSA model include sales to schools, institutions, restaurants (Woods, Ernst, & Tropp, 2017). Many CSA managers also report the need to increase the diversity in their CSA by partnering with other local producers to create “aggregated CSAs” that include meat, cheese, eggs, and flowers (Woods et al., 2017).

1.2.3.2 Farmers’ markets. Another direct to consumer model that has seen significant growth due to consumers’ increased interest in locally grown, farm fresh produce, and value-added products is the farmers’ market. In 2016, Secretary of Agriculture Tom Vilsack proclaimed August 7th-13 as National Farmers’ Market Week. According to the AMS, as of the week of the proclamation there were 8,669 farmers’ markets listed in USDA’s National Farmers Market Directory, a 2.3 percent increase from 2015 (USDA AMS, 2017). Funding for farmers’ markets has also increased. Specifically, the Farmers Market Promotion Program has awarded 879 grants for over \$58 million since the 2008 Farm Bill was enacted (USDA AMS, 2016).

1.2.3.3. Farm to institution. These programs aim to scale up regional farm products to service institutions like, schools, universities, hospitals, prisons, corporate cafeterias, and senior care facilities. Once called the “sleeping giant of local food” (Clark, 2016), institutions have significant buying power and provide a unique market channel for farmers. The 2015 Farm to School Census indicated that “schools purchased nearly \$790 million in local food from farmers, ranchers, fishermen, food processors, and manufacturers in school year 2013 –14,” a 105% increase over school year 2011-12 when the first Census was conducted. More importantly, nearly half (47%) of the districts responding to the Census reported a plan to purchase more local foods in future school years” (USDA Food and Nutrition Service, 2016). Other program models include on-site farmers’ markets, local procurement, institutional gardens,

salad bars, farm tours, cooking classes, composting programs, and CSA pickup locations (Harris, Lott, Lakins, Bowden, & Kimmons, 2012).

1.2.3.4. Public markets. According to the consulting firm Public Market Development, a “public market is a year-round, carefully crafted, intentional and diverse medley of owner-operated shops, stalls and/or day tables that exist to fulfill a public purpose--- to showcase a community’s unique character and culture while serving its everyday shopping needs” (Zaretsky, 2016). The popularity in public markets has seen a resurgence as a vehicle to spur urban revitalization and economic development. According to the Ford Foundation (2003), sustainable markets require a collaborative model of:

1. Public market experts for training, information, and technical assistance.
2. Institutional partners with deep pockets: transit authorities, redevelopment agencies, medical centers, recreation departments, universities, churches, etc.
3. Public awareness efforts and engagement to facilitate best practices, networking, communication, workshops, etc.
4. Advocates from special constituencies including civil rights leaders, community development agencies, immigrants, etc. (The Ford Foundation, 2003).

The remaining implementation types or projects focus on food production and supply chain management, and perhaps are more closely aligned with the food system enterprises of core interest in this research.

1.2.3.5. Food hubs. Primarily a strategy for a scaling up local food, a food hub aims to bridge the gap between smaller-scale farms and larger volume wholesale purchasing. They often exist with a mission to increase market access for farmers, food access for underserved populations, and human health for the community (Yellow Wood Associates Staff & Wallace

Center at Winrock International Staff, 2014). As of 2013, there were more than 200 food hubs in operation (Cantrell & Heuer, 2014). In response to the growing trend and the need to support food hub models, financing, and risk mitigation, the National Good Food Network held their national Food Hub Conference in 2016. According to John Fisk, the Director of the Wallace Center at Winrock which houses the National Good Food Network, “the NGFN is committed to building food hub capacity through connection, outreach, research, technical assistance and partnerships.” Their site hosts a community of practice for food hub operators.

1.2.3.6. *Virtual or online farmers’ markets.* Technology startups are increasingly in the business of complex food aggregation and distribution to capitalize on the trend in local foods. The goal is to make the buying and selling of local produce and value-added products easier by allowing farmers to post the goods they have available and for consumers to shop online, at their convenience. Often coordination of the farmers, products, and delivery are included in the service. Examples of these platforms include: locallygrown.net; Farmigo; FullCircle, Barn2Door, and Good Eggs. While the model seems intuitive, despite significant funding, many of the most well-known virtual farmers’ markets have failed in recent years. In July of 2016, Farmigo closed its community delivery operation (Ronen, 2016) with TechCrunch reporting CEO Benzi Ronan saying “our expertise is in software, not in logistics” (Perez, 2016). Similarly, organic food delivery startup Good Eggs closed operations in all cities except San Francisco and laid off 140 employees in August 2016. Again, in TechCrunch, Good Eggs CEO Rob Spiro said, “the single biggest mistake we made was growing too quickly, to multiple cities, before fully figuring out the challenges of building an entirely new food supply chain. We were motivated by enthusiasm for our mission and eagerness to bring Good Eggs to more people. But the best of intentions were not enough to overcome the complexity” (Ha, 2016). Danielle Gould of Food+Tech

Connect carefully evaluated the dwindling trend by identifying three major salient points to consider: 1. Establish a strong, workable business model before attempting to scale; 2. Scaling food distribution is extremely difficult and requires more than financial investment or a enormous marketing budget; 3. It's infinitely easier to iterate software than supply chains (Gould, 2015).

1.2.3.7. Copackers. According to Wikipedia, “a contract packer or copacker is a company that manufactures and packages foods for their clients” (Wikipedia, 2017). Many growing food companies and brands will contract out their production with an expert copacker to manufacture their products in order to benefit from competitive costs, lower capital requirements, expertise of a manufacturing partner, and increased capacity for other business operations (Myslik, 2013). The Specialty Food Association, a non-profit trade association for specialty food manufacturers, has a listing of nearly 700 copacking companies able to produce a wide range of products from liquid to dry, ingredient pre-blends, or packaging services. Often times, the use of copackers are part of the natural evolution for a food product company.

1.2.3.8. Shared use kitchens and food incubators. A shared-use kitchen is a licensed commercial space that is certified for food production. Renters or members can use the kitchen by the hour or day to produce food while fulfilling regulatory compliance. Food entrepreneurs, ranging from chefs, caterers, food trucks proprietors, bakers, to value-added producers, can benefit from the shared kitchen instead of spending capital to build or lease their own facility. A commissary kitchen is an example of a shared-use kitchen that provides kitchen rentals. Food incubators, also provide kitchen rental but provide additional services like business development training, access to ecosystem services such as legal aid, packaging, label printing, and distribution. A recent report published by Econsult Solutions found that there has been a surge in

numbers among the kitchen incubators landscape. Specifically, the findings indicate that between August 2013 and March 2016, the number of kitchen incubators increased by more than 50% to over 200 facilities (Wodka, 2016).

1.3 Study Motivation and Theoretical Groundwork

1.3.1 Motivation of the study. The specialty food market overall grew 19.2% from 2012 to 2014 (“The State of the Specialty Food Industry 2016,” 2016). This increased market demand is fueling growth in food entrepreneurship. According to IBIS World, from 2011-16, the annual growth for food trucks, caterers, and specialty food stores grew by 7.9%, 1.3%, and 3% respectively. By law, food businesses typically must prepare food in commercial kitchens licensed and overseen by local health agencies. The cost of outfitting a commercial kitchen for a small food business usually ranges from about \$15,000 to about \$500,000 as of 2013, making the costs prohibitive (Gartenstein, 2003) for commonly resource constrained start-ups.

1.3.1.1 Food entrepreneurs. Communities invest their resources in a number of diverse ways to achieve community economic development (CED), thereby yielding a myriad of potential impacts and outputs (Fey, Bregendahl, & Flora, 2006). Investment in the food sector in the last 15 years has contributed to a growth in food entrepreneurship across the country. In support of such innovation, the 2002 Farm Bill allocated \$27.7 million in competitive grants to support the development of value-added food production and to create Agriculture Innovation Centers “to foster the ability of agricultural producers to reap the benefits of producing and marketing value-added products” (Knudson, Wysocki, Champagne, & Peterson, 2004). These early investments may have ignited a new sector of community-driven food businesses, with a supporting infrastructure of technical assistance partners.

Food entrepreneurs are key drivers in economic development for regional food systems (Mayors Innovation Project, 2014; Thilmany et al., 2017; USDA, 2017). Their unique values likely influence their business mission and may be central to their motivations for starting and maintaining a food business (Knudson et al., 2004). Similar to research findings regarding entrepreneurs in general, food entrepreneurs are risk-takers, seek to push boundaries, and enjoy the challenge of venturing into the unknown (Knudson et al., 2004). But often food entrepreneurs maintain unique insights anchored in their core values and possess skills in communicating their vision to others (Knudson et al., 2004). Given their unique contribution and role in the food system, this dissertation is focused on the personal, business, and community barriers and opportunities for food entrepreneurs.

1.3.2 Theoretical groundwork.

1.3.2.1 Community capitals framework. One way to approach the complexity of food systems comes from the sociology literature. The Community Capital Framework (CCF) (see Figure 1.4 below) represents a range of resources found within a community that can be leveraged to impact other capitals, and ultimately the system. Perhaps a bit understated as an applied methodology (Zekeri, 2013), the CCF offers a systematic way to analyze strategies and/or projects that may contribute to effective community decisions in the food system and is a key part of the theoretical framework for this dissertation. The CCF is rooted in the rural community development and sociology literature (Flora, 1998; Hillery, 1955; Kaufman, 1959; Tilly, 1973) and was first introduced as a framework through the work of Jan L. Flora and Cornelia Flora of Iowa State University in the late 1990s (Emery & Flora, 2006; Fey et al., 2006). The CCF focuses on the interactions between and among the seven capitals and how they

build upon one another (Flora, Emery, Fey, & Bregendahl, 2008). The seven capitals are introduced briefly below, with a more comprehensive literature review available in Chapter Two.

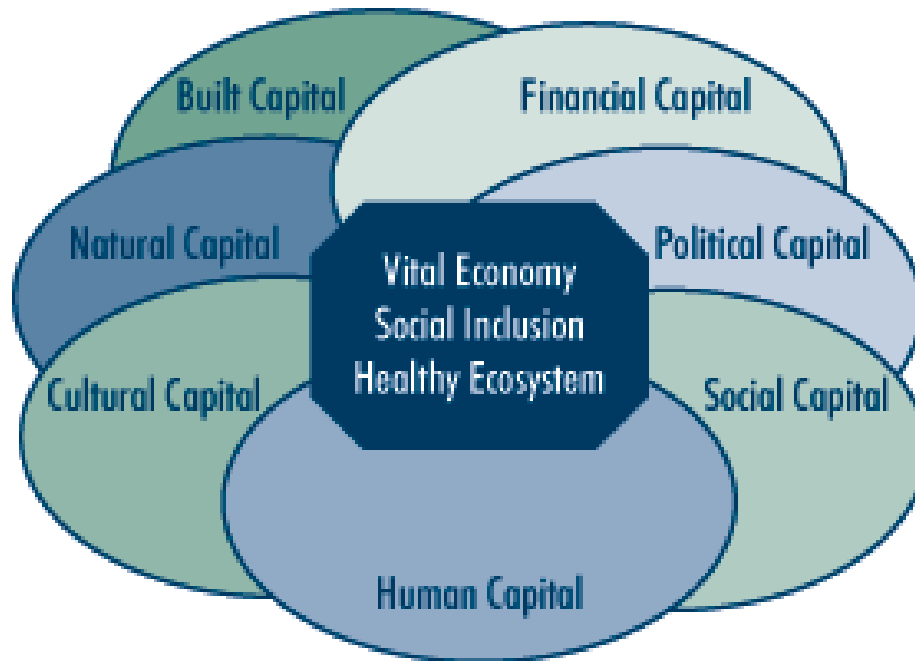


Figure 1.4. Community capitals framework. Source: Fifth Annual Community Capitals Framework Institute, 2008.

The 7 Community Capitals introduced:

1. **Financial:** the financial resources available to the community for capacity building
2. **Political:** the ability to influence standards, regulations, rules and their enforcement
3. **Social:** connections among people and organizations or the social glue to make things happen
4. **Human:** skills and abilities of the people
5. **Cultural:** reflects the way people "know the world" and act within it
6. **Natural:** those assets that abide in a location, including resources, amenities and natural beauty
7. **Built:** the infrastructure that supports the community

Much of the Floras’ sociological research evaluates the support of social and human capitals in facilitating the “spiraling up” of a community’s other capitals. In economics, the idiom “to spiral up” means a continuous upward movement in economic activity or prices, caused by interaction between prices, wages, demand, and production (Dictionary.com, 2017). Within the CCF, the theory of “spiraling up” assumes that an increased stock of assets in financial, political, cultural, and social capitals can initiate an ongoing process of linked assets further building on existing assets, leading to the effect of an upward spiral. Figure 1.5 was reprinted from the paper “Spiraling-Up: Mapping Community Transformation with Community Capitals Framework” that evaluated a program aimed at building social capital in Nebraska. A “spiraling down” of the capitals can also occur. In this instance, the loss of jobs leads to a decline in population, which decreases incomes, and eventually leads to the loss of generational wealth and other linked capitals.

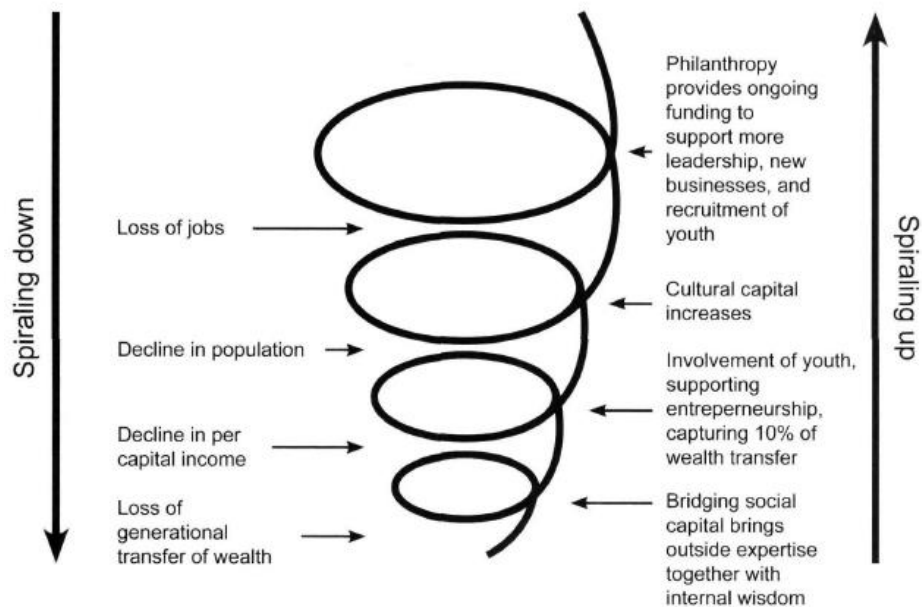


Figure 1.5. Spiraling-up: mapping community transformation with community capitals framework. Source: Emery & Flora, 2006.

1.3.2.2 Entrepreneurial social infrastructure. Another important concept and theoretical grounding for this dissertation is a specific strategy for development introduced by the Floras called entrepreneurial social infrastructure (ESI). ESI is the linking of physical resources and leadership that enables local communities to more effectively provide their own well-being and development. The ESI has three key elements: 1.) symbolic diversity; 2.) resource mobilization; and 3.) quality networks (Emery & Flora, 2006; Flora, Butler, & Flora, 1993). The three elements are briefly introduced here and described in deeper depth in Chapter Two.

Key ESI elements introduced:

1. Symbolic diversity inspires communities to engage in constructive controversy to arrive at workable community decisions. The element focuses on community processes, depersonalization of politics, and a broadening of community boundaries to be inclusive of more voices (Flora et al., 1993). Symbolic diversity is essentially a collection of community-adopted and accepted approaches based upon mutual respect and functions that support better decisions within and for a community.
2. Resource mobilization is the ability of a community to acquire resources and mobilize people towards accomplishing goals. Tenets of resource mobilization include relative equity in resource and risk distribution, investment by residents of their own private capital locally, and collective investment in the community (for example, a willingness to tax themselves and having their own 'skin in the game'; Flora et al., 1993).
3. Quality networks include establishing linkages between others in similar circumstances, as well as among vertical networks that provide for diverse sources of

information, skills, and resources from both within and outside the community (Flora et al., 1993).

For this dissertation, the ESI framework will be used to evaluate whether or not an Entrepreneurial Social Infrastructure is emerging among a subset of food enterprises in the U.S. In doing so, the researcher will look at the differences and commonalities in how food enterprises perceive community capitals in the context of their personal business decisions. This work can be found in Chapter Two.

1.3.2.3 Perceived consumer effectiveness. Another concept considered in this dissertation comes from the behavioral economics literature. The concept of Perceived Consumer Effectiveness (PCE), or the extent to which the consumer believes that his/her personal efforts can contribute to the solution of a problem, first appeared in the *Journal of Marketing* in April of 1974 (Kinnear, Taylor, & Ahmed, 1974). Since then, the concept has emerged in the food system literature as an effective way to translate positive attitudes for local, organic, fair trade, and/or eco-labeled products into actual consumer purchases and behavioral outcomes (Thilmany, Bond, & Bond, 2008; Vanhonacker, Van Loo, Gellynck, & Verbeke, 2013; Verbeke, Vanhonacker, Sioen, Van Camp, & De Henauw, 2007; Vermeir & Verbeke, 2006). A profile of the *U.S. Local Food Consumer* is outlined in the literature and integrates PCE related factors in the dimensions of personal health, positive impacts on the local economy, society, and the environment, and as a statement for social fairness (Campbell, Martinelli, & Fairhurst, 2015; Thilmany, 2012; Thilmany et al., 2008). A more comprehensive review of the PCE will be provided in Chapter Two. PCE aligns well with the proliferation of labels occurring in U.S. food markets over the past two decades (Onozaka, Nurse, & Thilmany, 2011). Figure 1.6 below is a selection of the labels that can be used by brands to influence a consumer's PCE.



Figure 1.6. Examples of labels influenced by PCE.

While understanding consumer behavior in relation to food attributes, labels, and consumers' willingness to pay for such differentiated food products is receiving increased attention, what has not been readily explored is the motivation, buying behavior, or the perceived business effectiveness (PBE) of food enterprises or entrepreneurs. This dissertation will adapt the constructs from the PCE research on consumers, and with a new set of analogous questions, survey owners of food businesses to identify their feelings, perceptions, and roles food enterprises surrounding their enterprises' larger contributions to their industry and community.

1.3.2.4 Access economy. More popularly known as the sharing economy, the access economy suggests that “access” to goods and services may be more desirable than “ownership” of them. The access economy describes a type of business built on the sharing of resources, like Airbnb (for a place to stay) or ZipCar (for a car to go). In Stan Stalnaker's 2008 Harvard Business Review article “Here comes the P2P Economy,” he described how peer to peer networks have changed the flow of information from a ‘one-to-many’ model to a ‘many to many’ model, specifically in the financial services sector where crowdsourcing and microlending has given rise to network lending. This ‘collaborative consumption’ or peer to peer based activity of obtaining, giving, or sharing the access to goods and services, is coordinated through online services or platforms and has moved from a trend to a legitimate business opportunity, with investors regarding it as the new mega trend. The result, in theory, is a lower environmental burden through the mass sharing of resources and a stronger cohesion of cultural connectivity through social networks, bonded by technology or proximity.

Table 1.1

Examples of Businesses Anchored in the Peer to Peer Economy

Company or Platform	Capitalization Value
Airbnb, Couchsurfing, HomeAway, VRBO	Apartment/house renting and couch surfing
Zipcar, Lyft, Uber, Car2Go, FlightCar	Ridesharing and carsharing
TaskRabbit, LivePerson, Simplist, Elance	Knowledge and talent sharing
Pivotdesk, CoCo, Galvanize, WeWork	Coworking or office sharing
Kickstarter, Indiegogo, CircleUp	Crowdfunding

In the food sector, access to infrastructure is critical. Food system infrastructure can include things like warehouses or cold storage facilities, processing facilities, refrigerated trucks, or certified commercial kitchens. According to the USDA’s Know Your Farmer, Know Your Food Compass (KYF), “access to infrastructure can open up tremendous opportunities for the local economy” (“Know Your Farmer,” 2016). In response, the KYF task force compiled tools to help producers and food business owners identify infrastructure near them before considering an unnecessary investment that would be a barrier to limited resource firms. One example is a meat and poultry slaughter map to help smaller producers find processors who can slaughter smaller numbers of birds. The other includes a working list of food hubs for those who need assistance in scaling up their sales to include wholesale food markets. But to successfully leverage infrastructure in regional and local food systems, the ability to scale technology platforms that connect businesses also becomes important. Based on the full set of literature summarily presented here, and adding the context of the food systems sector, the conceptual framework provided below was developed to convey the overall research methods and design for this dissertation.

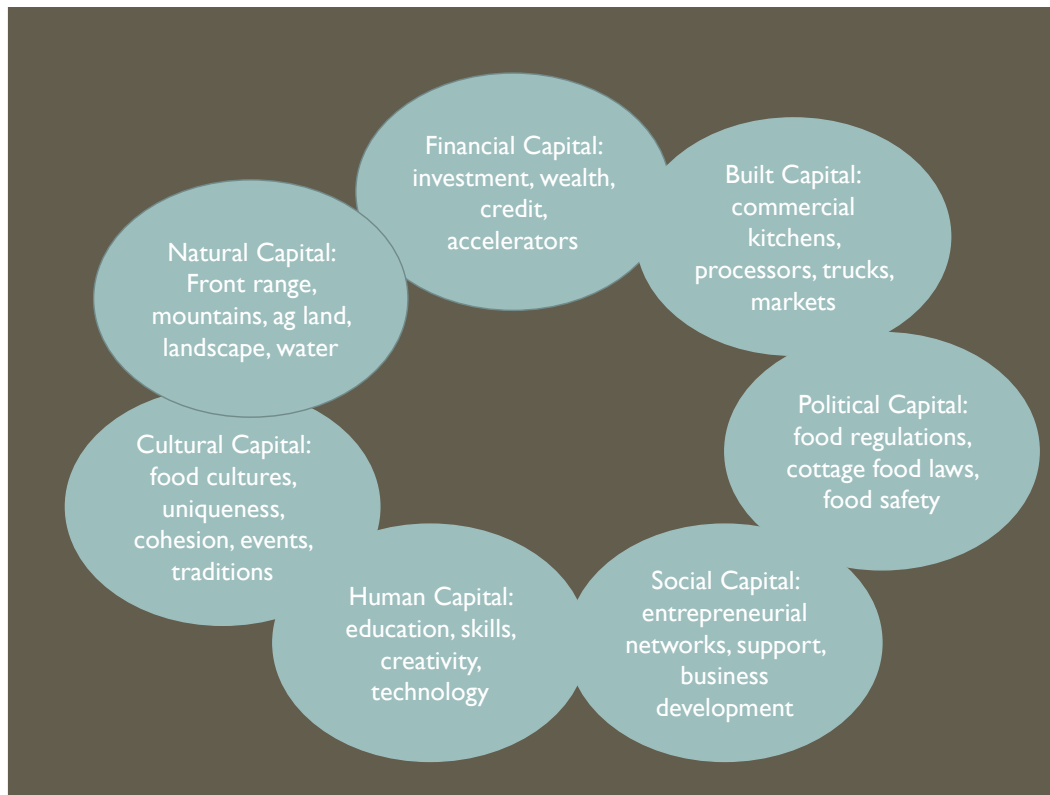


Figure 1.7. Exploring personal, business, and community barriers and opportunities for food entrepreneurs: A contextual framework.

1.4 Research Overview, Questions, and Methodology

1.4.1 Research overview. This research provides insight into the factors that impact decisions made by food enterprises and the potential to leverage capitals that help support the entrepreneurial community. The dissertation is comprised of three manuscripts that each explore personal, business, and community barriers and opportunities for food entrepreneurs. Due to the multidisciplinary nature of this dissertation, a diverse set of theoretical frameworks and concepts have been introduced in Chapter One and will be more fully explored within the context of the literature and application in each subsequent manuscript. Chapter Two of the dissertation applies the Community Capitals Framework to better understand the Perceived Business Effectiveness of food enterprises and the emerging Entrepreneurial Social Infrastructure that there is evidence

is emerging in the U.S. Chapter Three explores a variety of motivations that contribute to the willingness to adopt or participate in the access economy when looking for commercial kitchen space to produce their food. This chapter is intended to provide insight on the potential that technology platforms may have on building stronger regional food systems. Lastly, Chapter Four, will bridge the findings of Chapter Two and Chapter Three by piloting a technology platform that matches underutilized infrastructure (built capital) with entrepreneurs in search of commercial kitchen space. This research may be especially relevant to development practitioners seeking to identify best practices or innovative ways to improve the overall connectivity of their local food system.

Chapter One has introduced pertinent definitions and frameworks for a food system and provided a list and descriptions of current approaches to food system analysis, engagement, and programs currently being implemented across the United States. Next, Chapter One introduced the motivation of the study and four theoretical concepts that will be applied throughout the dissertation methodology and analysis in subsequent chapters: 1.) Community Capitals Framework 2.) Entrepreneurial Social Infrastructure and 3.) Perceived Consumer Effectiveness and 4.) The Access Economy. Chapter One concludes here by outlining the research questions and methodology for the dissertation.

1.4.2 Research questions. The purpose of this dissertation research is to test a novel approach to connecting food entrepreneurs with the infrastructure resources needed as an empirical example of how the access economy may apply in the food sector, and more specifically, how such an approach addresses the community capital development of communities. The research questions and hypothesis for each chapter are provided below.

1.4.2.1 Research questions for Chapter 2. Is there an Entrepreneurial Social Infrastructure emerging among food enterprises in the U.S.?

- H1: There are differences in how food enterprises perceive community capitals in the context of their business decisions.
- H2: There are commonalities in how food enterprises perceive community capitals in the context of their business decisions.

1.4.2.2 Research questions for Chapter 3. There are a variety of motivations that contribute to the willingness to adopt or participate in the access economy.

- H1: There are a variety of firm and personal factors contributing to whether or not a food entrepreneur is looking for kitchen space.
- H2: There are economic, social, and community drivers influencing the likelihood of adopting technology related to the access economy.

1.4.2.3 Research questions for Chapter 4. The opportunity to match underutilized infrastructure (built capital) with entrepreneurs is dependent on the relevant vibrancy of community capitals and appropriate interventions to address barriers to built capital.

- H1: Technology (via the **access economy**) can be used as a platform enabling entrepreneurship and leveraging the community capitals.

1.4.3 Research methodology. To answer the research questions, a survey of food enterprises (n=144) was conducted in 2015 using Qualtrics. The survey results were used to evaluate the Community Capital Constructs to determine if an Entrepreneurial Social Infrastructure is emerging among food enterprises in the U.S. The survey also provided data on the differences and commonalities in how food enterprises perceive community capitals in the context of their business decisions. A second section of the survey aimed to identify the

motivations that contributed to the willingness to adopt or participate in the access economy. The responses were evaluated to identify the factors contributing to whether a food entrepreneur was looking for kitchen space and if there were economic, social, and/or community drivers influencing the likelihood of adopting technology related to the access economy. To test the assumptions in the real world, a 3-month pilot was conducted from January to March of 2016 to connect food entrepreneurs in need of commercial kitchen space with underutilized spaces available at 4 different commercial kitchens, two publicly owned and two privately owned. Case studies sharing the initial results of the pilot are presented as a means to tie the research to the implementation of a real-world food entrepreneurial venture.

REFERENCES

- Campbell, J., Martinelli, E., & Fairhurst, A. (2015). Italian and U.S. consumers of local foods: An exploratory assessment of invariance. *Journal of International Consumer Marketing*, 27(4), 280–294. doi:10.1080/08961530.2015.1022919
- Cantrell, P., & Heuer, B. (2014). *Food hubs: Solving local*. Wallace Center at Winrock International. Retrieved from <http://www.ngfn.org/resources/ngfn-database/knowledge/Food%20Hubs%20-%20Solving%20Local.pdf>
- Cantrell, P., Colasanti, K., Goddeeris, L., Lucas, S., & McCauley, M. (2013). Food innovation districts: An economic gardening tool. Center for Regional Food Systems. Retrieved from [http://foodsystems.msu.edu/\\$segments.get\(1\)/fid-guide](http://foodsystems.msu.edu/$segments.get(1)/fid-guide)
- Center for a Livable Future. (2015). *Food policy council directory, 2015 update*. Retrieved from https://assets.jhsph.edu/clf/mod_clfResource/doc/FPC_Trends_Slides_2015_10_28.pdf
- City and County of San Francisco. (2017). Food system policy program: Planning department. Retrieved from <http://sf-planning.org/food-system-policy-program>
- Conference Partners Ltd. (2015). LCA food 2016: Programme. Retrieved from <http://lcafood2016.org/programme/>
- Dictionary.com. (2017). Spiraling. Retrieved from <http://www.dictionary.com/browse/spiralling>
- Emery, M., & Flora, C. (2006). Spiraling-up: Mapping community transformation with community capitals framework. *Community Development*, 37(1), 19–35. doi:10.1080/15575330609490152
- Fey, S., Bregendahl, C., & Flora, C. (2006). The measurement of community capitals through research. *Online Journal of Rural Research & Policy*, 1(1). doi:10.4148/ojrrp.v1i1.29

- Fifth Annual Community Capitals Framework. (2008). Community capitals. Department of Sociology, Iowa State University. Retrieved from <http://www.soc.iastate.edu/staff/cflora/ncrcrd/capitals.html>
- Flora, C. B., Flora, J. L. (1993). Entrepreneurial social infrastructure: A necessary ingredient. *The Annals of the American Academy of Political and Social Science*, 529(1), 48–58. doi:10.1177/0002716293529001005
- Flora, C., Emery, M., Fey, S., & Bregendahl, C. (2007). Community capitals: A tool for evaluating strategic interventions and projects. Ames, IA: North Central Regional Center for Rural Development.
- Flora, J. L. (1998). Social capital and communities of place. *Rural Sociology*, 63(4), 481–506. doi:10.1111/j.1549-0831.1998.tb00689.x
- Gartenstein, D. (2003). The estimated cost for a commercial kitchen in a small business. Retrieved from <http://smallbusiness.chron.com/estimated-cost-commercial-kitchen-small-business-74630.html>
- Gould, D. (2015). Why \$53M wasn't enough to scale good eggs. Retrieved from <http://foodtechconnect.com/2015/08/10/why-53m-wasnt-enough-to-scale-good-eggs/>
- Ha, A. (2016). Good eggs will shut down all operations outside San Francisco, lay off nearly 140 employees. *TechCrunch*. Retrieved from <http://social.techcrunch.com/2015/08/05/good-eggs-layoffs/>
- Harris, D., Lott, M., Lakins, V., Bowden, B., & Kimmons, J. (2012). Farm to institution: Creating access to healthy local and regional foods. *Advances in Nutrition*, 3(3), 343–349. doi:10.3945/an.111.001677

- Henderson, E., & Van En, R. (2007). *Sharing the harvest: A citizen's guide to community supported agriculture* (2nd ed.). White River Junction, Vt. Chelsea Green Publishing.
- Hillery, G. (1955). Definitions of community: Areas of agreement. *Rural Sociology*, 20(2), 111–123.
- Institute of Medicine & National Research Council. (2015). *A framework for assessing effects of the food system*. Washington, DC: National Academies Press. Retrieved from <http://www.nap.edu/catalog/18846>
- International Organization for Standardization. ISO 14044:2006: Environmental management: Life cycle assessment: Requirements and guidelines. (2017). Retrieved from <https://www.iso.org/standard/38498.html>
- Kaufman, H. F. (1959). Toward an interactional conception of community. *Social Forces*, 38(1), 8–17. doi:10.2307/2574010
- Kinnear, T. C, Taylor, J. R., & Ahmed, S. A. (1974). Ecologically concerned consumers: Who are they? *Journal of Marketing*, 38(2), 20–24. doi:10.2307/1250192
- Knudson, W., Wysocki, A., Champagne, J., & Peterson, H. C. (2004). Entrepreneurship and innovation in the agri-food system. *American Journal of Agricultural Economics*, 86(5), 1330–1336. doi:10.1111/j.0002-9092.2004.00685.x
- Leilani, C. (2016). Why farm-to-institution sourcing is the sleeping giant of local food. *Civil Eats*. Retrieved from <http://civileats.com/2016/08/29/forget-farm-to-table-its-farm-to-institution-sourcing-that-could-make-a-real-dent-the-food-system/>
- Life-cycle assessment. (2017). *Wikipedia*. Retrieved from https://en.wikipedia.org/w/index.php?title=Life-cycle_assessment&oldid=768295316

- Mayors Innovation Project. (2014). *Local food and economic development: A guide for local governments*. University of Wisconsin-Madison. Retrieved from http://www.mayorsinnovation.org/images/uploads/pdf/Food_and_Economic_Development_Brief_updated.pdf
- Meter, K. (2016). Metrics from the field: Two new tools for measuring economic impacts. *Journal of Agriculture, Food Systems, and Community Development*, 5(3), 5–7.
doi:10.5304/jafscd.2015.053.010
- Meter, K., & Phillips Goldenberg, M. (2015). Critical analysis of economic impact methodologies. *Crossroads Resource Center*. Retrieved from <http://www.crcworks.org/econimpacts.pdf>
- Myslik, L. (2013). 5 things to consider when selecting a co-packer. *Fresca Foods, Great Taste, Naturally*. Retrieved from <http://www.frescafoodsinc.com/5-things-to-consider-when-selecting-a-co-packer>
- Naturally Boulder. History of Naturally Boulder. (2017). Retrieved from <http://www.naturallyboulder.org/about/history-of-naturally-boulder/>
- National Agriculture Library. (2017). Community supported agriculture: Alternative Farming Systems Information Center: USDA. *Alternative Farming Systems Information*. Retrieved from <https://www.nal.usda.gov/afsic/community-supported-agriculture>
- Neff, R. (2014). *Introduction to the U.S. food system: Public health, environment, and equity*. San Francisco. Jossey-Bass Public Health. Retrieved from <http://www.wiley.com/WileyCDA/WileyTitle/productCd-1118063384,miniSiteCd-JBPUBLICHEALTH.html>

- Onozaka, Y., & Thilmany D. (2011) Does local labeling complement or compete with other sustainable labels? A conjoint analysis of direct and joint values for fresh produce claim. *American Journal of Agricultural Economics*. 93(3), 693-706.
- Penn State Extension. (2017). Community Supported Agriculture. Ag Alternatives. Retrieved from <http://extension.psu.edu/business/ag-alternatives/marketing/community-supported-agriculture-csa>
- Perez, S. (2016). Farmigo shuts down its online farmer's market. *TechCrunch*. Retrieved from <http://social.techcrunch.com/2016/07/13/farmigo-shuts-down-its-online-farmers-market/>
- Ronen, B. (2016, July 13). Thank you. *Farmigo Blog*. Retrieved from <http://blog.farmigo.com/thank-you-farmigo-csa-software/>
- San Diego Food System Alliance. (2017). The alliance. Retrieved from <http://www.sdfsa.org/overview/>
- Schnell, S. M. (2007). Food with a farmer's face: Community-supported agriculture in the United States. *Geographical Review*, 97(4), 550–564. DOI: 10.1111/j.1931-0846.2007.tb00412.x
- Specialty Food Association. The state of the specialty food industry 2016. (2016). Retrieved from <https://www.specialtyfood.com/news/article/state-specialty-food-industry-2016/>
- Stalnaker, S. (2008). Here comes the P2P economy. *Harvard Business Review*. Retrieved from <https://hbr.org/2008/02/here-comes-the-p2p-economy>
- Sussman, L., & Bassarab, K. (2017). *Food Policy Council report 2016*. Retrieved from https://assets.jhsph.edu/clf/mod_clfResource/doc/FPC%20Report%202016_Final.pdf

The Ford Foundation. (2003). *Public markets Phase I report: An overview of existing programs and assessment of opportunities as a vehicle for social integration and upward mobility.*

Retrieved from http://www.pps.org/pdf/Ford_Report.pdf

Thilmany, D. (2012). What is driving consumer demand for local foods? Retrieved from

<http://ageconsearch.umn.edu/bitstream/126440/2/McFadden.pdf>

Thilmany, D., Bond, C. A., & Bond, J. K. (2008). Going local: Exploring consumer behavior and motivations for direct food purchases. *American Journal of Agricultural Economics*, 90(5), 1303–1309. doi:10.1111/j.1467-8276.2008.01221.x

Thilmany, D., Conner, D., Deller, S., Hughes, D., Meter, K., Morale, A., & Schmit, T. (2017).

The economics of local food systems: A toolkit to guide community discussions, assessments, and choices. Retrieved from <https://www.ams.usda.gov/sites/default/files/media/Toolkit%20Designed%20FINAL%203-22-16.pdf>

Tilly, C. (1973). Do communities act? *Sociological Inquiry*, 43(3–4), 209–238. doi:10.1111/j.1475-682X.1973.tb00008.x

Tufts University. (2017) Food systems assessments: Cultivate your food economy. Tufts

University. Retrieved from [https://sites.tufts.edu/foodeconomyfinalreport/practical-](https://sites.tufts.edu/foodeconomyfinalreport/practical-visionaries-history/theoretical)

[-framework/food-systems-assessment/](https://sites.tufts.edu/foodeconomyfinalreport/practical-visionaries-history/theoretical-framework/food-systems-assessment/)

United States Department of Agriculture Agricultural Marketing Service. (2016). Know your

farmer, know your food: Our mission: USDA. (2016). Retrieved from

http://www.usda.gov/wps/portal/usda/usdahome?navid=KYF_MISSION

- United States Department of Agriculture Agricultural Marketing Service. (2016). Farmers market promotion program 2016 highlights. Retrieved from <https://www.ams.usda.gov/reports/farmers-market-promotion-program-2016-highlights>
- United States Department of Agriculture Agricultural Marketing Service. (2017). Farmers markets and direct-to-consumer marketing: Agricultural marketing service. Retrieved from <https://www.ams.usda.gov/services/local-regional/farmers-markets-and-direct-consumer-marketing>
- United States Department of Agriculture Food and Nutrition Service. (2016). Farm to school works to stimulate local economies. *The Farm to School Census*. Retrieved from <https://farmtoschoolcensus.fns.usda.gov/farm-school-works-stimulate-local-economies>
- United States Department of Agriculture. (2017). Trends in U.S. local and regional food systems. Retrieved from <https://www.usda.gov/wps/portal/usda/usdahome?contentid=usda-results-local.html>
- Vanhonacker, F., Van Loo, E. J., Gellynck, X., & Verbeke, W. (2013). Flemish consumer attitudes towards more sustainable food choices. *Appetite*, 62(March), 7–16. doi:10.1016/j.appet.2012.11.003
- Verbeke, W., Vanhonacker, F., Sioen, I., Van Camp, J., & De Henauw, S. (2007). Perceived importance of sustainability and ethics related to fish: A consumer behavior perspective. *AMBIO*, 36(7), 580–585. doi:10.1579/0044-7447(2007)36[580:PIOSAE] 2.0.CO;2
- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer ‘attitude-behavioral intention’ gap. *Journal of Agricultural and Environmental Ethics*, 19(2), 169–194. doi:10.1007/s10806-005-5485-3

- Wikipedia. (2017). Retrieved from <https://en.wikipedia.org/w/index.php?title=Copacker&oldid=760423189>
- Wodka, A. (2016). U.S. kitchen incubators: An industry update. American Communities Trust, Econsult Solutions, Urbane Development. Retrieved from <http://www.econsultsolutions.com/report/us-kitchen-incubators-industry-update/>
- Woods, T., Ernst, M., & Tropp, D. (2017). *Community supported agriculture: New models for changing markets*. U.S. Department of Agriculture, Agricultural Marketing Service.
- Woods, T., Rossi, J., & David, A. (2017). Local food vitality index: Measuring consumer attitudes toward food system attributes. *Journal of Food Distribution Research*, 48(1), 33–41.
- Worldlink. (2009). Food system tools: Nourish: Food + community. Retrieved from <http://www.nourishlife.org/teach/food-system-tools/>
- Yellow Wood Associates Staff & Wallace Center at Winrock International Staff. (2014). *Exploring common measures for food hubs*. Retrieved from http://safsf.org/documents/repository/153_04-04-14_Exploring%20Common%20Measures%20Final%20Report%20with%20cover.pdf
- Zaretsky, A. (2016). What is a public market? Public market development. Retrieved from <http://publicmarketdevelopment.com/what-is-a-public-market-2/>
- Zekeri, A. (2013). Community capital and local economic development efforts. *Professional Agricultural Workers Journal*, 1(1) 1-10. Retrieved from <http://tuspubs.tuskegee.edu/pawj/vol1/iss1/7>

CHAPTER 2. APPLYING THE COMMUNITY CAPITALS FRAMEWORK TO EXPLORE THE PERCEIVED BUSINESS EFFECTIVENESS OF FOOD ENTREPRENEURS

2.1 Introduction

Over the past century in the United States, key events and changes in how the public views interactions between natural resources, markets, policies, science and technology, as well as social systems, have created dramatic changes throughout the food system (Institute of Medicine & National Research Council, 2015). To help capture and analyze the interrelationships in these changes, social scientists have invested in developing frameworks that characterize such linkages more fully. While the word *capital* has traditionally been associated with economics and narrowly referred to money or assets, the Community Capital Framework (CCF) represents a more inclusive range of resources found within a community that can be leveraged to impact other capitals, or areas. Given the large set of interrelated factors that food systems may entail (natural, human, cultural, social, built, political), it is a particularly useful domain in which to explore and apply Community Capital concepts. Community Capitals are an emerging approach to examine the triple bottom line (social, environmental, and economical) in the field of community development, but little has been done in the management or innovation fields to understand the specific motivations of food entrepreneurs to enhance future feasibility and impact of investing in the Community Capitals inherent in our food system. The researcher's motivation and the underlying thesis of this paper is that understanding specific entrepreneurial communities, like food entrepreneurs, can assist decision makers and stakeholders in prioritizing investments, programming and policies relevant to food system development.

Given the evidence of community capital dimensions in a variety of economic sectors, and the multi-faceted expectations placed upon the local and regional food system by

stakeholders, the supply chain for foods is being transformed by both economic and broader social forces. The history and relevance of the Community Capitals Framework will be explored and an overview of each of the capitals will be provided, specifically in the context of a food system. Then, a view will be introduced of social capital, relevant to this research: the entrepreneurial social infrastructure (ESI) which will provide a lens through which to explore food entrepreneurs. The research question explored in this paper is whether there is an ESI emerging among food enterprises in the US. The specific hypotheses are listed here.

- H1: There are differences in how food enterprises perceive community capitals in the context of their business decisions.
- H2: There are commonalities in how food enterprises perceive community capitals in the context of their business decisions.

2.1.1 Background and previous research.

2.1.1.1 Community capitals framework. In 2010, the *Journal of Food System Dynamics* published its first issue with a focus on understanding the development of the food system through a lens that captures the complexity of the system and the many interrelationships between economic, social and natural environments (Fritz & Schiefer, 2010). Although relatively new to the food domain, system dynamics (SD) is a common approach used to understand the behavior of nonlinear complex systems over time using stocks, flows, internal feedback loops, and time delays. With origins in science and engineering, SD was created during the mid-1950s by Professor Jay Forrester of the Massachusetts Institute of Technology. In the early days, SD was applied almost exclusively to corporate and management problems for large companies like General Electric, but in 1968, the field shifted beyond corporate modeling as a result of the joint publication, Urban Dynamics, by Forrester and John F. Collins, the former mayor of Boston

(Forrester, 2015). Urban Dynamics unpopularity challenged traditional assumptions of the overall effectiveness of major urban policies like low-income housing; and by doing so fueled interest in new concepts that led to larger landmark projects like World Dynamics and the famous *Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind* (Forrester, 1973; "The Limits to Growth," 1974). Since the 1980s the application of SD has expanded to help understand complex system supply chains, life cycle analysis, energy systems, sustainable development, health care, and more recently, food systems (Forrester, 2007). The SD concept provides the underlying theoretical backbone with which this research will evaluate how a broad realm of system interactions may influence food innovation strategies.

According to a 2015 National Academies Press publications, *A Framework for Assessing Effects of the Food System*, complex adaptive systems (CAS) are systems composed of many heterogeneous pieces whose interactions drive system behavior in ways that cannot easily be understood from considering the components separately. The food system is a good example of a CAS where changes in one part, in or outside the system, generate a desired or unexpected outcome in another part. In the United States, from 1900 to present, key events and changes in how the public perceives relationships across natural resources, markets, policies, science and technology, as well as social systems, have created dramatic changes throughout the food system (Institute of Medicine & National Research Council, 2015). One example of these trends, families, who once worked agrarian jobs migrated to cities as the U.S became more urbanized while agricultural employment plummeted. Another example is in the efficiencies gained in growing and processing animals for food to meet increased demand in the US, and ultimately, worldwide. Changes in the meat industry are structural and continue to push the genetics of animals while meeting firm regulatory requirements for food safety and sanitation.

As one way to approach the complexity of food systems, the Community Capital Framework (CCF) represents a range of resources found within a community that can be leveraged to impact other capitals, and ultimately the whole system. Perhaps a bit understated as an applied methodology (Zekeri, 2013), the CCF is a CAS that offers a systematic way to analyze strategies and/or projects that may contribute to community development in the food system and was the theoretical grounding for this paper. The CCF is rooted in the rural community development and sociology literature (Flora, 1998; Hillery, 1955; Kaufman, 1959; Tilly, 1973;) and was introduced as a framework through the work of Jan L. Flora and Cornelia Flora of Iowa State University in the late 1990s (Emery & Flora, 2006; Fey, Bregendahl, & Flora, 2006). Notably, their research discovered that the most sustainable and successful communities identified, invested in and nurtured support for six types of capital: built, cultural, financial, human, political and social.

The CCF focuses on the interactions between and among the six capitals and how they build upon one another (Flora, Emery, Fey, & Bregendahl, 2008). A brief summary of each of the capitals, what has been learned about their influence in a variety of social realms, and context for their integration for food systems is provided alphabetically below.

Built capital. Defined as any pre-existing or planned formation that is constructed or retrofitted to suit community needs. (In other words, it is any human-made environment.) Examples include housing, transportation infrastructure, telecommunications infrastructure and hardware, utilities, buildings, equipment, and infrastructure. With respect to food systems, built capital has been used to evaluate public health, obesity prevention, access to food processing infrastructure, and quality of life in communities as it relates to economic development (Batten, 1991; Callaghan & Colton, 2007; Crowe, 2008; Flora & Gillespie, 2009).

Cultural capital. Reflects the way people *know the world* and how they act within it, including their traditions, values, and languages. It influences what voices are listened to and heard, who has influence in what area, and how creativity, innovation, and influence emerge and are nurtured. Examples include religion, education, knowledge, intellect, personal advantages, style of speech, and dress. Cultural capital has been used to evaluate employment, education, achievement, families, gender issues, multiculturalism, and racism (Brown, 1995; Dumais, 2002; Lareau, 1987; Lareau & Horvat, 1999; Sullivan, 2001). In the realm of food systems, food has been identified as a major transmitter of cultural capital for immigrants, used to explore structural racism, and is the cornerstone to the famous ethnobiological work by Gary Paul Nabhan linking food security, biodiversity, and human health (“An Annotated Bibliography on Structural Racism,” 2015; Flora, Emery, Thompson, Prado-Meza, & Flora, 2012; Nabhan, 2014)

Financial capital. Identifies the financial resources available to invest in community capacity building, to underwrite the development of businesses, to support civic and social entrepreneurship, and to accumulate wealth for future community development. Examples include physical goods that assist in the production of other goods and services, financial wealth, investment, credit, loans, and cash money. Financial capital has been used to evaluate social relations and networks, female entrepreneurship, new venture performance, poverty reduction, and social enterprise. In food systems, concerns about limited access to financial capital have been used to justify targeted credit or grant programs for farms, food businesses, and retailers (Crutchfield, 2012; Harden, 2016; “Know Your Farmer,” 2016).

Human capital. Represents the skills and abilities of people to develop and enhance their resources and to access outside resources and knowledge to increase understanding, identify promising practices, and to access data for community-building. Examples include knowledge,

habits, social and personality attributes, creativity, risk-taking, talent, experience, training, judgement, and wisdom. Human capital has been used to evaluate leadership, management, high-school drop-out rates, earnings, skill formation, and inequality (Atiqur Rahman & Zaman, 2016; Coleman, 2016; Heckman, 2000; Murphy & Topel, 2016; Schultz, 1971). In food systems, perhaps the United States Department of Agriculture (USDA) and Land Grant University technical assistance and Extension programs are the most visible examples of programs that recognized, early on, the need for human capital investments to support the development of strong food systems. Programs range from agricultural production and home economics in the early part of the 20th century to ecosystem and value chain management and nutrition education in more recent years (Bowman, 1962; McDowell, 2001).

Political capital. Reflects access to power, organizations, connection to resources and power brokers. Political capital also refers to the ability of people to find their own voice and to engage in actions that contribute to the well-being of their community. Examples include credibility, relationships, endorsements, campaign contributions, lobbying, access, connectivity, and standards enforced by rules and regulations. Political capital has been used to evaluate immigration, civil society, democracy, social networks, attitudes, and moral hazard (Akey, 2015; Hersch, Netter, & Pope, 2008; Kjaer, 2013; Kostovetsky, 2015; Long, 2015). For food systems, political capital is complex as evidenced by the heated discussions around the federal Farm Bill and international trade agreements that include agricultural production, but also, the community and state-based discussions on Right to farm laws, food labeling regulations, cottage foods legislation and zoning laws that are intended to lower barriers for food production in neighborhoods. Because of increased interest in local food policy, the number of food policy councils across the US has ballooned over the past two decades (DiLiso & Hodgson, 2011).

Social capital. Identifies the connections among people and organizations or the social “glue” to make things happen. Bonding social capital refers to those close, redundant ties that build community cohesion. Bridging social capital involves loose ties that serve to bridge organizations and communities. Examples of social capital include neighborhood or community groups, friendship networks, schools, and civic associations, and more recently, crowd funding or sourcing. Social capital has been used to evaluate a wide variety of topics like civic engagement, community health, trust, social networks, cheating, and terrorism (Domínguez & Arford, 2010; Johnston, 2010; Johnston, Tanner, Lalla, & Kawalski, 2013; Nooteboom, 2007; Paccagnella & Sestito, 2014; Warren, Sulaiman, & Jaafar, 2015). In food systems, the emergence and growth of direct to consumer sales, farmers’ markets, food and farming fairs and events, community gardens, Community Supported Agriculture, agritourism, and farm-to-table concepts are evidence of growth in the investments related to this capital (Low et al., 2015). A special configuration of social capital, relevant to this research is entrepreneurial social capital (ESI), and this concept will be further discussed below.

Together the individual capitals make up a comprehensive framework, giving rise to a unique approach to evaluate dynamic community development work. The CCF has proven useful for analyzing actions to improve communities and organizations. Analyzing each capital separately and then together, forces a comprehensive examination of potential assets that can improve long-term resiliency of the organization or community. The analytical tool offers a framework for systemic evaluation and the mapping of outcomes to better measure incremental changes and identify the flow of assets across stock in multiple capitals. It is also useful in identifying the leverage points or areas in need of investment.

Perhaps one of the most compelling applications of the CCF comes directly from the Floras' research, where they found that social capital (both bonding and bridging) was a critical resource that reversed the “downward spiral” of neglect and disinvestment occurring in rural America (Emery & Flora, 2006). The “spiral down” began with loss of jobs which then triggered a decline in population, decline in per capita income, and ultimately, loss of generational wealth in rural communities. Using the CCF as an analytical tool, the program intervention began by attempting to bridge social capital. To do this, they brought in outside expertise to partner with the community with a goal of engaging rural youth in entrepreneurship. The increased human capital resulted in a financial capital investment, in the form of philanthropy, to help provide sustained support of emerging leadership and business concepts, and continued recruitment of rural youth. The effect these actions intended to catalyze, called a “spiraling up,” represents a process by which assets gained increase the likelihood that other assets will be subsequently appreciated in value and sustained (Emery & Flora, 2006).

Other research applying the CCF has validated the role of relationship building, collaboration, and social capital development in generating new stocks of cultural capital, human capital, and political capital (Emery & Bregendahl, 2014); the significance of preexisting bridging capital for community and social organization during natural disasters (Stofferahn, 2012); the benefits of being able to identify and leverage unique cultural assets for use in future development to sustain boomtowns (Anderson, 2014); and the value brought by community members being able to see their region as a system to garner inclusivity and successful long term planning (Gutierrez-Montes, Siles, Bartol, & Imbach, 2009).

2.1.1.2 Food entrepreneurship. Communities invest their resources in a number of diverse ways to achieve community economic development (CED), thereby yielding a myriad of

potential impacts and outputs (Fey et al., 2006). Investments and interest in the food sector in the last 15 years have contributed to a growth in food entrepreneurship across the country. In support of such innovation, the 2002 Farm Bill allocated \$27.7 million in competitive grants to support the development of value-added food production and to create Agriculture Innovation Centers “to foster the ability of agricultural producers to reap the benefits of producing and marketing value-added products” (Knudson, Wysocki, Champagne, & Peterson, 2004). These early investments may have ignited a new sector of community-driven food businesses, with a supporting infrastructure of technical assistance partners. As a result, between August 2013 and March 2016 the number of kitchen incubators (providing technical assistance to food entrepreneurs) in America increased by more than 50% to over 200 facilities (Wodka, 2016).

Local and specialty foods businesses are typically “craft” producing unique and high-value food items made in small quantities from high-quality ingredients. Much of this innovation is driven by consumer demand for specialty food products, with sales hitting \$109 billion in 2014, a 21.8% increase since 2012 (Specialty Food Association). Food entrepreneurs include a wide range of enterprises: food truck or mobile vendors, farmers’ market vendors, wholesale food manufacturers, online food companies, catering and special event businesses, and expanding home-based food businesses. Food entrepreneurs are characterized as risk-takers, who seek to push boundaries and enjoy the challenge of venturing into the unknown (Knudson et al., 2004). They also have unique visions based on core values and often possess the ability to communicate their vision to others (Knudson et al., 2004).

The research outlined in this paper was aimed at evaluating a new approach to apply the CCF to a food sector through modifying existing survey methodologies and analyzing the role, impact, and motivations of food entrepreneurs on capital concepts of relevance to their

enterprise. By exploring the unique aspects and motivations of food entrepreneurs, it may be possible to better identify strategies to prioritize investments and subsidies that may facilitate the “spiraling up” of a community’s food system.

2.1.1.3 Entrepreneurial social infrastructure. Much of the Floras’ research evaluates the support of social and human capitals in facilitating the “spiraling up” of a community’s capitals. As mentioned in the introduction of the capitals, an important component and theoretical grounding for this paper is a specific strategy called entrepreneurial social infrastructure (ESI). ESI is the linking of physical resources and leadership that enables local communities to provide their own well-being and development. ESI has three key elements: 1.) symbolic diversity; 2.) resource mobilization; and 3.) quality networks (Emery & Flora, 2006; Flora & Flora, 1993). The three elements are described here and include:

1. Symbolic diversity- inspires communities to engage in constructive controversy to arrive at workable community decisions. The element focuses on community processes, depersonalization of politics, and a broadening of community boundaries to be inclusive of more voices (Flora & Flora, 1993). It is essentially a collection of community-adopted approaches which focus on mutual respect and functions that support better decisions for a community.
2. Resource mobilization is the ability of a community to acquire resources and mobilize people towards accomplishing goals. Tenets include relative equity in resource and risk distribution, local investment by residents of their own private capital, and collective investment in the community (for example, a willingness to tax themselves) (Flora & Flora, 1993).

3. Quality networks- include establishing linkages with others in similar circumstances and developing vertical networks to provide diverse resources- both within and outside the community – of experience and knowledge (Flora & Flora, 1993).

To integrate this line of research into a new context, the three elements will be systematically applied to framing questions that are analogous to these concepts for food businesses in the researcher's survey methodology.

2.2 Methodology

2.2.1 Adapting perceived consumer effectiveness concepts into a food system

approach. Interest in sustainability, both in production and consumption, has increased at all levels of the food chain. Since the beginning of the environmentalist movement in the 1970's, scholars in the fields of marketing and public policy have worked to establish a standardized profile to describe the socially responsible consumer (Antil, 1984; Roberts, 1996; Webster, 1975). Much of this work is grounded in the Theory of Planned Behavior (Schifter & Ajzen, 1985) which is used to determine which factors are positively related to choices, thereby allowing one to more effectively motivate environmentally conscious behaviors (Ellen, Wiener, & Cobb-Walgreen, 1991; Lord & Putrevu, 1998). Concurrent with the environmentalist movement, the American food movement emerged, bringing a new awareness and demand for more socially responsible environmental, social, and economic attributes embedded in food products. However, consumer intentions in this arena may not always match their purchasing behavior, so there is interest in exploring any disconnect.

The concept of Perceived Consumer Effectiveness (PCE), or the extent to which the consumer believes that his/her personal efforts can contribute to the solution of a problem, appeared in the *Journal of Marketing* in the 1970's (Kinnear, Taylor, & Ahmed, 1974). Since

then, the concept has emerged in the food system literature as an effective way to translate positive attitudes for local, organic, fair trade, and/or eco-labeled products into actual consumer purchases and behaviors (Thilmany, Bond, & Bond, 2008; Vanhonacker, Van Loo, Gellynck, & Verbeke, 2013; Verbeke, Vanhonacker, Sioen, Van Camp, & De Henauw, 2007; Vermeir & Verbeke, 2006). The U.S. Local Food Consumer has been profiled in the literature by integrating PCE factors in the decision making dimensions of personal health, positive impacts on the local economy, society and the environment, and as a statement for social fairness (Campbell, Martinelli, & Fairhurst, 2015; Thilmany, 2012; Thilmany et al., 2008). Specifically, Rainbolt Nurse and others, used an attitude-behavior framework, the Theory of Planned Behavior, to identify factors that may influence the value consumers put on a variety of sustainably labeled food. They found that attitude, perceived social norms, and perceived behavior control all had an impact on purchasing behavior, or willingness to pay for perceived sustainability valuation (Rainbolt Nurse, Onozaka, & Thilmany McFadden, 2012).

While the perspective of consumers and their buying habits is important, what has not been readily explored is the motivation, buying behavior, and *perceived business effectiveness* of food entrepreneurs, those who are a linkage between local food production and consumers, but may behave differently because of their overriding for-profit objectives and realities of enterprise management. The unique characteristics of this group may reveal the key elements of the ESI that enable local communities to better sustain and contribute to a spiraling up within the agriculture and food sector.

2.2.2 Survey design. Since several of the contributions made in this research are innovations connecting different fields of study, there were no previous survey templates available to update, modify or follow. Subsequently, much thought was put into how to integrate

several research themes into a set of questions that would allow us to begin exploring social, economic, and managerial attitudes and behaviors from our target sector of food business operators. These questions were then structured similarly to previously disseminated instruments to increase the likelihood that responses would be valid.

The survey instrument was designed and divided into 3 sections to acquire information on different factors and explanatory variables that would guide analysis of the research question and testing of the hypotheses: 1.) general demographics and firm characteristics; 2.) the entrepreneur's priorities and values; and, 3.) experiences and opportunities perceived by the entrepreneur. The general demographics and firm characteristics collected included location, primary business category, years in business, and age.

To help frame the priorities and values section, questions and response options were based on previous work by the researcher exploring how an existing concept, Entrepreneurial Social Infrastructure (ESI) (Flora & Flora, 1993), translated to a new food system innovation. However, to integrate yet another construct from behavioral psychology that might also inform motivations to adopt new food system strategies, the survey was designed to pilot test a new entrepreneurial construct building off Perceived Consumer Effectiveness (Ellen et al., 1991). A relatively established concept, Perceived Consumer Effectiveness, is the basis for the new construct and is defined as the extent to which a consumer believes that his/her purchase will contribute to the solution of a problem. Examples of marketing efforts targeted based on the assumed existence of PCE are fair trade coffee, free range eggs, rainforest certified, organically produced, and locally produced. Because food entrepreneurs are uniquely situated in the supply chain the upstream and downstream impacts of their businesses may be perceived as effective within the broader food system.

To adapt this concept to a food supply chain business, we propose a new construct, the Perceived Business Effectiveness, to better explain how motivations and perceptions may influence food business decisions. The researcher adapted the tested constructs of the PCE methodology to survey food entrepreneurs to analyze their motivations, perceptions, and perceived role in the community. Similar to the work done by Rainbolt Nurse et al., the researcher developed constructs in four categories: economy, environment, social fairness and social responsibility. We used standard response methodology by asking the survey respondents to read each statement and choose a selection from the drop-down list that best describes feelings based on a 7-point Likert scale: Strongly Disagree to Strongly Agree. The four questions below were developed to identify Perceived Business Effectiveness by framing analogous issues in a business (rather than consumer) perspective (see Table 2.1).

Table 2.1

Transitioning Perceived Consumer Effectiveness Constructs to Perceived Business Effectiveness Constructs

Perceived Consumer Effectiveness	Adapted Perceived Business Effectiveness
I believe that what I choose to buy and where I choose to buy fresh produce can have an impact on the local economy	I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy.
I believe that by choosing to buy or not to buy certain foods, I can have a positive impact on the natural environment.	I have switched products for my business (ingredients, packaging, cleaning supplies) for ecological reasons.
I believe that I can make a statement about social fairness by carefully choosing the fresh produce I buy.	I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all).
Each consumer's behavior can have a positive effect on society by purchasing products sold by socially responsible companies.	I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy.

To address social fairness and social responsibility, similar constructs were developed to identify the motivating factors around food safety and business networks. Examples included “as a food business owner, it is my moral responsibility to comply with food standards, regardless of additional costs to food businesses for compliance” and “my business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities”. Subsequently, one key contribution of this research is that it appears to be the first study that integrates community capital concepts into understanding how entrepreneurs perceive and prioritize their actions in food value chains.

Next, the community capital constructs, particularly cultural capital, human capital and social capital, were assigned to each question. Such theming of questions allowed the researcher to anchor the questions in the tenets of entrepreneurial social capital (ESI) -symbolic diversity, local mobilization of resources, and quality of networks by selecting the most prominent category and ensuring an even distribution of representations across the questions. Because many of the questions could be assigned to multiple capital categories, the researcher made the assignment to each category based on the main premise of the question, followed by a subtheme. Two community capital constructs, primarily cultural capital, human capital, and social capital, were assigned to each question based on the primary and secondary premises of the question. For example, for the following question, “I would be willing to sacrifice some business profits to be involved in a project that sustains a unique aspect of my community’s food culture and economy (e.g. long term market, peer businesses, non-profit program),” the researcher assigned social as the primary capital and as a subtheme, cultural, based on the commitment to the culture of the food community.

After the two capitals were assigned to each question, the researcher aimed to anchor the questions in the three tenets of entrepreneurial social infrastructure (ESI) -symbolic diversity, local mobilization of resources, and quality of networks. For the same example above, the question was applied to the resource mobilization ESI tenant, because the willingness to sacrifice business profits may generate a surplus and collective investment in the food community.

The third survey section solicited information on the entrepreneur's perceived experience and opportunities focused specifically on the food entrepreneur's experiences, needs, and opportunities in accessing commercial kitchen space.

To ensure internal validity, the survey was pretested with a small pilot group to identify whether there were any confusing questions, missing answer options, and to evaluate overall survey flow (Presser et al., 2004). Three questions were clarified by removing confusing language or jargon and was rephrased to remove a double negative phrase.

2.2.3 Survey distribution and data collection. The population of interest for the survey was adult food business owners in the United States. To address the research objectives, data were collected using a national online survey. The online questionnaire was developed using Qualtrics Research Suite (2006). The online survey method was chosen due to its relatively efficient means of collecting a wide variety of complex information in a short period of time. The online survey also avoids interviewer bias and often tends to lower the number of missing observations (non-response bias). The research protocol was determined to be exempt by the Research Integrity and Compliance Review Office at Colorado State University on 11/06/15. The survey recipients were adult food business owners sampled nationwide in the US. The survey was distributed digitally (via email) to a list of 300 food businesses aggregated by the

researcher through public information channels including county food records, business network membership lists, and community networks.

The participants learned about the research directly from the researcher via email or through key informants, community leaders, and strategic partners, using chain referral sampling. Links to the survey were also provided on private Facebook and Meetup group pages with written permission from the group moderators. The survey included an optional question to provide contact information and two yes/no questions garnering interest in a start-up food incubator project this research is intended to support: 1.) to elect to be included in on a waiting list and 2.) to elect to be contacted for a follow up in depth interview. Consent was defined and contact information was provided. Participating in the survey implied consent. The survey launched in November 6, and closed December 5, 2015. The survey was completed by 145 respondents (with an estimated response rate of 42%). A list of the survey questions and key can also be found in Appendix A.

The survey respondents were asked to read each statement and choose a selection from the drop-down list that best describes feelings based on a 7-point Likert scale ranging from 1 for Strongly Disagree to 7 for Strongly Agree. The survey questions with their assigned community capital constructs and anchored ESI tenants are listed below.

Q1. I would be willing to sacrifice some business profits to be involved in a project that sustains a unique aspect of my community's food culture and economy (e.g. long term market, peer businesses, non-profit program). (Social/Cultural)
Resource mobilization – generates surplus within the community beyond basic substance, collective investment in the community

Q2. I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all). (Social/Human)
Symbolic diversity – shows community level orientation toward inclusiveness

Q3. I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy. (Built/Social)

Resource mobilization – provides investment of their own private capital locally

Q4. I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use. (Natural/Built)

Resource mobilization – shows collective investment in the community

Q5. Foodborne illness and outbreaks are a real concern to human health. (Human)

Symbolic diversity- arrives at workable community decision and depersonalization of politics

Q6. Current food regulations are not effective in managing food safety risks. (Political)

Symbolic diversity- acceptance of controversy

Q7. As a food business owner, it is my moral responsibility to comply with food standards, regardless of additional costs to food businesses for compliance.

(Political/Human/Social)

Symbolic diversity- acceptance of controversy, collective or community level orientation

Q8. I commit to serving customers who require special diets (gluten-, nut- or allergen-free), even if there are lower profit margins from such food products.

(Financial/Social/Human)

Resource mobilization - democratization of resources, willingness to invest collectively

Q9. I believe that technology can help me better connect with local business opportunities and partners who have a positive impact on the local economy. (Built/Social/Human)

Quality networks –vertical networks- two-way flow of information linking resources outside the community

Q10. My business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities. (Social/Human)

Quality networks - horizontal networks- learn from those like yourself

Q11. Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies. (Social/Cultural)

Resource mobilization – willingness to invest collectively

Q12. Business peers and mentors who are important to me think I should adopt and use more technology in my business. (Human/Social)

Quality networks – horizontal networks- learn best from those like yourself “if they can do it, I can do it”

Q13. I have switched products for my business (ingredients, packaging, cleaning supplies) for ecological reasons. (Natural)

Resource mobilization- willingness to invest private capital to enterprises that are anticipated to benefit the community

Q14. I have convinced members of my family and friends to buy local products.
(Social/Human)

Quality networks – formal facilitation of information through horizontal networks

2.3 Results

2.3.1 Data summary. The results summarized below reveal some basic commonalities and differences among the sample of food entrepreneurs when considering the ESI concepts

2.3.1.1 Symbolic diversity. Again, symbolic diversity is a collective or community-level orientation toward inclusiveness to work through constructive controversy. In this case, questions were developed based on how recent food system literature, policy framing, and community-driven initiatives may align with this concept. Responses to the symbolic diversity questions can be found in Table 2.2. In summary, the respondents have strong convictions regarding how food is grown, produced, and sold. They also exhibit more disdain for rules and regulations that may stifle the production, distribution, and sales of locally produced foods. Accordingly, it is not surprising to find this sample of food entrepreneurs shows strong symbolic diversity for business-friendly food policies, regulations, and compliance. Table 2.2 suggests that, overall, this group believes strongly in their responsibility in complying with food standards (regardless of cost), even if they are unsure and differing in opinion on the statement that current regulations are effective in managing food safety risks (as the higher variance among the responses about the effectiveness of food regulations may indicate). This may be because all food entrepreneurs are required to abide by the same policies which levels the playing field overall.

Table 2.2

Symbolic Diversity Questions

	I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all).	Foodborne illness and outbreaks are a real concern to human health.	Current food regulations are not effective in managing food safety risks.	As a food business owner, it is my responsibility to comply with food standards, regardless of additional costs to food businesses for compliance.
Mean	5.85	5.97	3.76	6.14
Variance	1.66	1.69	2.90	1.80
Standard Deviation	1.29	1.30	1.70	1.34
Total Responses	143	143	143	144

Note. Ratings were 1-7, with 7 being strongly agree.

2.3.1.2 Resource mobilization. A tenet of the local food movement is to mobilize people toward accomplishing the movement's goals, in this case buying local food. Overall, Table 2.3 shows that the food entrepreneurs surveyed believe most strongly (and uniformly given the small variance) that where and what they buy and sell has an impact on their community, environment and local economy. To a lesser degree, there is also a fairly strong and uniform agreement that these food business managers are highly willing to consider participating in a shared economy (where they invest collectively and contribute in non-monetary capital in anticipation of benefitting their community). It is worth noting that the willingness to commit to serving customers who require special diets were among the lowest means (4.69) and highest variances (2.96), showing that it may be important to some, but certainly not most. Overall, respondents seemed to hold higher regard for ecological issues and interests. In contrast, responses recorded in Table 2.3 would suggest there was far more dispersion in the entrepreneurs' priorities related

to serving a diverse set of dietary needs in their community, or sacrificing profits to maintain the community's culture and economy.

Table 2.3

Resource Mobilization

Statistic	I would be willing to sacrifice some business profits to be involved in a project that sustains a unique aspect of my community's food culture and economy (e.g. long term market, peer businesses, non-profit program).	I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy.	I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use.	I commit to serving customers who require special diets (gluten-, nut- or allergen-free), even if there are lower profit margins from such food products.	I have switched products used by my business (ingredients, packaging, cleaning supplies) for ecological reasons.
Mean	5.10	6.66	5.72	4.69	5.27
Variance	2.05	0.49	1.64	2.96	2.44
Standard Deviation	1.43	0.70	1.28	1.72	1.56
Total Responses	143	145	144	144	144

Note. Ratings were 1-7, with 7 being strongly agree.

2.3.1.3 Quality networks. Quality networks are an important part of the ESI framework, specifically around how entrepreneurs bridge or bond with individuals and networks around them. The responses summarized in Table 2.4 suggest that food entrepreneurs highly value establishing linkages with others like themselves. They highly value networking with business peers and mentors that may help them grow or expand their business. The sample also prefers social connections over technological ones. This shows a unique value in prioritizing personal linkages of connection. Technology is valued as a means to connect with vertical networks, but not preferred in enhancing personal networks.

Table 2.4

Quality Networks

Statistic	I believe that technology can help me better connect with local business opportunities and partners.	My business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities.	Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies.	Business peers and mentors who are important to me think I should adopt and use more technology in my business.	I have convinced members of my family and friends to buy local products.
Mean	5.75	5.97	6.07	4.12	5.73
Variance	1.70	1.43	0.89	2.40	1.72
Standard Deviation	1.30	1.20	0.94	1.55	1.31
Total Responses	144	144	144	144	143

The findings show that this sample of entrepreneurs, like consumers, believe they can have a positive impact on society through their own business purchases. They also are relatively confident that they can convince others in their community to buy local for their family or for their own food business. It appears that this group supports a strong horizontal network of peers that helps identify best practices and new market opportunities.

Overall, the respondents demonstrate greater homogeneity, (as indicated by the lowest standard deviation), in similar ESI constructs. This means this sample tended to agree on the value of specific constructs with limited variability. Interestingly, the constructs that exhibit the strongest homogeneity among the respondents were both related to purchasing behavior, suggesting the perceived effectiveness may be most impactful in cases where community

business or network linkages relate to modifying criteria used to establish and negotiate tangible business transactions. The two constructs were:

- *I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy (SD 0.70)*
- *Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies (SD 0.94)*

The constructs that exhibited the most variance or variability across the sample were related to social obligations and expectations. This variance could simply represent heterogeneity among the entrepreneurs in terms of their priorities, but could also indicate that there was not as clear a connection between these concepts and the businesses' missions and goals in either a traditional for-profit manner, or the broader community capitals framework. These constructs covered food regulation effectiveness, serving special diets, and the adoption of technology. The constructs were:

- *Current food regulations are not effective in managing food safety risks (SD 1.70)*
- *I commit to serving customers who require special diets (gluten-, nut- or allergen-free), even if there are lower profit margins from such food products. (SD 1.72)*
- *Business peers and mentors who are important to me think I should adopt and use more technology in my business (SD 1.55)*

This provides valuable insight for the survey tool, especially given it is the first attempt at applying these frameworks to food entrepreneurs.

2.3.2 Empirical method results. Next, the researcher applied the Goodman and Kruskal's gamma (γ) statistical measure (Somers, 1962) to analyze the relative rank correlation of the respondent's selections. This particular measure is appropriate to identify the similarity of

the orderings of the data and measure the strength of association of the cross tabulated data when both variables are measured at the ordinal level. This allowed the researcher to see the relative confidence one can have in assuming that the way a respondent answered one question will correlate with the way they answered another question. The result is a way to cluster types of respondents and their similar values. The gamma correlation results and a summary table are provided in Appendices B and C.

The results show the highest correlation ($\gamma=0.62$) between Q5 and Q7, meaning that respondents who ranked Q5 one way were 62% more likely to rank Q7 the same way (See Table 2.5). Both questions are related to food safety so this association is logical. Q5, “foodborne illness and outbreaks are a real concern to human health,” and Q7, “as a food business owner, it is my moral responsibility to comply with food standards, regardless of additional costs to food businesses for compliance” were also both symbolic diversity questions. The strong association between these questions indicate a collective understanding of the importance of food safety practices to their business and a unified adherence to local food safety regulations, regardless of their opinion of the efficacy of the laws.

Table 2.5

Strongest Correlated Gamma Pairs and Associated Construct

γ	Question	ESI Construct
0.62	Q5. Foodborne illness and outbreaks are a real concern to human health.	Symbolic diversity
	Q7. As a food business owner, it is my moral responsibility to comply with food standards, regardless of additional costs to food businesses for compliance.	Symbolic diversity

The second highly correlated pair was Q2 and Q11 ($\gamma=0.57$), “I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all)” and “every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies.” (See Table 2.6) Q2 was labeled a symbolic diversity question, indicating a community level orientation of fairness and inclusion, while Q11 was a resource mobilization question, related to a willingness to invest collectively because of the positive impact this may have on society.

Table 2.6

Strongest Correlated Gamma Pairs And Associated Construct

γ	Question	ESI Construct
0.57	Q2. I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all).	Symbolic diversity
	Q11. Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies.	Resource mobilization

The remaining highly correlated pairs were largely akin to the Resource Mobilization construct of the ESI. A respondents who answered Q4, “I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use” were 46% more likely to answer Q1 “I would be willing to sacrifice some business profits to be involved in a project that sustains a unique aspect of my community’s food culture and economy (e.g. long-term market, peer businesses, non-profit program)” the same way; 54% more likely to answer Q2 “I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all)” the same way and 54% more likely to answer Q3 “I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy” the same way.

Similarly, respondents who answered Q11 “Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies,” were 57% more likely to answer “I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all);” 55% more likely to answer “I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy;” and 51% more likely to answer “I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use” in the same way. The remaining constructs can be viewed in Appendix A.

In general, the questions associated with the ESI for Quality Networks showed lower correlations. Respondents that answered “I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use” one way were 39% more likely to answer the same for “I have convinced members of my family and friends to buy local products.” Similarly, respondents who answered, “I believe that technology can help me better connect with local business opportunities and partners that have a positive impact on the local economy” were also 39% more likely to choose the same ranking for “My business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities.”

2.4 Limitations and Future Research

There are clear limitations to this research. First, there was limited data-driven evidence to draw from that addressed the target population of food entrepreneurs, and so it was challenging to ascertain how representative the sample collected is relative to the population. In addition, this projects’ initial attempt at adaptation of the PCE constructs require more

application and testing, testing to establish consistency and reliability. We do know that the PCE umbrella, may omit environmental or economic factors that may be influencing a person's reason for performing a behavior. Also, while email surveys are convenient for the researcher, disadvantages include uncertainty of validity of the data, sampling issues, and concerns around implementation. Future research can build on the framework developed in this paper as a baseline for future, more robust studies.

It should be noted that the community capital research is still relatively novel and would benefit from more standardization and consideration of how various capital constructs could be framed, particularly in the food sector. It is possible that food entrepreneurs play a unique role in supporting local food economies and contributing to their growth and sustainability. Future research could attempt to determine if efforts to support and enhance symbolic diversity, local mobilization of resources, and quality of networks does yield more development in local food systems through long term evaluation of projects and analysis of how the questions asked here align with effective community development. In short, longitudinal research could measure if a spiraling up of various capitals really does increase assets for this food system group and their communities.

2.5 Conclusions and Discussion

The motivation for this study is that understanding specific entrepreneurial communities, like food entrepreneurs, can assist communities in prioritizing investment and subsidies in food system development. The work represented in this paper posits that, by understanding the priorities, buying behavior, and perceived business effectiveness of food entrepreneurs, communities can more effectively target discussions and investments that would catalyze those key stakeholders to invest their time, talents, assets and other important "capital" resources. This

approach recognizes studying those who are a linkage between local food production and consumers expands on what has been previously learned and shared in the literature by studying just end-consumers of food. Logically, managers of food processing facilities may behave differently than independent producers because of their for-profit objectives and realities of enterprise management.

So, if one concurs that the unique perspectives of the food entrepreneur community may reveal key elements of the ESI that enable local communities to better provide for their own well-being and development, the results presented here will inform community food projects. In summary, it appears that the most tangible, direct investments (purchasing and business networking with other businesses in the community) should be encouraged and highlighted to build momentum and contribute to a spiraling up within the food sector. Subtler messages that will require coordination and facilitation, perhaps through leadership from government, academia or non-profits. Ultimately, creating workable models that allow for a shared economy in the food space will require evidence-based research that illustrates social impact of participating in community-based food actions (to further bolster perceived effectiveness). This research is an early step in highlighting the applied research and outreach needs in this space.

REFERENCES

- Akey, P. (2015). Valuing changes in political networks: Evidence from campaign contributions to close congressional elections. *Review of Financial Studies*, 28(11), 3188–3223.
<https://doi.org/10.1093/rfs/hhv035>
- An annotated bibliography on structural racism present in the U.S. food system. (2015, July 29). Retrieved from <http://nesawg.org/resources/annotated-bibliography-structural-racism-present-us-food-system>
- Anderson, P. A. (2014). Preserving place: Williston, ND and the use of the community capitals framework for boomtown community development. *Housing and Society*, 41(2), 297–314. <https://doi.org/10.1080/08882746.2014.11430632>
- Antil, J. H. (1984). Socially responsible consumers: Profile and implications for public policy. *Journal of Macromarketing*, 4(2), 18–39. <https://doi.org/10.1177/027614678400400203>
- Atiqur Rahman, A. K. M., & Zaman, M. (2016). Human capital and technological catch-up of developing countries: In search of a technological leader. *The Journal of Developing Areas*, 50(1), 157–174. <https://doi.org/10.1353/jda.2016.0006>
- Batten, D. F. (1991). Built capital, networks of infrastructure and economic development. *Scandinavian Housing and Planning Research*, 8(3), 171–179. <https://doi.org/10.1080/02815739108730270>
- Bowman, M. J. (1962). The land-grant colleges and universities in human-resource development. *The Journal of Economic History*, 22(04), 523–546. <https://doi.org/10.1017/S0022050700066730>

- Brown, P. (1995). Cultural capital and social exclusion: Some observations on recent trends in education, employment and the labour market. *Work, Employment & Society*, 9(1), 29–51. <https://doi.org/10.1177/095001709591002>
- Callaghan, E. G., & Colton, J. (2007). Building sustainable and resilient communities: A balancing of community capital. *Environment, Development and Sustainability*, 10(6), 931–942. <https://doi.org/10.1007/s10668-007-9093-4>
- Campbell, J., Martinelli, E., & Fairhurst, A. (2015). Italian and U.S. consumers of local foods: An exploratory assessment of invariance. *Journal of International Consumer Marketing*, 27(4), 280–294. <https://doi.org/10.1080/08961530.2015.1022919>
- Clark, L. (2016). Why Farm-to-Institution Sourcing is the Sleeping Giant of Local Food. Civil Eats. Retrieved from <http://civileats.com/2016/08/29/forget-farm-to-table-its-farm-to-institution-sourcing-that-could-make-a-real-dent-the-food-system/>
- Coleman, S. (2016). Gender, entrepreneurship, and firm performance: Recent research and considerations of context. In M. L. Connerley & J. Wu (Eds.), *Handbook on well-being of working women* (pp. 375–391). Springer. Netherlands. Retrieved from http://link.springer.com/chapter/10.1007/978-94-017-9897-6_22
- Crowe, J. (2008). Economic development in the nonmetropolitan west: The influence of built, natural, and social capital. *Community Development*, 39(4), 51–70. <https://doi.org/10.1080/15575330809489658>
- Crutchfield, S. (2012). USDA economic research service: Key accomplishments. Retrieved from <http://www.ers.usda.gov/about-ers/key-accomplishments/key-accomplishments,-fy-2012.aspx>

- DiLiso, C., & Hodgson, K. (2011). Food Policy Councils: Food systems planning briefing paper: Growing food connections. Retrieved from <http://growingfoodconnections.org/gfc-reader-entry/food-policy-councils-food-systems-planning-briefing-paper/>
- Domínguez, S., & Arford, T. (2010). It is all about who you know: Social capital and health in low-income communities. *Health Sociology Review, 19*(1), 114–129. <https://doi.org/10.5172/hesr.2010.19.1.114>
- Dumais, S. A. (2002). Cultural capital, gender, and school success: The role of habitus. *Sociology of Education, 75*(1), 44–68. <https://doi.org/10.2307/3090253>
- Ellen, P. S., Wiener, J. L., & Cobb-Walgren, C. (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. *Journal of Public Policy & Marketing, 10*(2), 102–117. Stable URL: <http://www.jstor.org/stable/30000238>
- Emery, M. E., & Bregendahl, C. (2014). Relationship building: The art, craft, and context for mobilizing the social capital necessary for systems change. *Community Development, 45*(3), 279–292. <https://doi.org/10.1080/15575330.2014.903986>
- Emery, M., & Flora, C. (2006). Spiraling-up: Mapping community transformation with community capitals framework. *Community Development, 37*(1), 19–35. doi:10.1080/15575330609490152
- Fey, S., Bregendahl, C., & Flora, C. (2006). The measurement of community capitals through research. *Online Journal of Rural Research & Policy, 1*(1). doi:10.4148/ojrrp.v1i1.29
- Flora, C., Emery, M., Fey, S., & Bregendahl, C. (2007). Community capitals: A tool for evaluating strategic interventions and projects. Ames, IA: North Central Regional Center for Rural Development.

- Flora, C. B., & Flora, J. L. (1993). Entrepreneurial social infrastructure: A necessary ingredient. *The Annals of the American Academy of Political and Social Science*, 529(1), 48–58. <https://doi.org/10.1177/0002716293529001005>
- Flora, C. B., & Gillespie, A. H. (2009). Making healthy choices to reduce childhood obesity: Community capitals and food and fitness. *Community Development*, 40(2), 114–122. <https://doi.org/10.1080/15575330903001430>
- Flora, J. L. (1998). Social capital and communities of place. *Rural Sociology*, 63(4), 481–506. doi:10.1111/j.1549-0831.1998.tb00689.x
- Flora, J. L., Emery, M., Thompson, D., Prado-Meza, C. M., & Flora, C. B. (2012). New immigrants in local food systems: Two Iowa cases. *International Journal of Sociology of Agriculture and Food. Special Section: Migrants in the Global Food System*, 19(1), 119–134. ISSN: 0798-1759
- Forrester, J. W. (1973). *World dynamics*. Pegasus Communications. Waltham, MA.
- Forrester, J. W. (2007). System dynamics: A personal view of the first fifty years. *System Dynamics Review*, 23(2–3), 345–358. <https://doi.org/10.1002/sdr.382>
- Forrester, J. W. (1970). *Urban dynamics*. *Industrial Management Review*. (pre-1986), 11(3), 67.
- Fritz, M., & Schiefer, G. (2010). Editorial: Food system dynamics. *International Journal on Food System Dynamics*, 1(1). Retrieved from <http://centmapress.ilb.uni-bonn.de/ojs/index.php/fsd/article/view/111>
- Gutierrez-Montes, I., Siles, J., Bartol, P., & Imbach, A. C. (2009). Merging a landscape management planning approach with the community capitals framework: Empowering local groups in land management processes in Bocas del Toro, Panama. *Community Development*, 40(2), 220–230. <https://doi.org/10.1080/15575330903004418>

- Harden, K. (2016). *Access and opportunity for beginning farmers and ranchers*. Retrieved from http://www.fccouncil.com/files/Emergence%20of%20Retail%20Ag%20-%202012%20Revisions_for%20_web.pdf
- Heckman, J. J. (2000). Policies to foster human capital. *Research in Economics*, 54(1), 3–56. <https://doi.org/10.1006/reec.1999.0225>
- Hersch, P., Netter, J. M., & Pope, C. (2008). Do campaign contributions and lobbying expenditures by firms create “political” capital? *Atlantic Economic Journal*, 36(4), 395–405. <https://doi.org/10.1007/s11293-008-9125-y>
- Hillery, G. (1955). Definitions of community: Areas of agreement. *Rural Sociology*, 20(2), 111–123.
- Institute of Medicine & National Research Council. (2015). *A framework for assessing effects of the food system*. Washington, DC: National Academies Press. Retrieved from <http://www.nap.edu/catalog/18846>
- Johnston, K. T., Lalla, N., & Kawalski, D. (2013). Social capital: The benefit of Facebook “friends.” *Behaviour & Information Technology*, 32(1), 24–36. <https://doi.org/10.1080/0144929X.2010.550063>
- Johnston, R. (2010). Capitalising on social capital. *City*, 14(3), 331–333. <https://doi.org/10.1080/13604813.2010.482353>
- Kaufman, H. F. (1959). Toward an interactional conception of community. *Social Forces*, 38(1), 8–17. doi:10.2307/2574010
- Kinnear, T. C, Taylor, J. R., & Ahmed, S. A. (1974). Ecologically concerned consumers: Who are they? *Journal of Marketing*, 38(2), 20–24. doi:10.2307/1250192

- Kjaer, U. (2013). Local political leadership: The art of circulating political capital. *Local Government Studies*, 39(2), 253–272. <https://doi.org/10.1080/03003930.2012.751022>
- Knudson, W., Wysocki, A., Champagne, J., & Peterson, H. C. (2004). Entrepreneurship and innovation in the agri-food system. *American Journal of Agricultural Economics*, 86(5), 1330–1336. doi:10.1111/j.0002-9092.2004.00685.x
- Kostovetsky, L. (2015). Political capital and moral hazard. *Journal of Financial Economics*, 116(1), 144–159. <https://doi.org/10.1016/j.jfineco.2014.12.003>
- Lareau, A. (1987). Social class differences in family-school relationships: The importance of cultural capital. *Sociology of Education*, 60(2), 73–85. <https://doi.org/10.2307/2112583>
- Lareau, A., & Horvat, E. M. (1999). Moments of social inclusion and exclusion race, class, and cultural capital in family-school relationships. *Sociology of Education*, 72(1), 37–53. <https://doi.org/10.2307/2673185>
- Long, L. A. N. (2015). Does social capital affect immigrant political participation? Lessons from a small-n study of migrant political participation in Rome. *Journal of International Migration and Integration*, 17(819), 1–19. <https://doi.org/10.1007/s12134-015-0434-0>
- Lord, K. R., & Putrevu, S. (1998). Acceptance of recycling appeals: The moderating role of perceived consumer effectiveness. *Journal of Marketing Management*, 14(6), 581–590. <https://doi.org/10.1362/026725798784867752>
- Low, S. A., Adaja, A., Beaulieu, E., Key, N., Martinez, S., Melton, A., & Jablonski, B. (2015). *Trends in U.S. local and regional food systems*. Retrieved from <http://www.ers.usda.gov/media/1763057/ap068.pdf>
- McDowell, G. R. (2001). *Land-grant universities and extension into the 21st century: Renegotiating or abandoning a social contract*. Ames, IA: Iowa State University Press.

- Meadows, D. H. (1974) *The limits to growth: A report for the Club of Rome's project on the predicament of mankind*. New York. Universe Books.
- Murphy, K. M., & Topel, R. H. (2016). *Human capital investment, inequality and economic growth* (Working Paper No. 21841). National Bureau of Economic Research. Retrieved from <http://www.nber.org/papers/w21841>
- Nabhan, G. P. (2014). Food security, biodiversity and human health: Ethnobiology as a predictive science. *Journal of Ethnobiology*, 34(1), 7–11. <https://doi.org/10.2993/0278-0771-34.1.7>
- Nooteboom, B. (2007). Social capital, institutions and trust. *Review of Social Economy*, 65(1), 29–53. <https://doi.org/10.1080/00346760601132154>
- Paccagnella, M., & Sestito, P. (2014). School cheating and social capital. *Education Economics*, 22(4), 367–388. <https://doi.org/10.1080/09645292.2014.904277>
- Presser, S., Couper, M. P., Lessler, J. T., Martin, M., Martin, J., Rothgeb, J. M., & Singer, E. (2004). Methods for testing and evaluating survey questions. *Public Opinion Quarterly*, 68(1), 109–130. doi:10.1093/poq/nfh008
- Rainbolt Nurse, G., Onozaka, Y., & Thilmany McFadden, D. (2012). Consumer motivations and buying behavior: The case of the local food system movement. *Journal of Food Products Marketing*, 18(5), 385–396. <https://doi.org/10.1080/10454446.2012.685031>
- Roberts, J. A. (1996). Green consumers in the 1990s: Profile and implications for advertising. *Journal of Business Research*, 36(3), 217–231. [https://doi.org/10.1016/0148-2963\(95\)00150-6](https://doi.org/10.1016/0148-2963(95)00150-6)

- Schifter, D. E., & Ajzen, I. (1985). Intention, perceived control, and weight loss: an application of the theory of planned behavior. *Journal of personality and social psychology*, 49(3), 843.
- Schultz, T. W. (1971). Investment in human capital: The role of education and of research. New York, The Free Press. Retrieved from <http://eric.ed.gov/?id=ED105584>
- Somers, R. H. (1962). A new asymmetric measure of association for ordinal variables. *American Sociological Review*, 27(6), 799–811. <https://doi.org/10.2307/2090408>
- Specialty Food Association. The state of the specialty food industry 2016. (2016). Retrieved from <https://www.specialtyfood.com/news/article/state-specialty-food-industry-2016/>
- Stofferahn, C. W. (2012). Community capitals and disaster recovery: Northwood ND recovers from an EF 4 tornado. *Community Development*, 43(5), 581–598. <https://doi.org/10.1080/15575330.2012.732591>
- Sullivan, A. (2001). Cultural capital and educational attainment. *Sociology*, 35(04), 893–912. <https://doi.org/10.1017/S0038038501008938>
- Thilmany, D. (2012). *What is driving consumer demand for local foods?* Retrieved from <http://ageconsearch.umn.edu/bitstream/126440/2/McFadden.pdf>
- Thilmany, D., Bond, C. A., & Bond, J. K. (2008). Going local: Exploring consumer behavior and motivations for direct food purchases. *American Journal of Agricultural Economics*, 90(5), 1303–1309. doi:10.1111/j.1467-8276.2008.01221.x
- Tilly, C. (1973). Do communities act? *Sociological Inquiry*, 43(3–4), 209–238. doi:10.1111/j.1475-682X.1973.tb00008.x

- United States Department of Agriculture. (2016) Know your farmer, know your food: Our mission. (2016). Retrieved from http://www.usda.gov/wps/portal/usda/usdahome?navid=KYF_MISSION
- Vanhonacker, F., Van Loo, E. J., Gellynck, X., & Verbeke, W. (2013). Flemish consumer attitudes towards more sustainable food choices. *Appetite*, 62(March), 7–16. doi:10.1016/j.appet.2012.11.003
- Verbeke, W., Vanhonacker, F., Sioen, I., Van Camp, J., & De Henauw, S. (2007). Perceived importance of sustainability and ethics related to fish: A consumer behavior perspective. *AMBIO*, 36(7), 580–585. doi:10.1579/0044-7447(2007)36[580:PIOSAE] 2.0.CO;2
- Vermeir, I., & Verbeke, W. (2006). Sustainable food consumption: Exploring the consumer ‘attitude-behavioral intention’ gap. *Journal of Agricultural and Environmental Ethics*, 19(2), 169–194. doi:10.1007/s10806-005-5485-3
- Warren, A. M., Sulaiman, A., & Jaafar, N. I. (2015). Understanding civic engagement behaviour on Facebook from a social capital theory perspective. *Behaviour & Information Technology*, 34(2), 163–175. <https://doi.org/10.1080/0144929X.2014.934290>
- Webster, F. E., Jr. (1975). Determining the characteristics of the socially conscious consumer. *Journal of Consumer Research*, 2(3), 188–196. doi.org/10.1086/20863
- Wodka, A. (2016). U.S. kitchen incubators: An industry update. American Communities Trust, Econsult Solitions, Urbane Development. Retrieved from <http://www.econsultsolutions.com/report/us-kitchen-incubators-industry-update/>
- Zekeri, A. (2013). Community capital and local economic development efforts. *Professional Agricultural Workers Journal*, 1(1). Retrieved from <http://tuspubs.tuskegee.edu/pawj/vol1/iss1/7>

CHAPTER 3. IDENTIFYING KEY DRIVERS FOR FOOD ENTREPRENEURS IN THE EMERGING ACCESS ECONOMY

3.1 Introduction

3.1.1 Background. This chapter begins with an overview of the growth in the specialty food sector, the values and characteristics unique to food entrepreneurs, and an introduction to the concept of the sharing or access economy as it pertains to the built environment of a regional food system.

3.1.1.1 Trends in specialty food. U.S. consumers' taste for specialty food products is increasing, with sales hitting \$120.5 billion in 2015, a 21.2% increase since 2012 ("The State of the Specialty Food Industry," 2016). Specialty food businesses are often deemed *local*, *craft* or *artisan*, generally producing unique and highly differentiated food items made in small quantities from high-quality or otherwise valued ingredients. The increasing demand for specialty food is also spurring interest in food entrepreneurship as a strategy for economic development in communities across the country (Chicagoland Entrepreneurial Center, 2010; Knudson, 2015; Mayors Innovation Project, 2014; New York City Council, 2013; The Hale Group Ltd., 2017). Food entrepreneurs include a wide range of enterprises including bistro and pop-up restaurateurs, food truck or mobile vendors, farmers' market and value-added product vendors, wholesale food product manufacturers, online food delivery operations, catering and special event chefs, and expanding home-based food businesses.

3.1.1.2 Food entrepreneurs, motivations, and constraints. Food entrepreneurs are key drivers in economic development for regional food systems (Mayors Innovation Project, 2014; Thilmany et al., 2017; "USDA Results," 2017). Their unique values likely influence their business mission and may be central to their motivations for starting and maintaining a food

business (Knudson, Wysocki, Champagne, & Peterson, 2004). Similar to research findings on entrepreneurs in general, food entrepreneurs are risk-takers, seek to push boundaries, and enjoy the challenge of venturing into the unknown (Knudson et al., 2004). But often food entrepreneurs maintain unique consumer or business strategy insights anchored in their core values and are skilled at communicating their vision to others. (Knudson et al., 2004). In the paper “*Applying Positive Theory of Social Entrepreneurship to Understand Food Entrepreneurs and Their Operations*”, Kline, Shah, and Rubright (2014) concluded that “social entrepreneurs are a sub-set of entrepreneurs and could be defined as socially conscious individuals who devise and incorporate innovative business models that address social issues which are often overlooked by other organizations.” Following that logic, some subset of food entrepreneurs can also be considered social entrepreneurs.

But there are significant barriers to entry for starting a food business. First, it is expensive to start and maintain a food business, particularly considering the costs associated with operating or building a licensed commercial facility in which to produce food legally (Gartenstein, 2003). Because of the social and sustainability aspects inherent in food enterprises, food entrepreneurs are more motivated to use alternative funding streams like crowd-funding, micro-lending, and peer-to-peer lending to launch and support their efforts (Kline et al., 2014). Second, accessing and communicating with current and potential consumers to grow and build a trusted brand requires technical skills and is often costly (The Hale Group Ltd., 2017). Because of this, food entrepreneurs often require or enlist unique strategies to increase sales channels and distribution opportunities that more perfectly competitive markets often avoid. These include embracing competition through networking, joining joint marketing programs or cooperative buying clubs, or collaborating to raise awareness for niche or emerging food markets. As Kline et al. (2014)

puts it, “working with competitors towards a ‘greater good’ yields larger returns than the investment and the risk of sharing information and clientele networks” (Kline et al., 2014). Modern strategies reflecting adoption of these collaborative efforts include participating in a food industry clusters, food truck rallies, local food fairs, or farmers’ markets.

To communicate social and sustainability attributes to their clientele, food entrepreneurs communicate values pertaining to their business culture. Some examples include businesses adding window clings, menu boards, or marketing materials that promote values like “fair trade,” “locally owned,” and “organic,” among others. The act of giving back to society is also a common strategy for social food entrepreneurs. Food enterprises are often asked to donate their products, their time, or their services to local charity events, fundraisers, and expos. These activities are likely common and adopted because the food entrepreneurs may consider such philanthropy as an opportunity to expose their business to new customers and reinforce their unique role as a valued community player, with expectations of reciprocity from other network businesses in ways that may benefit their bottom line or broader mission.

3.1.1.3 Unique characteristics and unique opportunities. Communities invest in their resources in diverse ways to achieve community economic development goals or missions, thereby yielding a myriad of potential impacts and outputs. For communities to attract and retain businesses in any sector, they must invest in more traditional assets such as reliable infrastructure, including housing, telecommunications, hardware, utilities, buildings, equipment, and transportation. For food enterprises, it is no different. Communities looking to support food entrepreneurship should focus on building and maintaining traditional infrastructure for entrepreneurs, but there may also be social or cultural capital investments that could allow enterprises to more easily access ingredient supply chains, production and processing facilities,

distribution channels, retail channels, ecosystem services, and/or investment financing (Carter, Brush, Greene, Gatewood, & Hart, 2003; Flora, 1998; Santos, 2012). Access to these resources, therefore, becomes a way to leverage, or scale up, the broader food ecosystem.

The scaling up of local food is commonly limited by an enterprise's access to critical infrastructure. The Federal USDA Know Your Farmer, Know Your Food (KYF) Compass, launched in 2009, began compiling tools to help producers and food business owners identify community partners, projects and infrastructure near them ("Know Your Farmer," 2016). In a report from the KYF team, commercial kitchen facilities were specifically selected as a particular food system innovation that represents an "opportunity where infrastructure can bring opportunities for food entrepreneurs and greater access to local food for schools and other institutions" ("Know Your Farmer," 2016).

The focus on commercial kitchens is likely due to the perceived barrier the lack of built (or social) capital limited resource food-based businesses may face. It is important at this point to give an overview of the regulatory environment and expectations that a commercial food business currently faces to better understand this perceived barrier. Producing food to sell into wholesale or retail channels requires access to a licensed commercial facility, which requires significant capital to build. Estimated costs to build a commercial food facility range from \$15,000 to \$500,000, depending on size, complexity, and equipment (Gartenstein, 2003). Some food production facilities report infrastructure investment upwards of millions of dollars (FamilyFarmed, 2017).

In contrast to owning one's own facility, a shared-use kitchen, where renters or members can rent existing infrastructure for hourly or daily time blocks, provides a convenient way to access existing infrastructure without the high startup costs (Wodka, 2016). Two types of shared-

use kitchens are emerging as valuable models to support food entrepreneurs at all levels: 1) commissary kitchens, whose business model is to rent out kitchen time, equipment, and storage; and, 2) incubator kitchens whose business model is to rent out kitchen time, equipment, and storage, with the addition of technical business development assistance, business counseling, and access to unique channel opportunities. In March of 2016, Econsult Solutions, Inc. (ESI), along with American Communities Trust and Urban Development, updated their 2013 landmark survey assessing the landscape of U.S. incubator kitchens. The report found the number of incubator kitchens in America increased by more than 50% to over 200 facilities over the 3 years following the original survey. What was once assumed to be a post-recession fad, is now showing evidence of sustained and growing interest in communities across the country (Wodka, 2016).

The continued growth of kitchen incubators makes sense because it is a concept that lands at the nexus of several trends: the artisanal food movement, the sharing economy, and the current spike in entrepreneurship as a career. Food is a powerful tool for job creation and economic development and this research aims to better understand the role of kitchen incubators in that equation. Still, the industry continues to evolve rapidly and may still be on the front end of what is and will continue to be an important movement in democratizing, localizing, and broadening the economic impact of America's food production and manufacturing sector. (Wodka, 2016)

Due to strong network connectivity in the industry, there are also potential positive spillovers to other entrepreneurs and organizations in the communities where food entrepreneurs establish their firms, specifically, if underutilized built capital can be more fully employed. For example, opportunities exist for food entrepreneurs to access underutilized commercial kitchen space from institutions in their community. These include school districts, churches, community centers, gyms, or even private businesses that are not working at full capacity in their kitchens, like restaurants, bakeries, coffee shops, cafés, or delis. In each of these cases, the existing business and organization could benefit from additional cash flow, and the new firm would be able to reduce their start-up costs by initially leasing instead of owning fixed assets and capital.

To better coordinate the potential of recruiting food entrepreneurs to use existing built capital, networks of available kitchen assets are emerging across the country. For example, Detroit Kitchen Connect, a program of Eastern Market Corporation, “helps community kitchen partners become centers of food activity in their neighborhoods, providing opportunities for entrepreneurship. In helping partners to make kitchens accessible, and providing technical assistance, workshops, and other startup services for food businesses, DKC supports a diverse group of entrepreneurs to do what they love and contribute to Detroit’s growing good food system.” (Detroit Kitchen Connect: Eastern Market Corporation, 2016) The program currently has 5 network kitchens available to rent by the hour to program participants.

This newly emerging model is connecting existing commercial kitchen infrastructure through networks. In response, several national and regional directories also exist, where kitchens can post their excess capacity for free, or for a small fee, in return for access food entrepreneurs searching for space by location. This trend in commercial kitchen networking is occurring at a time when the sharing economy, or collaborative consumption, is becoming more and more commonplace (Cohn, 2012).

3.1.2 Objectives. The research model and hypotheses for this aspect of the study were developed as a triangulation of three innovative approaches to analyze and assess theories and models developed among various fields of study intended to explain how the food sector is evolving to address emerging consumer and supply chain dynamics. These include a) Perceived Business Effectiveness b.) previous research on entrepreneur characteristics c.) potential experience and opportunities around the Community Capital Framework (CCF). These foundational concepts which are integrated in this approach are further described and analyzed in Chapter 2.

Simply, the Perceived Business Effectiveness (PBE) concept is a variation of the Perceived Consumer Effectiveness model (see Chapter 2) that explores how a business enterprise may similarly integrate their values and intentions to address a public issue with their own business practices (akin to how consumers may vote with their buying dollars). Then, these PBE concepts can be integrated into the seminal factors that the food entrepreneurial literature has found to be motivations and factors (including some public-facing issues that assume the managers have civic or altruistic motivations) influencing that sector. Finally, the CCF is a complement to each of the former elements, and specifically, gives concrete examples of the public-facing issues that entrepreneurs and the PBE can include that may be relevant to drivers and motivations to food business owners.

The article is structured as follows. The next section presents the theoretical framework and background for the hypotheses. The subsequent section then outlines the data and methods, followed by the results. The article concludes with a discussion on implications and avenues for future research in this space.

3.1.2.1 Theoretical framework and hypotheses. More popularly known as the sharing economy, the access economy suggests that “access” to goods and services may be more desirable than “ownership” (Bardhi & Eckhardt, 2012). The access economy, therefore, describes a type of business built on the sharing of resources, like AirBnb or ZipCar, leveraged and linked with manageable transaction costs through a technology platform. As of 2012, the concept of sharing has moved from a community of practice into a legitimate business opportunity (Belk, 2014). The result, in theory, is a lower environmental impact, increased freelance workforce, and an “equalizing effect” where gains are primarily captured by households that register below median income (Smith, 2016).

While previous research has explored the personal or firm-based characteristics of food entrepreneurs, few have analyzed their experience accessing or using commercial kitchen space (Kline et al., 2014; Knudson et al., 2004; Liang & Dunn, 2014). The primary objective of this research is to determine the unique mission, values, or community capital-based attributes of food entrepreneurs and to evaluate how this set of factors may affect a food entrepreneur's interest and key criteria when searching for commercial kitchen space. Given the food entrepreneurs unique social and sustainability mindset, we also gathered some preliminary research on the food entrepreneur's interest in a very specific business strategy, namely, engaging with an access economy technology aimed at connecting food entrepreneurs with underutilized commercial kitchen assets. Hence, our research question is, what are the motivations that contribute to the willingness to adopt or participate in the access economy? More specifically, our hypotheses are

- H1: There are a variety of factors contributing to a food entrepreneur's propensity to be searching for kitchen space.
- H2: There are economic, social, and community drivers influencing the likelihood of adopting a technology platform related to the access economy.

To test these hypotheses, we developed and distributed a survey to food entrepreneurs in 2015. By first asking and analyzing whether food entrepreneurs were in search of commercial kitchen space, we used regression analysis to identify their willingness to use The Food Corridor, a conceptual online platform that links available commercial kitchen space with food entrepreneurs.

3.2 Previous Research

Entrepreneurs and their characteristics have been studied in great depth. Characteristics common to entrepreneurs often include the need for control or independence, confidence, high propensity for risk taking, commitment, and creativity (Blumberg & Pfann, 2016; Brandstätter, 1997; Khan, 1986; Thompson, 2004). But limited research has been conducted to explore the unique attributes of food entrepreneurs. In 2014, Liang and Dunn, sought to determine if and to what extent food entrepreneurs were different from non-food entrepreneurs. They found that food entrepreneurs face some unique risks that non-food entrepreneurs do not, but are ultimately similar. These risks include regulations, climate, quality control, business management, distribution channels, seasonality, and financial barriers. Further, they found that food entrepreneurs established their business in more recent years, located more in urban areas, hired fewer full-time employees, and relied on more part-time employees (Liang & Dunn, 2014).

Similarly, Kline et al. (2014) applied Santo's Positive Theory of Social Entrepreneurship to understand food entrepreneurs' motivations for beginning their businesses. Santo's Theory states that social entrepreneurs can be in the private sector, but "operate on building business models that address basic human needs while fulfilling a role in the economy where markets and governments fail" (Santos, 2012). They concluded that these entrepreneurs started businesses to find solutions to larger problems, or positive externalities, like assisting farmers, promoting health, increasing awareness, empowering customers, minimizing environmental impacts, or building community (Kline et al., 2014).

Gagnon and Heinrichs (2016) went further and explored the relationship between a food entrepreneur's sustainable orientation, mindset, and firm practices to see if entrepreneurial behavior and firm practices are congruent with their support of sustainability. Their qualitative

results indicated positive relationships between sustainable orientation, mindset, and practices (Gagnon & Heinrichs, 2016). They concluded that food entrepreneurs see potential for developing additional measures for concepts of individual sustainability mindset, firm sustainable practices, and sustainability performance (Gagnon & Heinrichs, 2016).

Business networks, informal and formal, can play a significant role in food entrepreneurship. McKitterick, Quinn, McAdam, and Dunn (2016) explored how locally embedded artisan food enterprises engage in networks for innovation, and how their operating environment shapes network development. They found that informal networks, like business networks or family associations, lead to opportunities for innovation in artisan food production. They also found that institutional networks, like universities or business councils, play a role in acting as a bridge to these informal networks, and that network building can compensate for perceived knowledge gaps (McKitterick et al., 2016). The findings justify the need to further examine themes around factors and norms that may contribute to the formation of networks for knowledge exchange and innovation in the specialty food sector.

3.3 Research Methods

3.3.1 Survey design. The survey instrument was designed and divided into 3 sections to represent different factors and explanatory variables that would guide the research question and testing of the hypotheses: 1.) general demographics and firm characteristics; 2.) the entrepreneur's priorities and values; and, 3.) experiences and opportunities perceived by the entrepreneur. The general demographics and firm characteristics collected included location, primary business category, years in business, and age.

To help frame the priorities and values section, questions and response options were based on previous work by the researcher exploring Entrepreneurial Social Infrastructure (ESI)

(Flora & Flora, 1993) and a new approach to Perceived Consumer Effectiveness (Ellen, Wiener, & Cobb-Walgren, 1991), that explores the motivation and buying behavior of food entrepreneurs or “Perceived Business Effectiveness” (see Chapter 2). Perceived Consumer Effectiveness is the extent to which a consumer believes that his/her purchase will contribute to the solution of a problem. Examples of marketing efforts framed to target consumers assuming there is some degree of PCE include fair trade coffee, free range eggs, rainforest certified, organically produced, and locally produced. Beyond food products, those supply chain actors that help bring such PCE-targeted foods to the marketplace could also embed PCE-type concepts into their business model. In essence, because food entrepreneurs are uniquely situated in the supply chain, their upstream and downstream impacts may be perceived as “effective” in addressing public-facing goals as well within the broader food system.

The third survey section solicited information specifically on the food entrepreneur’s experiences, needs, and opportunities in accessing commercial kitchen space. In order to establish content validity, the survey was pretested with a small pilot group to identify whether there were any confusing questions, missing answer options, and to evaluate overall survey flow (Presser et al., 2004)¹.

3.3.2 Survey distribution. The population of interest for the survey was adult food business owners in the United States. To address the research objectives, data were collected using a national online survey. The online questionnaire was developed using Qualtrics Research Suite (2006). The online survey method was chosen due to its relatively efficient means of collecting a wide variety of complex information in a short period of time. The online survey also avoids interviewer bias and often tends to lower the number of missing observations (non-

¹ Funding for this project was provided, in-kind, by the Colorado Agricultural Experiment Station, and the multi-state research project NE-1049, Community Health and Resilience.

response bias). The research protocol was determined to be exempt by the Research Integrity and Compliance Review Office at Colorado State University on 11/06/15. The survey included an optional question to provide contact information and two yes/no questions: 1.) to elect to be included in on a waiting list; and, 2.) to elect to be contacted for a follow up, in-depth interview. Consent was defined and contact information was provided. Participating in the survey implied consent. The survey launched in November 6, and closed December 5, 2015.

The survey was distributed digitally (via email) to a list of 300 food businesses aggregated by the researcher through public information channels including county food records, business network membership lists, and community networks. The participants learned about the research directly from the researcher via email or through key informants, community leaders, and strategic partners, using chain referral sampling. Links to the survey were also provided on private Facebook and Meetup group pages with written permission from the group moderators. The survey was completed by 145 respondents (with an estimated response rate of 42%). A list of the survey questions and key can also be found in Appendix D. A key for the following variables is provided in Appendix D. The means, standard deviations, minimum values and maximum values for each of the dependent and independent variables are provided in Appendix E.

3.4 Summary Data

3.4.1 General demographics.

3.4.1.1 Location by state. The respondents reported currently residing in a variety of states including: Alabama (1); Arizona (2); Arkansas (1); California (10); Colorado (70); Connecticut (3); Delaware (1); Georgia (2); Hawaii (2); Illinois (2); Iowa (1); Louisiana (1); Maine (1) Maryland (3); Massachusetts (7); Michigan (23); Minnesota (1); Mississippi (1);

Missouri (2); New Jersey (1); Texas (7); Vermont (2); and West Virginia (1). High response rates in Colorado and Michigan can be attributed to the researcher's network and academic food system community partnerships.

3.4.1.2 Years in business. A majority of respondents (40%) reported being in business only 1-3 years, followed by less than 1 year (22%), 3-5 years (22%), more than 10 years (9%) and 5-10 years (7%). Most of the businesses were newly created (1-3 years) or had been in business for a sustained period (3 or more years). The results are summarized in Figure 3.1.

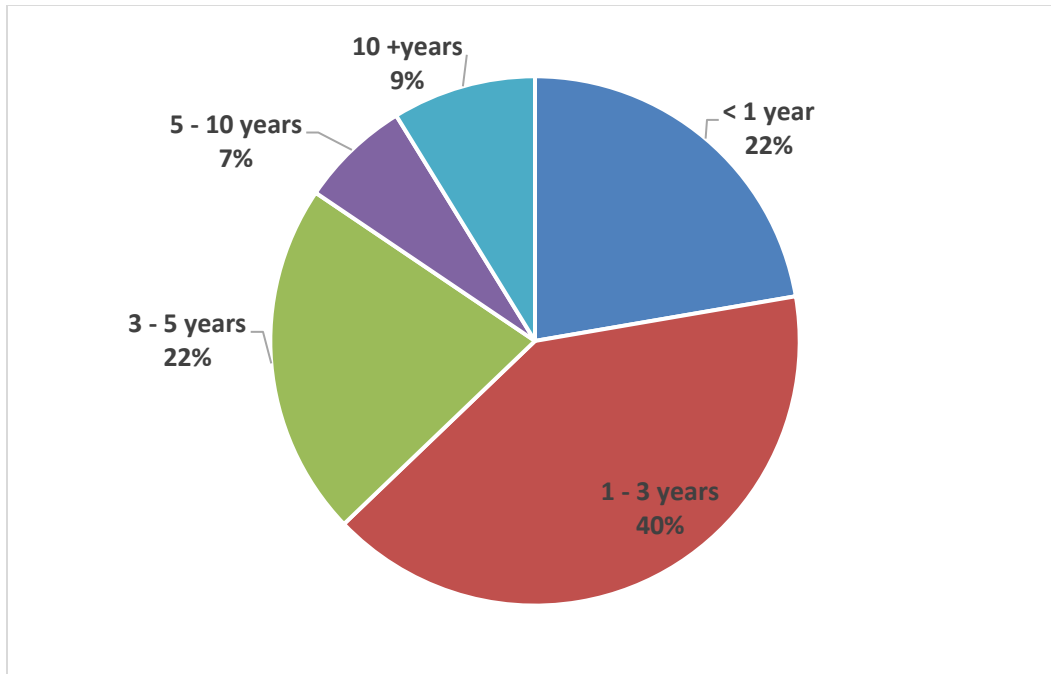


Figure 3.1. Reported number of years in business, percentage by category ($n = 145$).

3.4.1.3 Age of entrepreneur. A majority of respondents (52%) reported being between 35-54 years old, followed by 55-64 years (20%), 26-34 years (18%), 65 and over (7%), and 18-25 years (3%). The results are summarized in Figure 3.2.

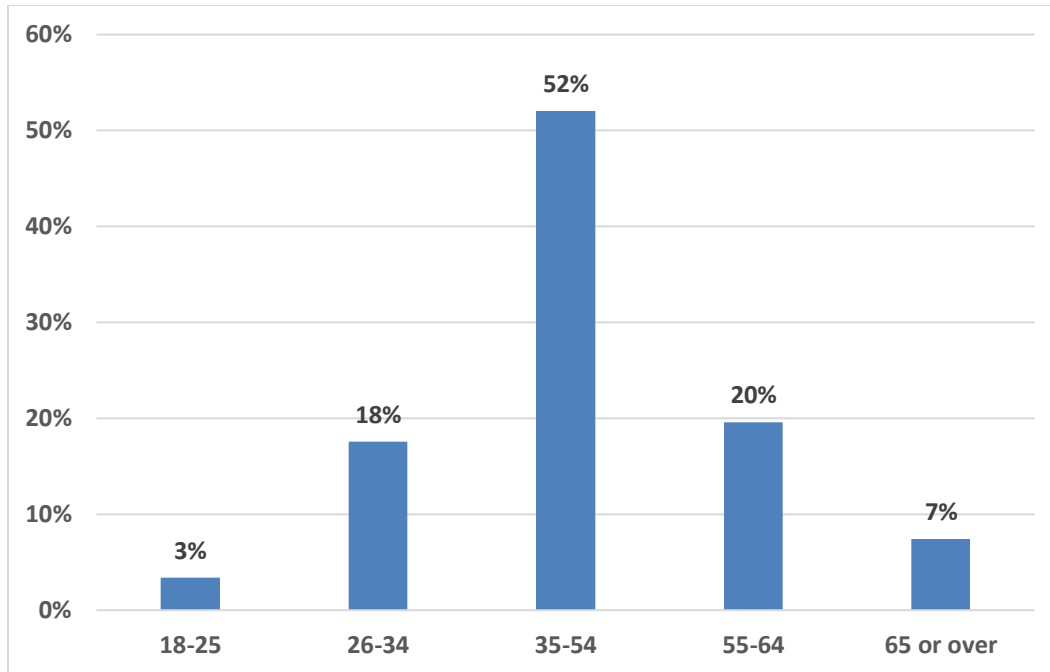


Figure 3.2. Reported age range of primary operator in years, percentage by category ($n = 145$).

3.4.1.4 Type of food entrepreneur. Cottage food producers (home producers) represented the majority of respondents in the survey (26%) (Figure 3.3). The next most common categories were food or beverage manufacturer (18%), food artisan/value added producer (not a baker) (16%), mobile food truck or push cart (11%), baker (10%), educator or cooking instructor (4%), and caterer or personal chef (3%). Twelve percent of respondents chose “other” as their category and were prompted to describe their primary business. Responses included pickle maker, kitchen incubator mentor, food co-operative, various business consultants and educator, and a few farmers.

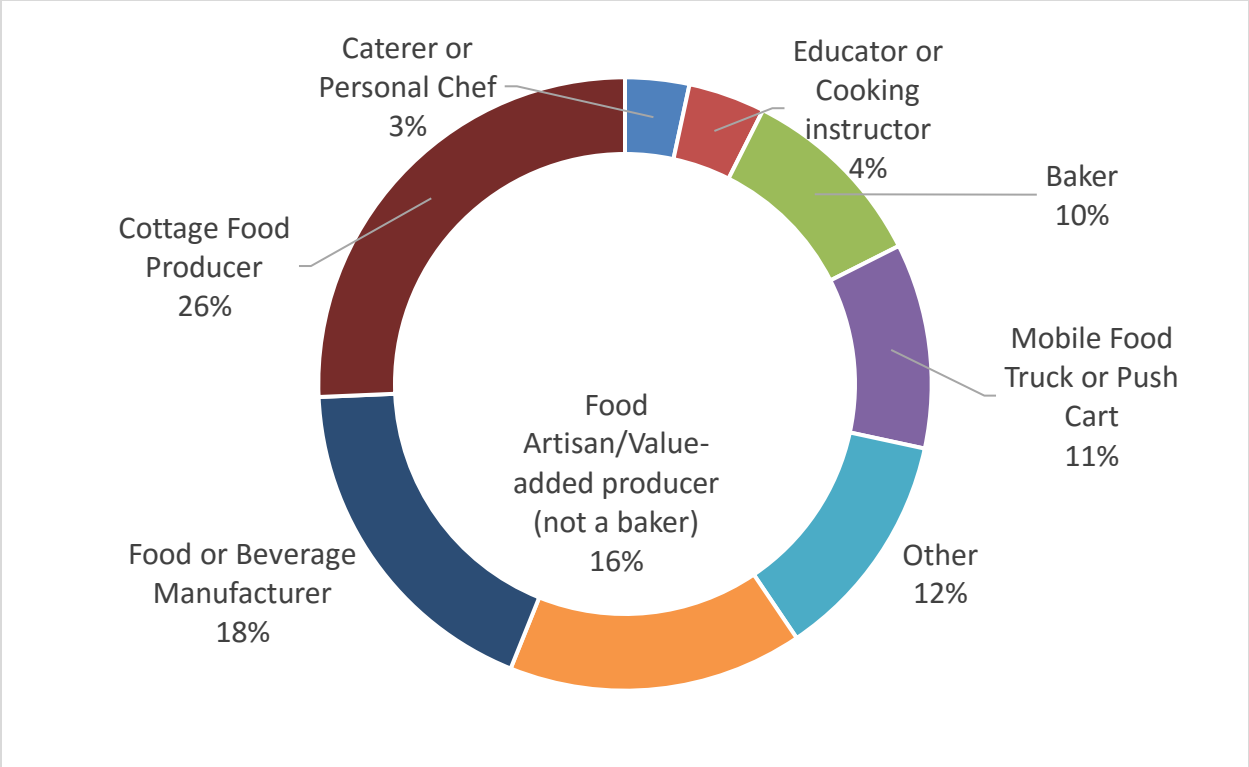


Figure 3.3. Reported type of primary food business, respondent only chose 1 option (n = 145).

3.4.2 Priorities and values. Part of the integration of the three unique essays completed for this dissertation was integration between questions across the key research questions addressed. So, although priorities and values were a focus of Chapter 2, it is important to revisit those findings because the themes will also be integrated into this chapter’s research model. Responses about the food entrepreneur’s agreement with statements related to a variety of business priorities and values, are useful factors to consider in relation to their interest in the access economy. The analysis, results, and conclusion can be found in Chapter 2 of this dissertation. A list of the survey questions and key can also be found in Appendix D.

3.4.3 Experiences and opportunities. The results of the food business’ perceptions of experiences and opportunities, specifically around challenges and logistical details related to accessing and using commercial kitchen space are described below.

3.4.3.1 Current status accessing a commercial kitchen. A majority of respondents (34%) used their home kitchen as their primary facility, which is logical given the number of cottage foods business operators responding. Other entrepreneurs were renting from a commissary or shared use kitchen (19%), own their own commercial kitchen (13%), share with a few other businesses (8%), rent from an incubator kitchen (6%), or use an existing community kitchen like a church, school or fraternal organization (4%). Respondents that chose “other” (16%) reported a variety of situations including; using a co-packer, currently building a kitchen, or searching for space. The results are summarized in Figure 3.4.

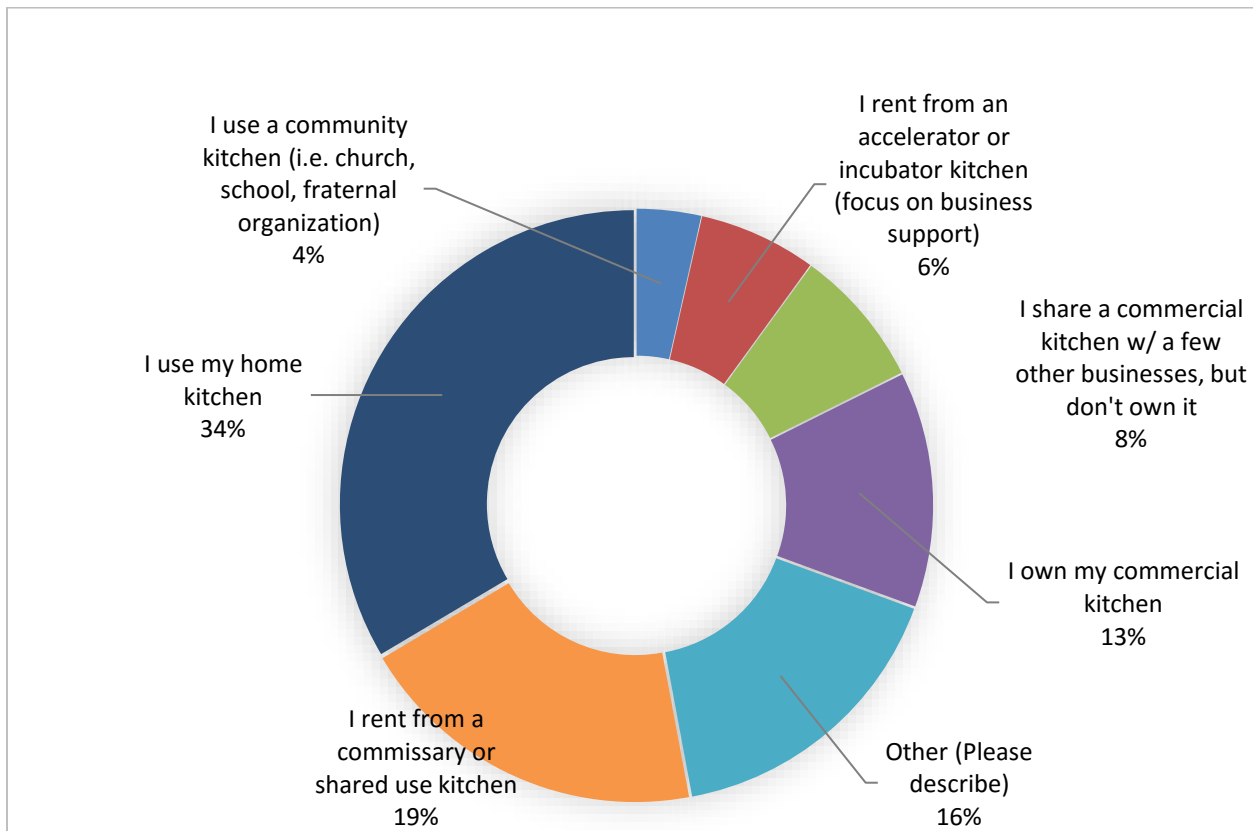


Figure 3.4. Reported current status accessing a commercial kitchen (n = 145).

3.4.3.2 Currently search for commercial kitchen space? A majority of respondents reported using only one commercial kitchen in the last year (50%), followed by 2-3 (15%), and other or none (35%). Similarly, 35% of respondents reported they were currently searching for commercial kitchen space, while 56% reported they were not looking for space. The results are summarized in Figure 3.5.

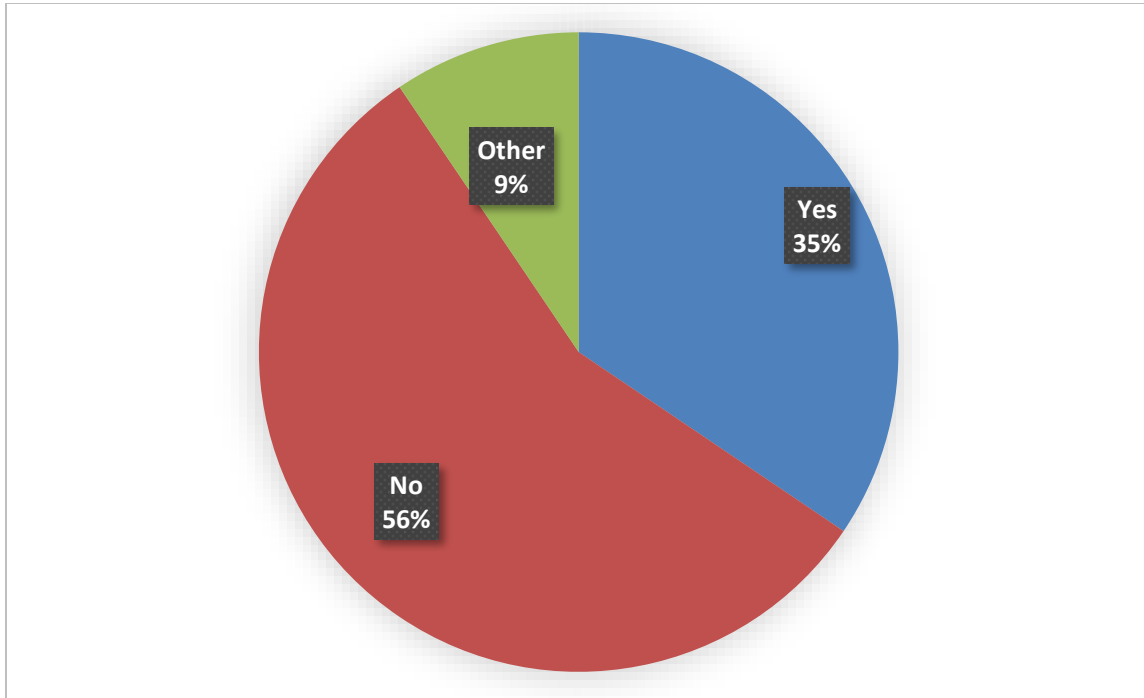


Figure 3.5. Response to the question “Are you currently searching for kitchen space?” (Y/N/Other) ($n = 145$).

3.4.3.3 Willingness to travel. Respondents were willing to travel one-way, 4-10 miles (39%), 11-30 miles (32%), or 0-3 miles (18%). In a few cases, respondents, likely in rural areas where managers already travel further to access most business services, were most likely to travel 31-55 or more (10%) than 56 miles one-way (1%) to utilize a commercial kitchen. The results are summarized in Figure 3.6.

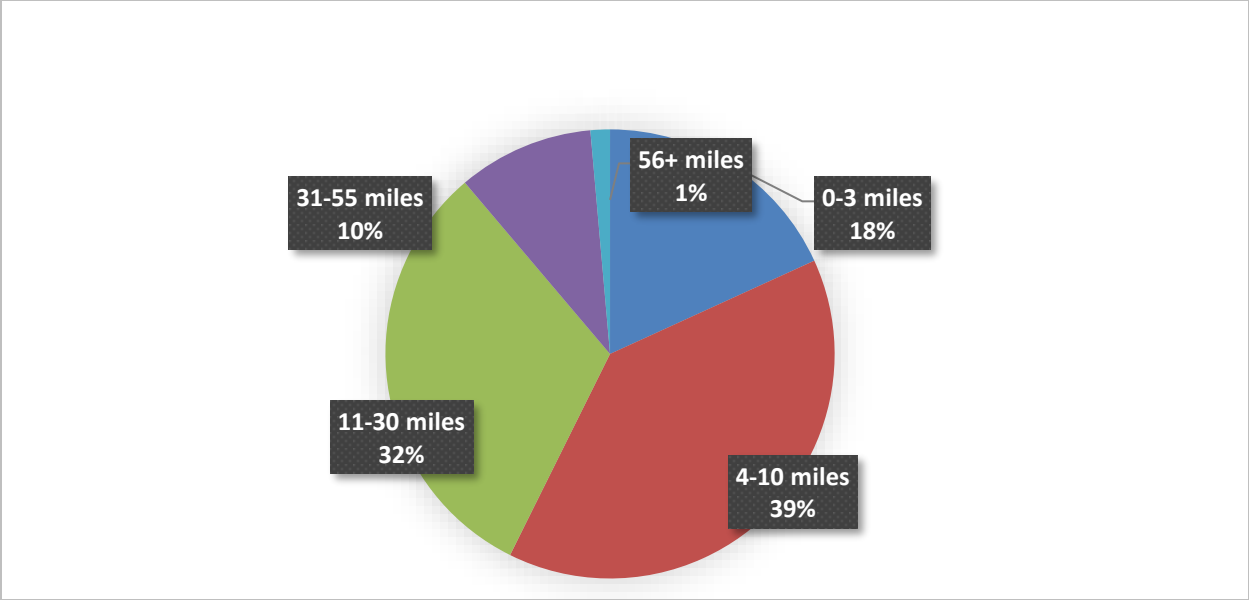


Figure 3.6. Reported willingness to travel one way, by ranges of miles, to use a commercial kitchen (n = 145).

3.4.3.4 Ideal kitchen hours for using commercial kitchen space. When asked to rank their ideal hours for using commercial kitchen space, respondents chose late morning (25%) and early morning (30%) as their most ideal times and for the clear majority, overnight was the least ideal hour range (61%) followed by early mornings (17%) and evenings (38%). The results are summarized in Figure 3.7.

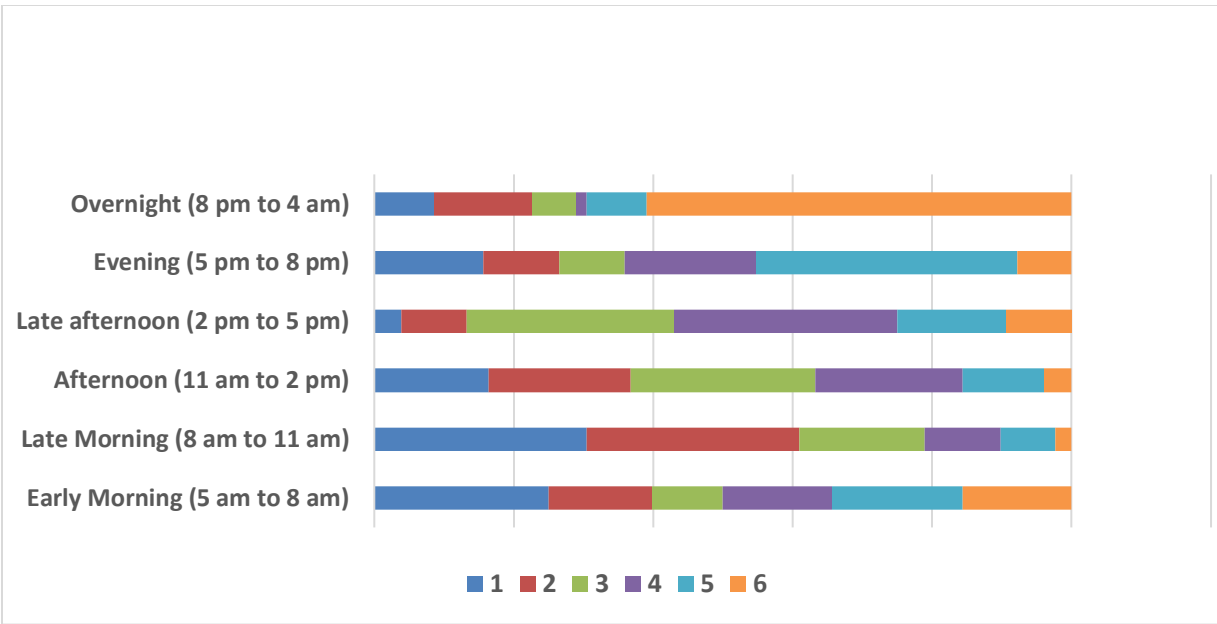


Figure 3.7. Preferred ranking of ideal hours for access to kitchen (1 (most preferred) -6 (least preferred) (n = 145).

3.4.3.5 Satisfaction related to commercial kitchens. Next, respondents were asked to describe their past experiences (dissatisfied, neutral, or satisfied) related to commercial kitchens across a variety of factors including; finding appropriate space, relationship and communication with the kitchen, scheduling and booking process, price or cost, equipment availability, and technical business support. Most respondents reported being most satisfied with the relationship and communication with the kitchen (37%). But there were split results around satisfaction in finding appropriate space and equipment availability. Respondents were most dissatisfied with price (or cost) of the kitchen (29%) or in finding appropriate space (30%). The results are summarized in Figure 3.8.

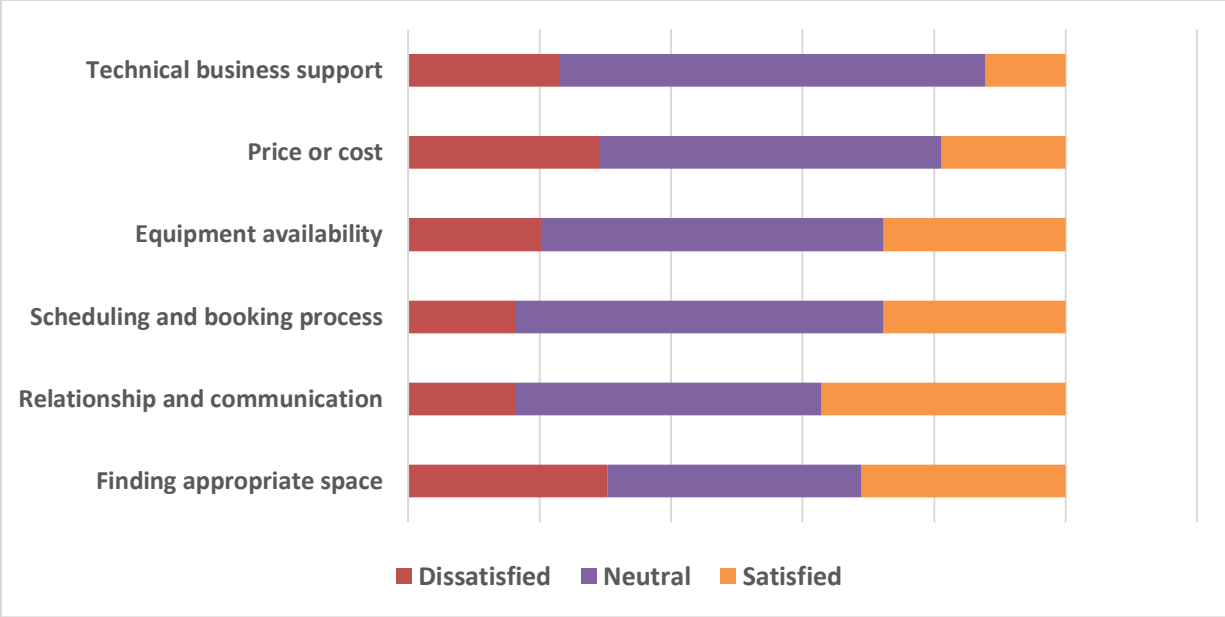


Figure 3.8. Reported satisfaction of attributes related to commercial kitchens (dissatisfied, neutral, or satisfied) (n = 145).

3.4.3.6 Important features when choosing a commercial kitchen. Similarly, respondents were asked to rank a variety of features (very important, neither important or unimportant, or very unimportant) when choosing a commercial kitchen space to rent. Features included in the survey were diverse such as; location, price or cost, availability (time/days), cleanliness, equipment availability, parking, storage, security, business support, relationship and communication, and scheduling and booking process. Based on the responses, the most important features were price or cost (86%), cleanliness (85%), location (77%), equipment available (72%), and availability of time and days for use (69%). The least important features were online payments, group insurance rates, and technical business support. The results are summarized in Figure 3.9 and sorted by their relative rankings in terms of importance.

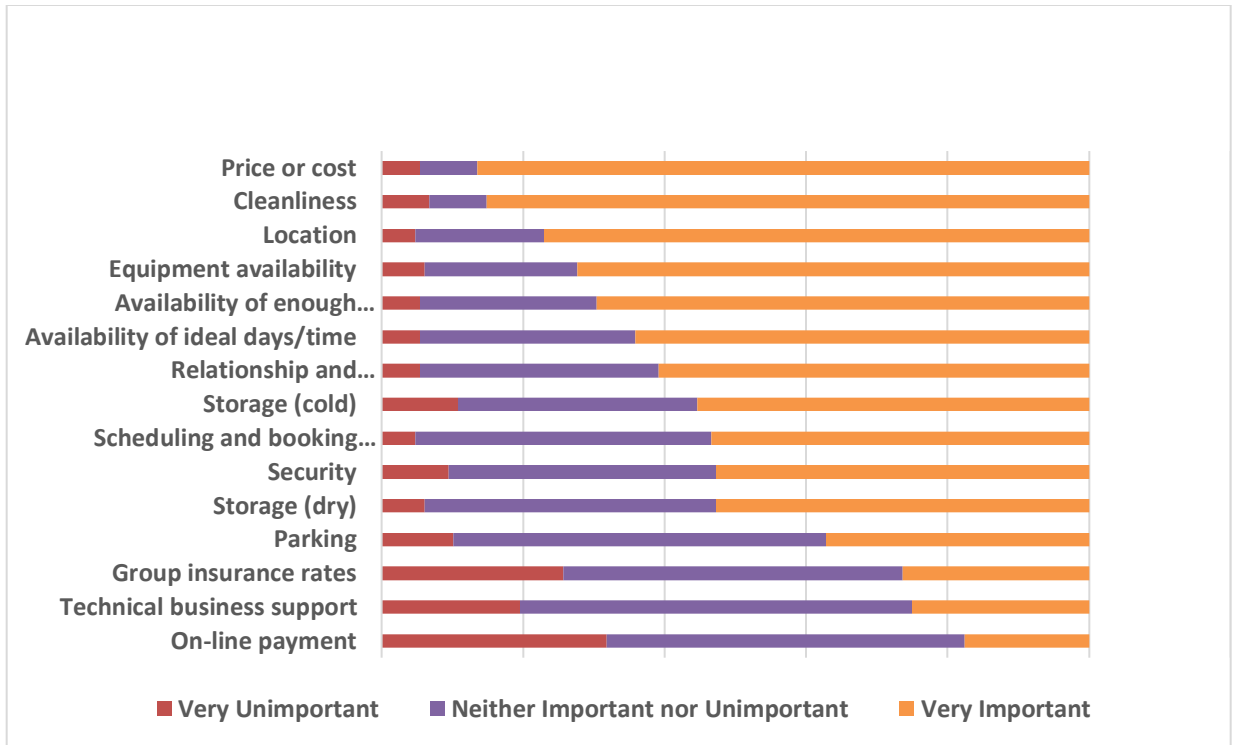


Figure 3.9. Important features when choosing commercial kitchen space (very important, neither important or unimportant, or very unimportant) (n = 145).

3.4.3.7 Likelihood to use *The Food Corridor*. The final question in this section asked respondents to share the likelihood they would use a conceptual online platform aimed at linking available commercial kitchen space with food entrepreneurs the researcher called *The Food Corridor*. The following description was provided:

The Food Corridor is an online platform that links commercial kitchen space with food entrepreneurs. Benefits include business profile pages, online searching for open kitchens and equipment, online booking, and payment processing, in exchange for a % of revenue from the booking made.

Respondents identified their likelihood of using The Food Corridor concept as described on a scale of not at all likely (0) to extremely likely (10). The mean response for the sample was 5.36 and the results were, again, split. Of the respondents, 68% chose 5 or above, or “likely to use”, while 32% chose 4 or below, or “unlikely to use” The Food Corridor as described. To

explore differences among respondents further, we found it helpful to cross tabulate the clients who reported “yes” to the question “are you currently looking for commercial kitchen space” with this question. Results suggest that respondents who reported they were currently looking for commercial kitchen space were significantly more likely to report a higher likelihood of using The Food Corridor. Furthermore, the relationship was highly significant at the 1% level given a Chi-Squared, $\chi^2=48.46$ and 20 degrees of freedom. The results are summarized in Figures 3.10 and 3.11 below.

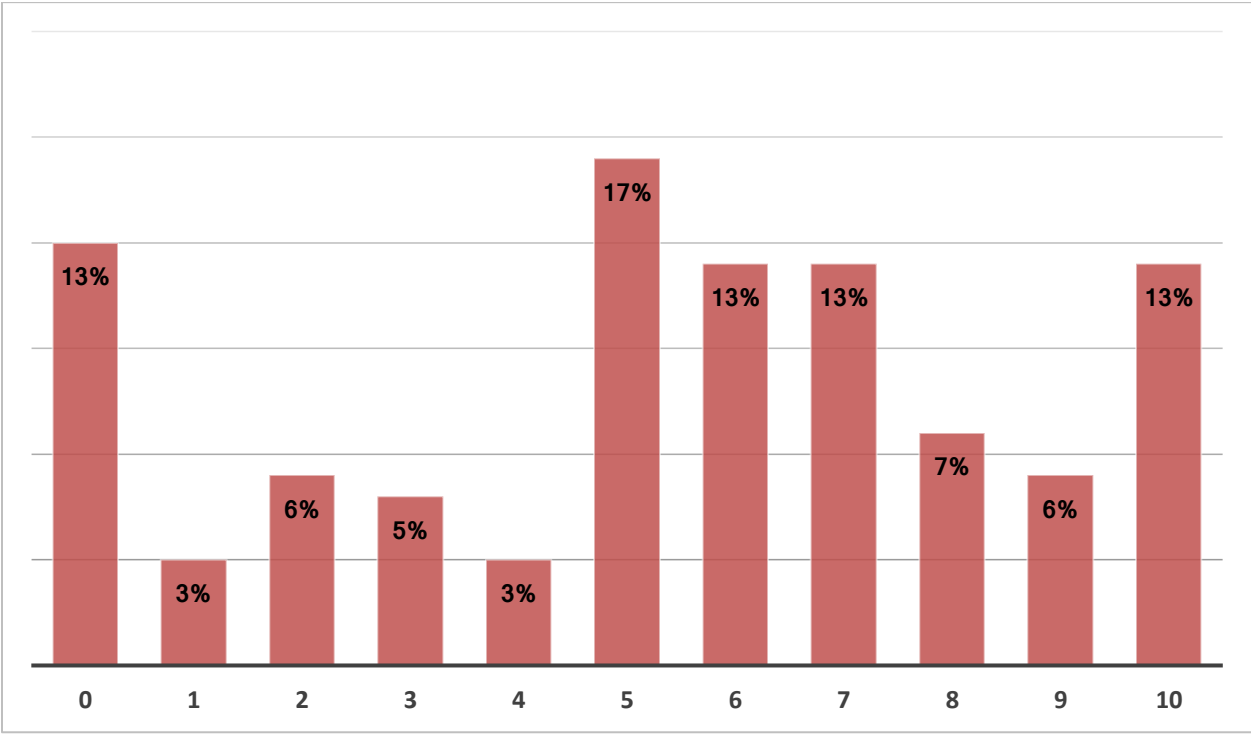


Figure 3.10. Reported likelihood to use The Food Corridor (scale of 0-10, most likely) (n = 145).

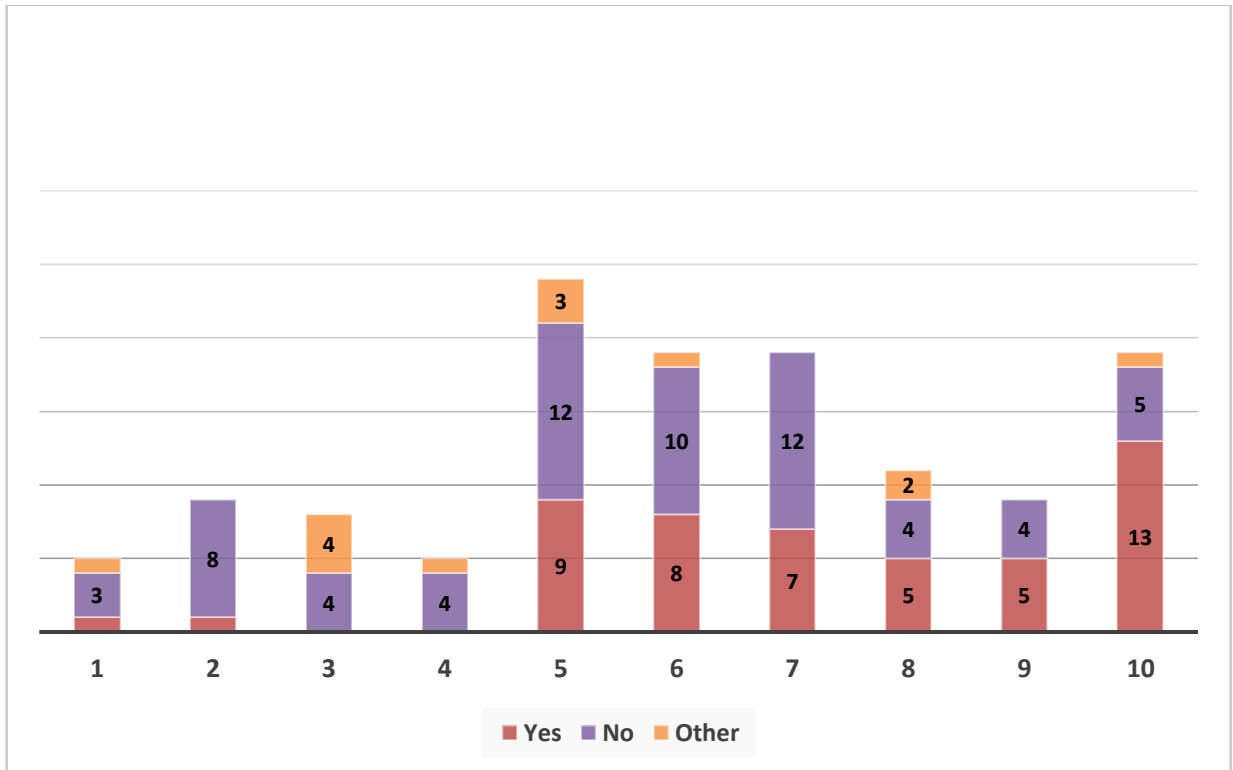


Figure 3.11. Cross tabulation of likelihood to use The Food Corridor (scale of 1-10) crossed with those reporting looking for commercial kitchen space (yes, no, other). $*(p = 0.00)$ ($\chi^2 = 48.46$) ($df = 20$).

3.5 Empirical Analysis

The primary objective of this research was to determine the factors affecting the probability that a food entrepreneur in search of commercial kitchen space will have common motivations or factors. In the survey, food entrepreneurs could indicate whether or not they were in search of commercial kitchen space, and then if looking, what was their likelihood of using The Food Corridor, a conceptual online platform that links available commercial kitchen space with food entrepreneurs. We used these 2 questions to build a two-stage analysis, specifically a probit model, that allows one to first explore the marginal effect on the probability of a respondent looking for space, and then in a second, stage, further explore whether they have

interest in securing a site using The Food Corridor, depending on other responses integrated into the specification to represent economic, social, or community-based drivers.

A two-step estimation procedure, known as the Heckman correction (McFadden, 1984), was used to control for the sample selection expected from the survey design where those reporting an active search for kitchen space were expected to be more interested in using the access economy to find such space. Operationally, this translates to first step being a binary probit model (searching for commercial kitchen space/not searching for commercial kitchen space), and the second step is an ordered probit model where the predicted value for the model in step one appears as an independent variable to control for aspects of the first stage (looking for space) that may also influence the second stage (interest in The Food Corridor platform). For the first question “are you currently searching for commercial kitchen space,” we coded any “Other (please describe)” selections as “Yes” responses based on their given description and created a yes (1)/no (2) binary variable to represent the binary limited dependent variable indicating for each respondent: need space/don’t need space.

The model included respondents’ answers to demographic, priorities and values, and experiences and opportunities. Specifically, the following equations were estimated.

Step 1: *NEED SPACE/DON’T NEED SPACE = (YEARS AGE SPACE USAGE MILKES H5AM H8AM H11AM H2PM H5PM EXSPACE EXCOMM EXBOOK EXEQUIP EXCOST EXBIZDEV FLOCATION FCOST FBOOK FITIME FATIME FONLINE FCLEAN FEQUIP FPARK FDRY FCOLD FSECURE FBIZDEV FINSURE FRELATION)*

Step 2: *USE TFC = (YEARS AGE PROFITS FAIR LOCAL SHARED ILLNESS REGULATE COMPLY DIETS TECH NETWORK SOCIAL ADOPT ECOLOGY BUYLOCAL STATUS USAGE MILES MILLS)*

The means, standard deviations, minimum values and maximum values for each of the dependent and independent variables are provided in Appendix E. The dependent variable for the

Step 1 (the binary probit model), representing the response to the NEED SPACE/DON'T NEED SPACE was a discrete 0/1 variable equal "0" for those who reported they were not currently searching for commercial kitchen space to "1" for food entrepreneurs who indicated they were currently searching.

For Step 2 (the ordered probit model), the dependent variable, USE TFC, was a continuous variable representing the respondent's answer to the question, "On a scale of 1-10, how likely are you to use The Food Corridor as described?". The two-step statistical approach, necessitated the use of the Heckman correction (McFadden 1984), which offers a means of correcting for non-randomly selected samples and the calculation of a Mills Ratio. To summarize, the steps were

1. Estimation of the probit model related to seeking kitchen space
2. Obtained linear predictors from the first stage model
3. Calculate the Mills Ratio for inclusion into the second stage model to control for sample selection bias across the two models.

The Mills Ratio is the ratio of the probability density function to the cumulative distribution function of the normal distribution estimated in the first stage. In this case, we used it to determine how likely a respondent was to be looking for kitchen space, since the original question was binary (yes or no) and did not allow us to infer what propensity the respondent had to look for a kitchen.

3.6 Empirical Results

3.6.1 Binary and ordered probit model dependent and independent variables

results. The results for the first stage model, focused on whether a respondent was looking for kitchen space, are reported in Table 3.1a, 3.1b, and 3.1c, and results are subdivided by different

types of factors that may explain how the food entrepreneurs searching for space differ from others. Overall, the Phase 1 probit regression, was significant ($p=0.00$) in explaining differences across respondents. In terms of specific factors that were significant, respondents who reported actively looking for commercial kitchen space, were more likely to prioritize ideal hours of early morning ($p=0.00$), afternoon ($p=0.01$), or evening ($p=0.00$). This may be because food entrepreneurs often have other careers or jobs requiring them to work on their food business during non-standard hours, or that they are looking for space because their current choice does not have their preferred schedule available.

Table 3.1a

Effect of Demographics and Kitchen Priorities on Probability of Currently Searching for Kitchen

	Coefficient	Std. Err	z-Score	P-value
CONSTANT	-7.86	2.98	-2.63	0.01
YEARS	-0.25	0.14	-1.72	0.09
AGE	0.22	0.21	1.05	0.29
SPACES	-0.01	0.13	-0.05	0.96
USAGE	0.02	0.1	0.23	0.82
MILES	0.27	0.19	1.43	0.15
H5AM	0.64***	0.15	4.05	0
H8AM	0.21	0.15	1.4	0.16
H11AM	0.47**	0.18	2.58	0.01
H2PM	0.11	0.15	0.73	0.47
H5PM	0.57***	0.19	2.93	0

The model also revealed significance related to whether a food business reported overall dissatisfaction with finding appropriate space ($p=0.04$), but not with their experiences communicating with a kitchen, booking times, accessing equipment, cost, or access to business development services.

Table 3.1b

Effect of Past Kitchen Experiences on Probability of Currently Search for Kitchen

	Coefficient	Std. Err	z-Score	P-value
EX_SPACE	-0.56*	0.27	-2.01	0.04
EX_COMM	0.07	0.34	0.19	0.85
EX_BOOK	0.1	0.34	0.3	0.77
EX_EQUIP	0.15	0.28	0.54	0.59
EX_COST	0.03	0.32	0.09	0.93
EX_BIZDEV	-0.036	0.31	-1.16	0.24

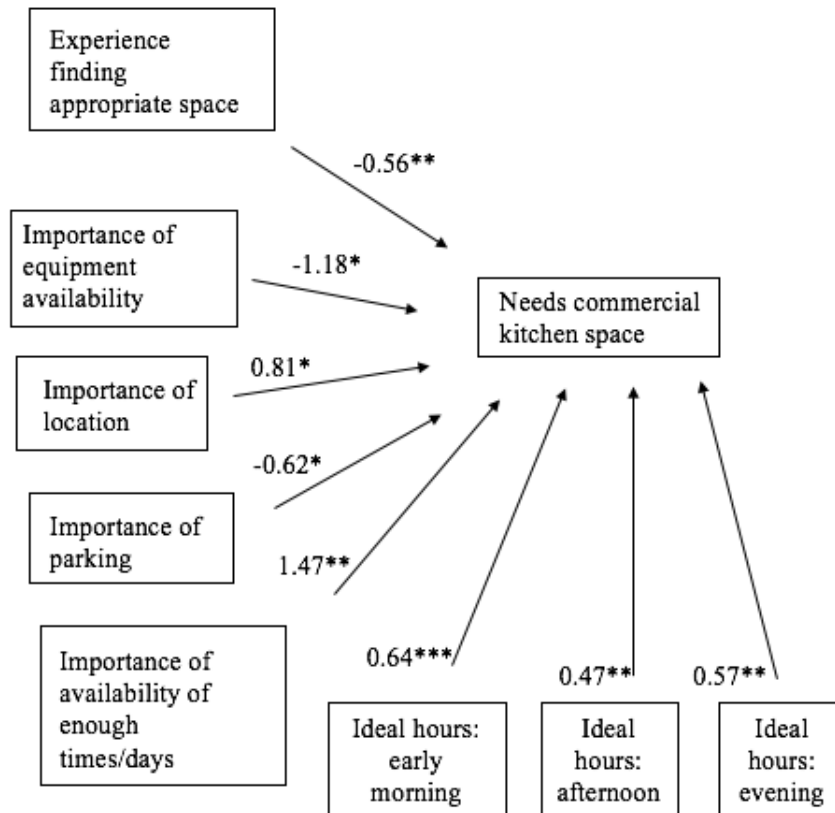
At the same time, respondents reported the importance of the availability of enough days/time to rent ($p=0.00$) and location ($p=0.07$). Availability of equipment ($p=0.02$), and parking ($p=0.07$) were both produced negative coefficients. See Table 3.1c below. Again, accounting for these factors in the first phase of the modeling controls for the fact that many respondents were not actively searching for built capital, and thus, would be expected to have less interest in the access economy platform. A graphical representation of the magnitude of statistically significant variables influencing to the need for commercial kitchen space are provided in Figure 3.12 below as a means to visually summarize key findings.

Table 3.1c

Effect of Kitchen Feature Priorities on the Probability of Current Searching for Kitchen

	Coefficient	Std. Err	z-Score	P-value
F_LOCATION	0.81**	0.45	1.82	0.07
F_COST	-0.45	0.61	-0.73	0.46
F_BOOK	-0.35	0.31	-1.11	0.27
F_ITIME	-0.61	0.46	-1.34	0.18
F_ETIME	1.47*	0.56	2.6	0.01
F_ONLINE	0.32	0.29	1.1	0.27
F_CLEAN	0.44	0.56	0.78	0.44
F_EQUIP	-1.18*	0.52	-2.29	0.02
F_PARK	-0.62**	0.34	-1.82	0.07
F_DRY	0.01	0.35	0.04	0.97
F_COLD	0.47	0.33	1.4	0.16
F_SECURE	-0.06	0.35	-0.18	0.87
F_BIZDEV	0.07	0.29	0.26	0.78
F_INSURE	-0.01	0.26	-0.05	0.96
F_RELATION	0.15	0.41	0.38	0.71

Note. * $p < .10$, ** $p < .05$, *** $p < .01$. $n = 118$. Log likelihood = -53.02. Restricted log likelihood = 57. Chi-squared = 0.35. Prob > chi2 = 0.00*.



* $p < .10$, ** $p < .05$, *** $p < .01$. $n = 118$

Figure 3.12. Key statistically significant variables influencing current need for commercial kitchen space.

The second ordered probit regression (Table 3.2), focused on interest in the access economy technology platform, was also significant ($p=0.00$). In this model, reported age was a significant variable in choosing to use The Food Corridor Platform ($p=0.00$) but was a negative coefficient. The variable of who reported “*participating in a shared economy helps to conserve natural resources by minimizing land, water and energy use*”, was also significant ($p=0.01$). Finally, the variables “*business peers and mentors who are important to me think I should adopt and use more technology in my business*” ($p=0.05$) and “*my business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities*” ($p=0.08$) were both significant.

Table 3.2

Ordered Probit Model (Step 2)

	Coefficient	Std. Err	z-Score	P-value
MILLS	-1.13**	0.65	-1.73	0.08
YEARS	0.17	0.10	1.72	0.09
AGE	-0.43*	0.13	-3.23	0.00
PROFITS	-0.09	0.10	-0.94	0.35
FAIR	-0.08	0.10	-0.74	0.46
LOCAL	0.07	0.19	0.37	0.71
SHARED	0.31*	0.12	2.57	0.01
ILLNESS	0.15	0.11	1.43	0.15
REGULATE	-0.00	0.06	-0.02	0.98
DIETS	0.05	0.06	0.69	0.49
TECH	-0.09	0.09	-0.99	0.32
NETWORK	0.17**	0.10	1.73	0.08
SOCIAL	0.22	0.14	1.67	0.10
ADOPT	0.13*	0.07	1.96	0.05
ECOLOGY	0.01	0.09	0.14	0.89
BUYLOCAL	-0.03	0.09	-0.31	0.75
STATUS	0.05	0.08	0.69	0.49
USAGE	-0.07	0.06	-1.27	0.21

Note. * $p < .10$, ** $p < .05$, *** $p < .01$. $n = 118$.

A graphical summary of the statistically significant variables contributing to the likeliness to use The Food Corridor are provided in Figure 3.13 below as a means to visually summarize key findings. The marginal effects of these variables are in Section 3.6.2.

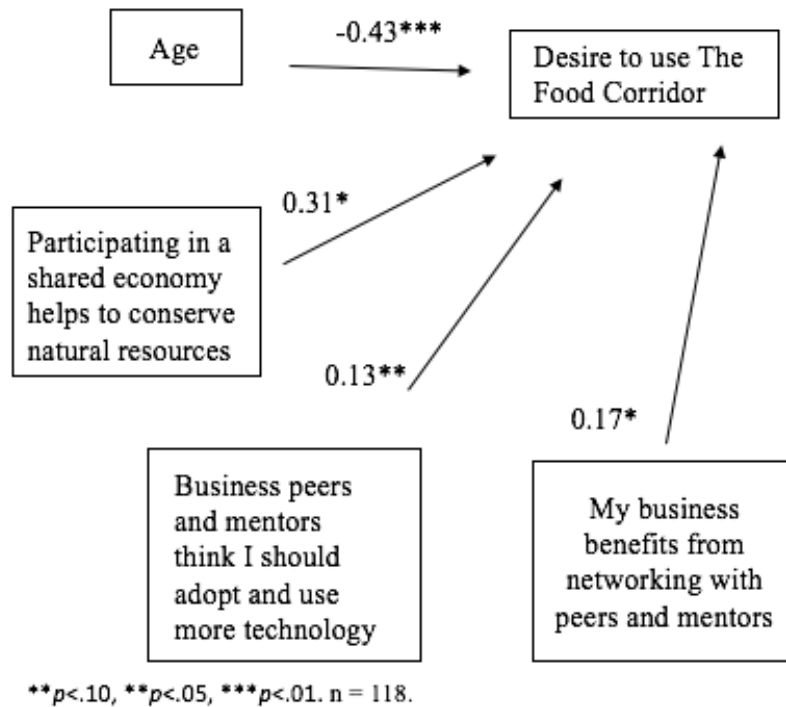


Figure 3.13. Key statistically significant variables influencing likelihood to use The Food Corridor.

3.6.2 Marginal effects. Marginal effects are useful in interpreting a limited dependent variable, because it describes how the change in a particular explanatory variable will influence the predicted probability when the other covariants are kept fixed. In other words, when using a continuous variable (like the scale of 1-10) we are able to see the rate of change as we move from one unit of change to the next. This is useful because we can better describe the marginal effects that individual variables may have on the explanatory variable and the results can be used to make smarter business strategies, project emphases, or policy decisions.

When we held all other variables at their mean in the ordered probit, we were able to calculate the marginal effects that occurred at each step of the 1-10 ranking. Again, we determined that those respondents who responded with an interest level of 5 and above as “more likely to use The Food Corridor.” By adding together the marginal effects of each ordinal rank

above 5 in a cumulative manner, we were able to establish an aggregated marginal effect for “more likely to use The Food Corridor.” The results of the most impactful findings are shared and discussed below.

3.6.2.1 Age. As a respondent’s age category selected increased by one level, the respondents were 13% less likely to report interest in using The Food Corridor. Younger people are generally more comfortable with technology and have been exposed to sharing economy platforms and online shopping most of their lives (Maycotte, 2016). In contrast, skepticism in technology tends to increase with age, making this finding appropriate.

3.6.2.2 Shared economy. Respondents that reported that they strongly agree with the belief that “participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use” were 9% more likely to report interest in using The Food Corridor when compared to those who did not agree with that value statement. It is likely that these folks have either participated and gained value from existing sharing economy platforms (like the ones suggested in the question) or that they tend to hold collaborative values and see themselves as part of a collective, able to contribute in a positive way. This finding helps to legitimize the idea of Perceived Business Effectiveness being a behavioral construct when explaining the motivations and decisions of food entrepreneurs.

3.6.2.3 Networking. Respondents that reported they strongly agree with the belief that their “business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities” were 5% more likely to report interest in using The Food Corridor when compared to those who did not agree with that value statement. As described in Chapter 1, there are numerous types of food system networks aimed at facilitation businesses or stakeholders, developing or evaluating policy, and organizing advocacy

efforts. Networking in with business peers and mentors in the food sector are used to facilitate knowledge and technology transfer, and can be formal or informal. Respondents seem to value current business networks as a means to support new opportunities that support business growth.

3.6.2.4 Different kitchens. Respondents that reported working out of increased numbers of different commercial spaces in the last 12 months, were 6% more likely to report interest in using The Food Corridor when compared to those who reported using fewer kitchens. If a food business has been unsuccessful finding a production kitchen or is scaling up in production volume quickly, it may mean they are continuing to look for the ideal kitchen for their operation. Using The Food Corridor could help to provide stability and ease of transition for these food entrepreneurs. An alternative explanation is that they adapt to change fairly adeptly (as evidenced by their continual searching for available space that best meets their needs), so the adoption of this platform is not seen as a challenge or barrier to meeting their built capital needs.

3.7 Conclusions and Implications

Between 2009 and 2015, USDA invested over \$1 billion in more than 40,000 local and regional food businesses and infrastructure projects. Specifically, the USDA made over 900 investments in local food infrastructure since 2014 including food hubs, local processing facilities and distribution networks to help connect farmers and consumers and create jobs all along the supply chain for local food (“USDA Results,” 2017). This research is intended to explore one potential avenue for further investment, networks and regional food system connections, community kitchens, and how the community of food entrepreneurs perceives opportunities to integrate new strategies into their business model.

The research was more broadly designed to contribute to a larger literature on unique aspects characterizing food entrepreneurs, that along with informing the specific research

question of this study, will further our understanding of how those business leaders may make their decisions about business investments and strategies. Specifically, this study helps to explore the unique motivations of food entrepreneurs and identify what current experiences or opportunities could be leveraged. Food entrepreneurs display unique business values and priorities. These include strong anchoring toward social and sustainability constructs that drive their desire to operate and make business decisions. By identifying these priorities and values and exploring experiences and opportunities for food entrepreneurs in accessing commercial kitchen infrastructure, communities can better target where infrastructure, programs and technical assistance can be focused to support food entrepreneurship across the country.

Accessing commercial kitchen space can be a barrier to starting or scaling a food business. For those who are dissatisfied with finding appropriate space, the price/cost, and access to technical assistance are the most reported barriers to overcome. The increased growth in shared-use kitchens nationally may help to connect food entrepreneurs with resources in their community, but only if it is well aligned with the key priorities of the operators.

Further, interest in technology platforms that leverage the sharing economy can help to reveal underutilized capacity in a region and provide spaces and resources that address specific needs at various stages of a food business' lifespan, but it seems that only some are open to new innovations that facilitate their participation in the shared or access economy's built capital offerings. Other opportunities exist for food entrepreneurs to access underutilized commercial kitchen space from existing kitchens in their community, but the search costs to find these places may be too high without a "matchmaking" platform that can compile site information and streamline logistics. Still, this is worth exploring given that underutilized spaces at school districts, churches, community centers, gyms, or private businesses like restaurants, bakeries,

coffee shops, cafés, or delis are good options to connect food entrepreneurs with commercial kitchen spaces in their communities.

REFERENCES

- Bardhi, F., & Eckhardt, G. M. (2012). Access-based consumption: The case of car sharing. *Journal of Consumer Research*, 39(4), 881–898. doi: 10.1086/666376
- Belk, R. (2014). You are what you can access: Sharing and collaborative consumption online. *Journal of Business Research*, 67(8), 1595–1600. doi:10.1016/j.jbusres.2013.10.001
- Blumberg, B. F., & Pfann, G. A. (2016). Roads leading to self-employment: Comparing transgenerational entrepreneurs and self-made start-ups. *Entrepreneurship Theory and Practice*, 40(2), 335–357. doi:10.1111/etap.12227
- Brandstätter, H. (1997). Becoming an entrepreneur—A question of personality structure? *Journal of Economic Psychology*, 18(2–3), 157–177. doi:10.1016/S0167-4870(97)00003-2
- Carter, N., Brush, C., Greene, P., Gatewood, E., & Hart, M. (2003). Women entrepreneurs who break through to equity financing: The influence of human, social and financial capital. *Venture Capital*, 5(1), 1–28. doi:10.1080/1369106032000082586
- Chicagoland Entrepreneurial Center. (2010). *From farm to fork: Innovations in the Chicago food industry*. Retrieved from <https://www.chicagobooth.edu/entrepreneurship/docs/Farm-to-Fork.pdf>
- Cohn, B. (2012). Welcome to the sharing economy. *Folio*, 41(3), 55–55. Retrieved from <http://www.foliomag.com/welcome-sharing-economy/>
- Detroit Kitchen Connect: Eastern Market Corporation. (2016). Detroit Kitchen Connect welcome letter. Retrieved from <http://www.detroitkitchenconnect.com>

- Family Farmed. (2017, March 6). Chicago food incubator The Hatchery may get \$1 million to build a bigger coop. *Good Food on Every Table*. Retrieved from <http://goodfoodoneverytable.org/2017/03/06/chicago-food-incubator-hatchery-gets-2-million-build-bigger-coop/>
- Flora, C. B., & Flora, J. L. (1993). Entrepreneurial social infrastructure: A necessary ingredient. *The Annals of the American Academy of Political and Social Science*, 529(1), 48–58. <https://doi.org/10.1177/0002716293529001005>
- Flora, J. L. (1998). Social capital and communities of place. *Rural Sociology*, 63(4), 481–506. doi:10.1111/j.1549-0831.1998.tb00689.x
- Gagnon, M., & Heinrichs, P. (2016). Food entrepreneur sustainable orientation and firm practices. *International Journal of Food and Agricultural Economics*, 4(4), 11–28. ISSN 2147-8988
- Gartenstein, D. (2003). The estimated cost for a commercial kitchen in a small business. Retrieved from <http://smallbusiness.chron.com/estimated-cost-commercial-kitchen-small-business-74630.html>
- Khan, A. M. (1986). Entrepreneur characteristics and the prediction of new venture success. *Omega*, 14(5), 365–372. doi:10.1016/0305-0483(86)90077-0
- Kline, C., Shah, N., & Rubright, H. (2014). Applying the positive theory of social entrepreneurship to understand food entrepreneurs and their operations. *Tourism Planning & Development*, 11(3), 330–342. doi:10.1080/21568316.2014.890126
- Knudson, W. (2015). *Market trends for specialty foods Strategic Marketing Institute working paper*. Michigan State University, Product Center. Retrieved from <http://productcenter.msu.edu/uploads/files/MarketTrendsforSpecialtyFoods01-0415.pdf>

- Knudson, W., Wysocki, A., Champagne, J., & Peterson, H. C. (2004). Entrepreneurship and innovation in the agri-food system. *American Journal of Agricultural Economics*, 86(5), 1330–1336. doi:10.1111/j.0002-9092.2004.00685.x
- Liang, C.-L., & Dunn, P. (2014). Discovering heterogeneity of entrepreneurs: a comparison of food and non-food entrepreneurs. *Academy of Entrepreneurship Journal*, 20(2), 19–32.
- Maycotte, H. O. (2016, May 5). Millennials are driving the sharing economy—And so is big data. *Forbes*. Retrieved from <https://www.forbes.com/sites/homaycotte/2015/05/05/millennials-are-driving-the-sharing-economy-and-so-is-big-data/#56e3ad138cb5>
- Mayors Innovation Project. (2014). *Local food and economic development: A guide for local governments*. University of Wisconsin-Madison. Retrieved from http://www.mayorsinnovation.org/images/uploads/pdf/Food_and_Economic_Development_Brief_updated.pdf
- McFadden, D. L. (1984). Econometric Analysis of Qualitative Response Models. *Handbook of Econometrics*, 2(January), 1395–1457. doi:10.1016/S1573-4412(84)02016-X
- McKitterick, L., Quinn, B., McAdam, R., & Dunn, A. (2016). Innovation networks and the institutional actor-producer relationship in rural areas: The context of artisan food production. *Journal of Rural Studies*, 48(December), 41–52. doi:10.1016/j.jrurstud.2016.09.005.
- New York City Council. (2013, August 13). Council proposes new initiatives to grow city’s specialty food and beverage industry to create and sustain jobs. *Press*. Retrieved from <http://council.nyc.gov/press/2013/08/13/456/>

- Presser, S., Couper, M. P., Lessler, J. T., Martin, M., Martin, J., Rothgeb, J. M., & Singer, E. (2004). Methods for testing and evaluating survey questions. *Public Opinion Quarterly*, 68(1), 109–130. doi:10.1093/poq/nfh008
- Santos, F. M. (2012). A positive theory of social entrepreneurship. *Journal of Business Ethics*, 111(3), 335–351. doi:10.1007/s10551-012-1413-4
- Scholder Ellen, P., Wiener, J. L., & Cobb-Walgren, C. (1991). The role of perceived consumer effectiveness in motivating environmentally conscious behaviors. *Journal of Public Policy & Marketing*, 10(2), 102–117. Retrieved from <http://www.jstor.org/stable/30000238>
- Specialty Food Association (2016). The state of the specialty food industry 2016. *Specialty Food Association*. Retrieved from <https://www.specialtyfood.com/news/article/state-specialty-food-industry-2016/>
- Smith, A. (2016, May 19). Shared, collaborative and on demand: The new digital economy. *Pew Research Center: Internet, Science & Tech*. Retrieved from <http://www.pewinternet.org/2016/05/19/the-new-digital-economy/>
- The Hale Group, Ltd. (2017). *Business opportunities in specialty food products*. MSU Product Center for Agriculture & Natural Resources. Retrieved from <http://productcenter.msu.edu/uploads/files/Specialty%20Food%20Products%20Report.pdf>
- Thilmany, D., Conner, D., Deller, S., Hughes, D., Meter, K., Morale, A., & Schmit, T. (2017). *The economics of local food systems: A toolkit to guide community discussions, assessments, and choices*. Retrieved from <https://www.ams.usda.gov/sites/default/files/media/Toolkit%20Designed%20FINAL%203-22-16.pdf>

Thompson, J. L. (2004). The facets of the entrepreneur: Identifying entrepreneurial potential. *Management Decision*, 42(2), 243–258. doi:10.1108/00251740410515861

United States Department of Agriculture. (2016) Know your farmer, know your food: Our mission. Retrieved from http://www.usda.gov/wps/portal/usda/usdahome?navid=KYF_MISSION

United States Department of Agriculture. (2017). Trends in U.S. local and regional food systems. Retrieved from <https://www.usda.gov/wps/portal/usda/usdahome?contentid=usda-results-local.html>

Wodka, A. (2016). U.S. kitchen incubators: An industry update. American Communities Trust, Econsult Solitions, Urbane Development. Retrieved from <http://www.econsultsolutions.com/report/us-kitchen-incubators-industry-update/>

CHAPTER 4: NORTHERN COLORADO FOOD CORRIDOR: A PILOT STUDY AIMED AT CONNECTING FOOD ENTREPRENEURS WITH UNDERUTILIZED COMMERCIAL KITCHENS

4.1 Introduction

Food entrepreneurship is a frequent subject of research in the area of regional food production and product processing. On the processing or product development side, those who identify themselves as food entrepreneurs can range from restaurateurs, personal or private chefs, caterers, food truck or cart operators, food artisans, or specialty food product manufacturers. Specialty food manufacturers typically produce unique or high-value food items often made in small quantities and from high-quality ingredients. Regularly touted as a strategy to support and sustain local businesses and promote sustainable economic development in a region, researchers proclaim that assisting food entrepreneurship is valuable because it leverages local resources, improves availability and quality of local products, and builds local business networks (Freudenberg, Silver, Hirsch, & Cohen, 2016; Macke & Markely, 2006).

Fittingly, the consumer demand for specialty food products is increasing, with sales hitting \$109 billion in 2014, a 21.8% increase since 2012 (“The State of the Specialty Food Industry,” 2015). Recent reviews of academic and industry-oriented research and marketing reports focused on consumers’ perceptions and preferences for local food consistently find that consumers are willing to pay a premium for local food (although definitions and marketing labels in this sector are hard to define). Top reasons for buying local food include freshness, taste, and a concern for supporting the local economy (Feldmann & Hamm, 2015; Low et al., 2015; Rainbolt Nurse, Onozaka, & Thilmany McFadden, 2012; Rikkonen, Kotro, Koistinen, Penttilä, & Kauriinoja, 2013). According to the 2015 USDA report “Trends in U.S. Local and Regional

Food Systems,” “the social desirability of buying local food plays a central role in influencing consumers to participate in the local food economy. Subsequently, consumers feel confident that purchasing locally grown or produced foods is truly making a difference for public and private outcomes” (Rainbolt Nurse et al., 2012).

By law in most states, food entrepreneurs selling through retail and wholesale outlets are required to produce food in commercial kitchens that are inspected and licensed by the local health department. The growing demand for specialty food is giving rise to increasing numbers of food entrepreneurs who require commercial kitchen space. Additionally, these entrepreneurs find it difficult to scale up from a cottage or small food business due to prohibitive capital expenses related to commercial real estate, equipment and other key infrastructure. Still, success of these businesses depends on access to a facility that fits their unique needs for built capital (facility and equipment), business development (human, political and social capital), and growth (financial capital). Today, there are significant transactional costs around finding and renting appropriate commercial space. At the same time, the average commercial kitchen space is 55 to 90% underutilized, equating to significant loss of income opportunity for commercial kitchens and lost food sector commercial opportunity costs in the billions of dollars when one considers the underutilization of assets (unpublished research by the author, 2015).

A shared-use kitchen facility often provides food entrepreneurs with the space and equipment (built capital) needed for recipe testing and small batch production (Cranwell, Kolodinsky, Donnelly, Downing, & Padilla-Zakour, 2005; Dent, 2008). These shared-use kitchens are termed commissaries, rental kitchens, catering kitchens, or incubators, depending on their use and license. Shared-use kitchens are designed to give food processors low-cost access to commercial grade culinary equipment and professional space that meets public health

standards. And, as is the case with the incubator kitchen, facilities may also be in an appropriate position to provide direct technical assistance from professionals experienced in food product development in the areas of as marketing, labeling, nutritional analysis, business planning, and distribution (human capital). Space is often rented by the hour or through monthly memberships and is then shared amongst many individuals and businesses, including bakers, personal chefs, caterers, food truck operators, canners/preservers, and specialty food processors.

Not surprisingly, just as local food offerings are differentiated and unique, so to are their business development needs. Prior interviews with food entrepreneurs demonstrated increased difficulty finding and increased time spent vetting sites for appropriate fit in terms of the equipment needs, pricing, scheduling, and availability among a diverse set of food production spaces (unpublished research by the author, 2015). The purpose of this pilot project was to identify a potential market solution, or Minimum Viable Product (MVP), for supporting food entrepreneurs in finding and renting a commercial kitchen in their area. In doing so, the researcher conceived a technology platform, much like a personal match-making site, for the purpose of connecting food entrepreneurs with underutilized commercial kitchen space available for rent. The platform is called The Food Corridor and is described below.

The Food Corridor is the first technology application (app) aimed at increasing the efficiency and scalability of regional food systems by creating a virtual marketplace that reduces redundancy and transaction costs, while providing a seamless user interface for food entrepreneurs seeking out commercial kitchens, commissaries, processing, co-packing and food storage spaces. At the same time, The Food Corridor provides institutions and businesses with underutilized kitchen space an opportunity to more effectively utilize their assets, providing additional revenue streams to schools, food banks, hotels, restaurants and more. The platform

combines the technology for online booking, payment processing, and user/owner profiles, in order to create a more efficient process for the sourcing and renting of commercial kitchen space. Below are two figures (Figures 4.1 and 4.2) that show The Food Corridor's home page and a kitchen listing for rental space.

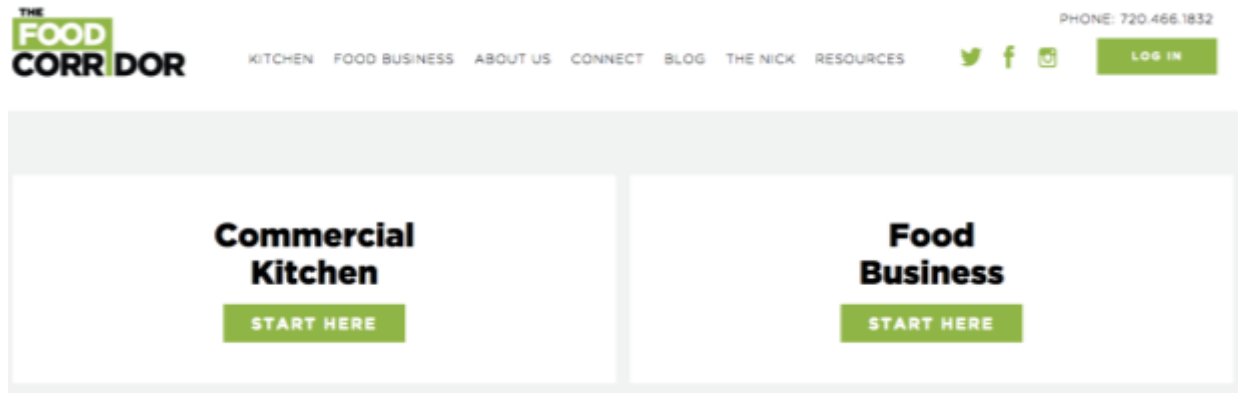


Figure 4.1. Screen shot of The Food Corridor (www.thefoodcorridor.com).

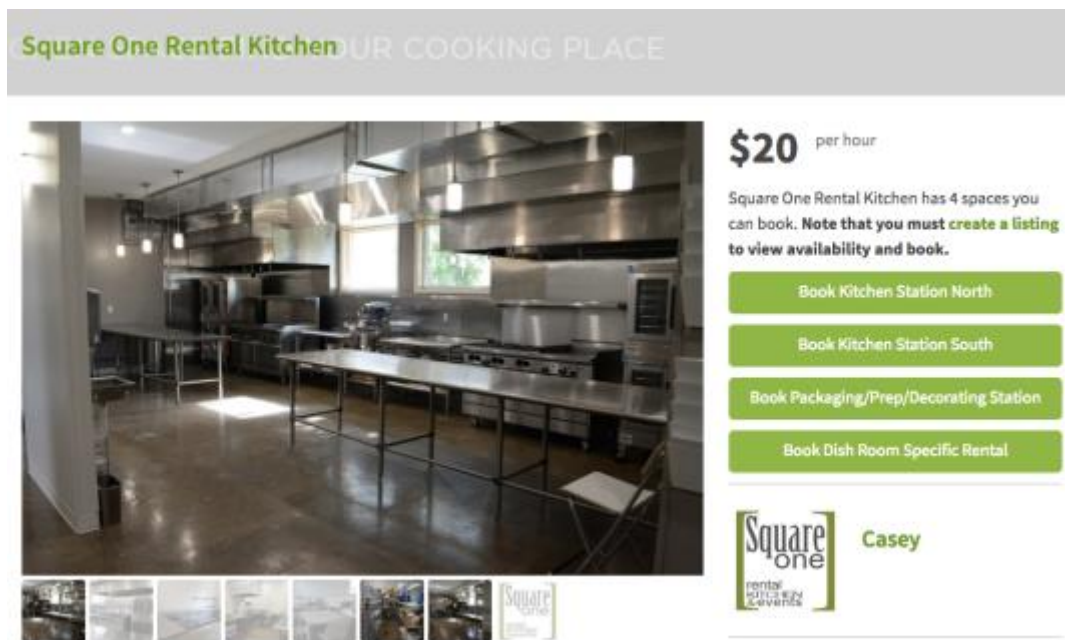


Figure 4.2. Screen shot of Commercial Kitchen profile page (www.thefoodcorridor.com).

4.1.1 Technological innovations in a peer-to-peer economy. Information and communication technologies (ICTs) is an umbrella term that stresses the role of unified communications and the integration of telecommunications, computers, software, and storage in order to enable users to access, store, transmit and manipulate information. According to Hamari et al. (2015), ICTs in the United States have enabled the rise of collaborative consumption, commonly called the sharing economy or peer-to-peer (P2P) networking. P2P networking is defined as “the activity of obtaining, giving, or sharing the access to goods and services, coordinated through community-based online services (Hamari, Sjöklint, & Ukkonen, 2015).

The P2P economy is an opportunity to pilot and assess whether access to goods and services may be more desirable than ownership of them to some subset of households and enterprises. Participants in technologically-enabled organized sharing, bartering, trading, renting, swapping, and collectives get the same pleasures of ownership with reduced personal cost and burden, and arguably lower environmental impact if one considers the reduced use of materials to create redundant built capital (Schor, 2016). In response, many technology startups are building infrastructure to more easily facilitate and monetize these transactions. Common examples include hospitality (places to stay), goods (clothing, toys, sporting equipment), transportation (ride, bike or car sharing), and capital (crowdfunding, loans).

P2P networking has shown the ability to support sustainability, create employment opportunities, and increase economic gains. Therefore, it is logical to apply the proven concept from the more common examples of lodging and car sharing, to food system infrastructure, and in this case, to connecting licensed commercial kitchens with food entrepreneurs.

The researcher explored the assumption that if owners of commercial kitchen assets had access to a seamless online platform to connect with food entrepreneurs, that provided a way to

easily schedule and book, and receive payments, that platform would support increased utilization of their commercial kitchen assets. In theory, this solution would also provide additional revenue streams (on the supply side) while simultaneously providing new access points for food entrepreneurs (on the demand side) to produce and develop food products.

4.2 Methods and Data

There is limited methodological guidance as to what constitutes a pilot study (Lancaster, Dodd, & Williamson, 2004). In health research, pilot studies play an important role in planning and justifying random controlled studies. Hallmarks of best practices for such work include clear objectives, collection forms or questionnaires, recruitment and consent, and selection of the most important primary outcome. Furthermore, the analysis of any type of pilot study should be mainly descriptive (Lancaster et al., 2004) due to limited generalizability.

In business and product development, an emerging methodology called the “lean start-up” is borrowing from traditionally academic methodology to favor experimentation over traditional “big design up front” development. Eric Ries, a software engineer and entrepreneur, adapted his experience applying the methods to high-tech startup companies and proposed the framework in 2008 (Blank, 2013; Ries, 2011). Ries’ professor, serial-entrepreneur and academic, Dr. Steve Blank, helped to popularize the idea of employing a scientific approach to improve the business success of startups and entrepreneurs with the publication of his book The Startup Owner’s Manual and the development of a Customer Development methodology (Ries, 2010). Since then, the methods have disseminated into business school curricula and have taken root in the business start-up world.

Likely the most influential principle provided by the lean start-up methodology is the “minimum viable product” or MVP. The MVP is the “version of a new product which allows a

team to collect the maximum amount of validated learning about customers with the least effort" (similar to a pilot experiment) (Ries, 2011). The goal of the MVP is to test fundamental business hypotheses (or leap-of-faith assumptions) and to help entrepreneurs begin the learning process as quickly as possible. The entrepreneur translates their vision into falsifiable business model hypotheses and tests the hypotheses using a MVP which represents the smallest set of features or steps needed to validate a concept. Based on test feedback, entrepreneurs must then decide whether to move forward with their business model, "pivot" by changing elements or directions, or abandon the idea altogether (Eisenmann, Ries, & Dillard, 2012).

With the objective of developing an MVP, in January 2016, the researcher began a 3-month pilot aimed at linking up food entrepreneurs with commercial kitchens in Northern Colorado. The goals of the pilot were to:

1. Recruit and build profiles for commercial kitchens and food businesses via intake forms
2. Match commercial kitchens with food businesses as the primary outcome
3. Evaluate and describe the matches

The pilot ran from January through March of 2016, and included the completion of standard profiles (serving as key data in this approach) for both food businesses and commercial kitchens, manual matchmaking completed by the researcher, and due diligence in collecting required business documents and signed contracts.

Each kitchen participating in the pilot completed a kitchen profile form as a means of compiling standardized data, in this case providing information on kitchen offerings, equipment, special designations (i.e. gluten free room), prices, and operating policies. This form was used to connect interested food businesses with the appropriate kitchen based on location, fees,

equipment, and business type. A \$50.00 fee was collected from each kitchen to support the following services:

- online marketing in the form of Google Adwords. Search words included in the campaign included: commercial kitchen, commissary kitchen, catering kitchen, and kitchen for rent.
- manually vetting and matching food businesses with appropriate kitchens
- collection of business documents, including contracts, food business liability insurance, business licenses, and food handler or ServSafe cards.

4.3 Results

4.3.1 Kitchen profile form results. In total, 13 licensed commercial kitchens, representing 10 northern Colorado cities participated in the pilot. Business types included; 1 church, 4 private food businesses, 1 non-profit food incubator, 1 event space, 6 traditional commissary kitchens, and 1 school district. A map is provided on the following page (Figure 4.3).

Commercial kitchen operators selected their ideal users from a prepopulated list, checking all that apply. The selections were mobile food truck or push cart (9); food artisan or value-added producer (not a baker) (8); baker (8); food and beverage manufacturer (7); caterer (7); personal chef (6); educator or cooking instructor (6); community groups, classes or events (5); farmer (3); restaurant owner (2) and other with “farmers market vendors” and “a true startup” as provided descriptors. See Figure 4.4 below, measured in frequency chosen.

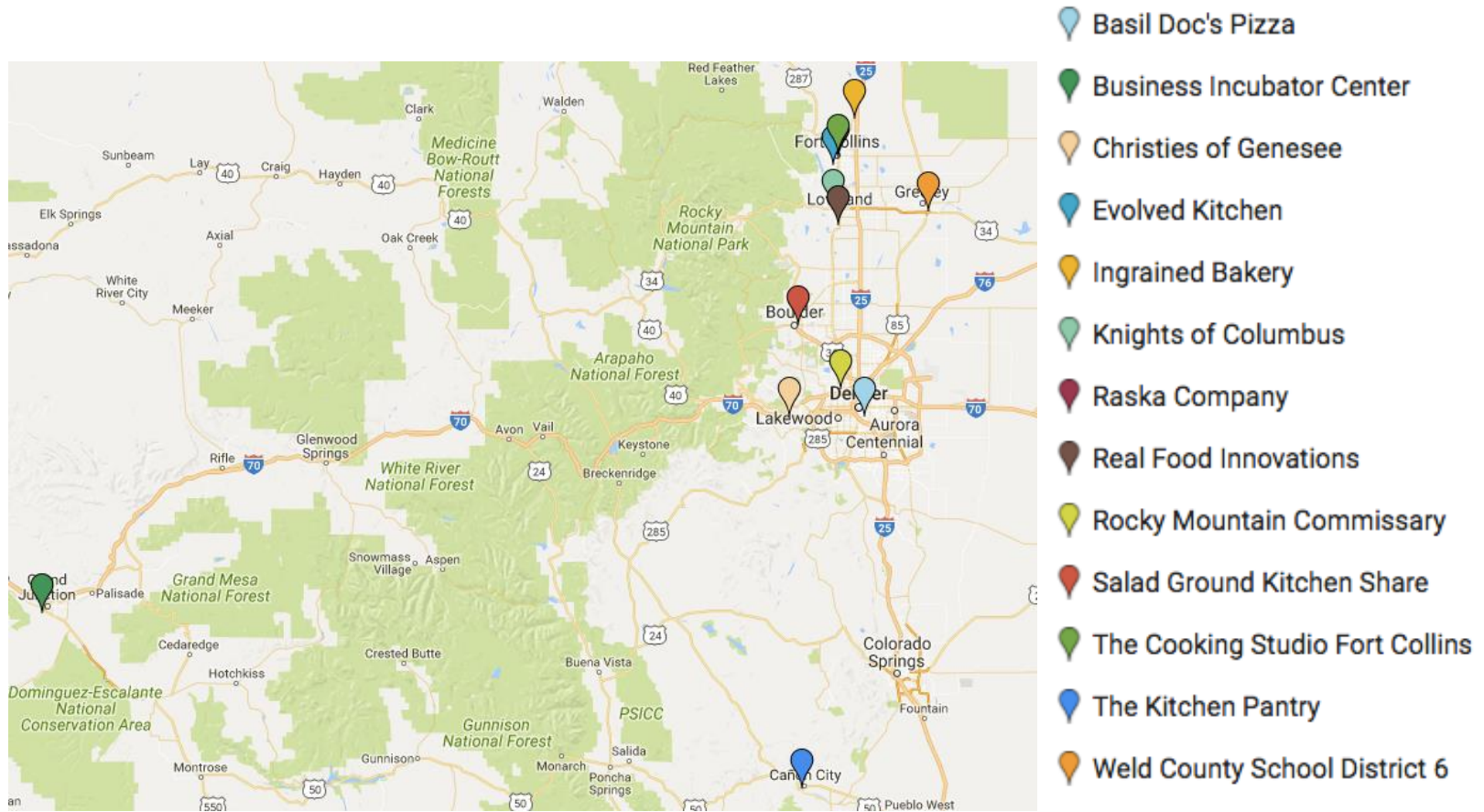


Figure 4.3. Locations of participating kitchens.

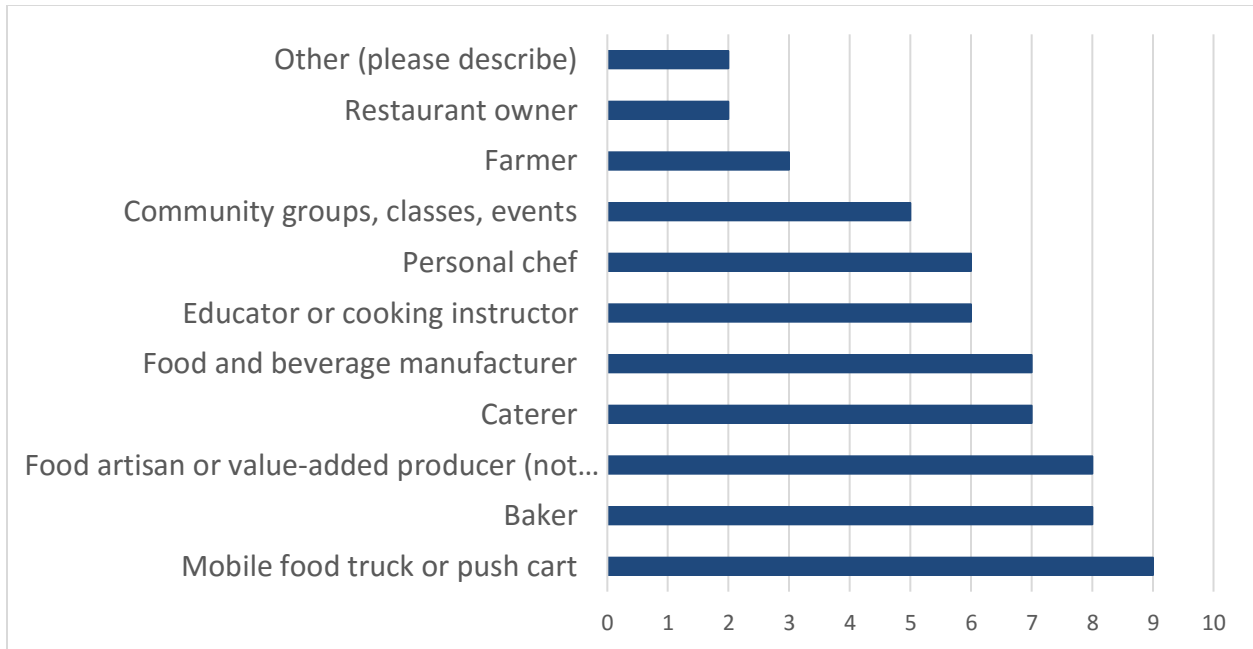


Figure 4.4. Who are your ideal users? Please check all that apply. Measured in frequency.

Since some of the commercial kitchens were new to the concept of renting out their underutilized space, operators were asked their current utilization (in %), as well as their utilization goal (in %) the following year. This was used to estimate the potential supply available for matching to those with kitchen needs. The following note was provided to help define the purpose, “100% kitchen utilization means that each station in your kitchen (all preparation, processing, baking, special equipment, cold storage, etc.) is being rented for each hour available per day.” Results from those surveyed varied significantly (min 0.00%; max 85.00%) with a mean of 45.69%. Similarly, operators reported the number of users currently renting space in their kitchen ranged from zero (5 responses) to 70 (1 response), with a mean of 11 current renters.

Success means different things to managers of different types of kitchens. Commercial kitchen operators were asked to describe, in their own words, how they measure success in their respective kitchens. Top themes shared by operators were:

- Food safety, legal compliance
- Quality production
- Successful development of new food businesses
- Cleanliness and care of the kitchen facility
- Increased lifestyle opportunities for operators
- Increased commercial kitchen revenues
- Increased % utilization
- Sustainable business

Kitchens also shared the types of equipment available for use in their facility. The most commonly selected were dry storage (13), commercial oven (12), range (11), convection oven (10), mixer (10), walk-in refrigerator (9), food slicer (7), food mixer (7), rack oven (7), and food processor (6). Less commonly available were walk- in freezer (5), steam kettle (5), griddle (5), deck oven (4), proofer (4), dough sheeter (3), tilt skillet (3), commercial grinder (2), food dehydrator (2), packaging heat sealer (2), fryer (1), blast freezer (1), bottling line (1), and vacuum sealer (1). Three unavailable items from any source included; water chiller, Cryovac machine, and canning line. See Figure 4.5 on the following page, measured in frequency chosen.

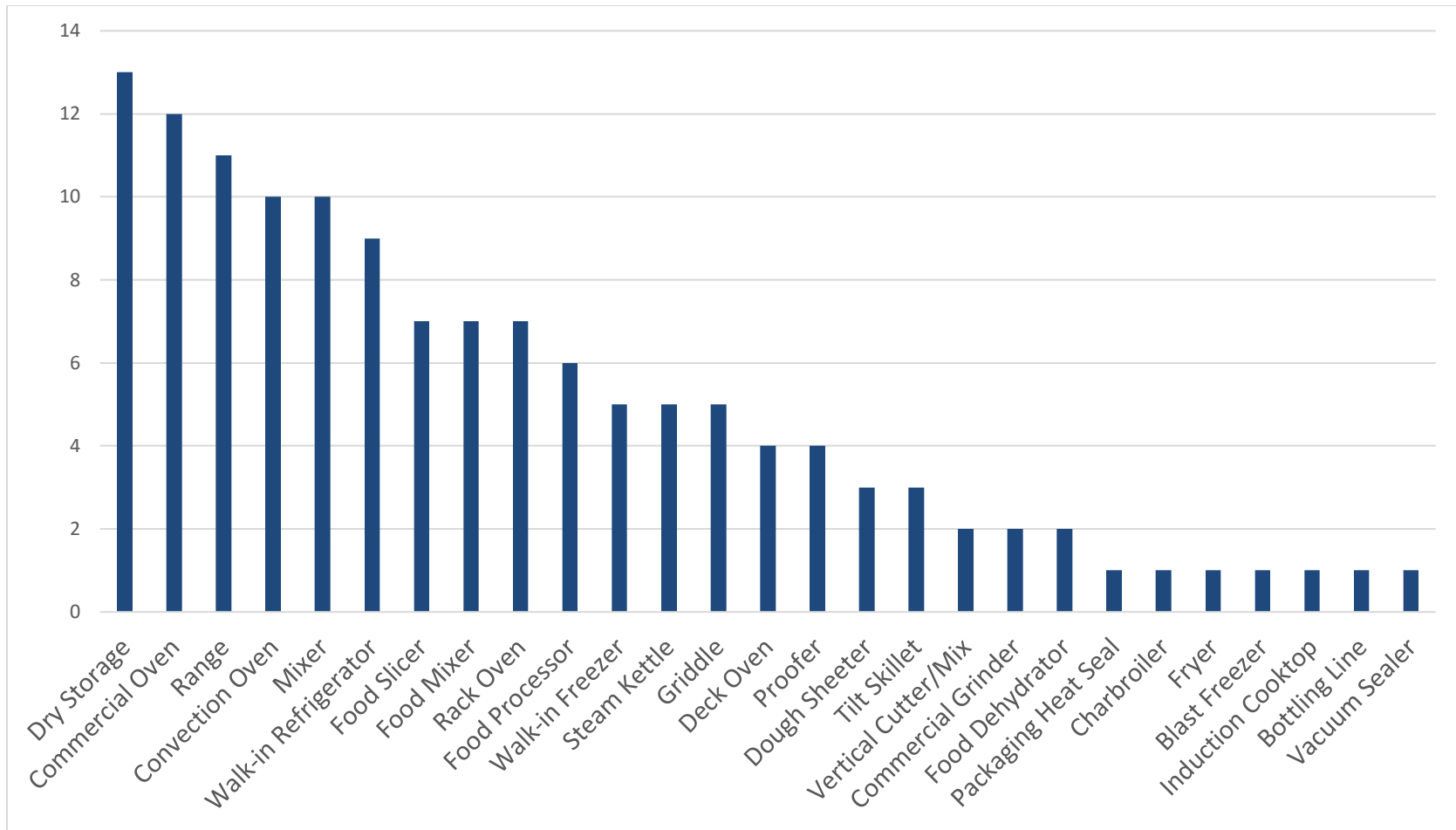


Figure 4.5. What types of equipment do you have available? Please check all that apply. Measured in frequency.

Many kitchens also provided other notable offerings unique to their kitchens. Most commonly, these included stainless steel worktables and sinks (12), parking (11), trash and recycling (11), Wi-Fi (10), pest management (9), mobile stainless steel worktables (8), food truck parking (8), hand towels (8), stainless steel shelves (7), sheet pans (7), delivery location (7), business address (7), pots and pans (6), automatic dishwasher (6), and office (6). Less commonly available were coffee maker (5), demo or tasting room (5), sewer (5), key or card entry (5), pan racks (4), small wares (4), pallet jack (4), security cameras (4), cleaning staff (4), printer (3), scanner (3), loading dock (3), grease recycling (3) fax machine (2) and lockable storage containers (1). See Figure 4.6 on the following page, measured in frequency chosen.

Aside from physical offerings, many of the kitchens reported providing unique services like co-packing, technical assistance, 24/7 access, on call management, or simply “a great community.” However, the questionnaire was not detailed enough to capture whether all of these services would or could be included in a rental contract. Due to the growth in avoidance of allergens and select food ingredients, operators were asked if their kitchens offered or provided a designated gluten-free, allergen-free, Kosher or other specialty production. The results are in Figure 4.7.

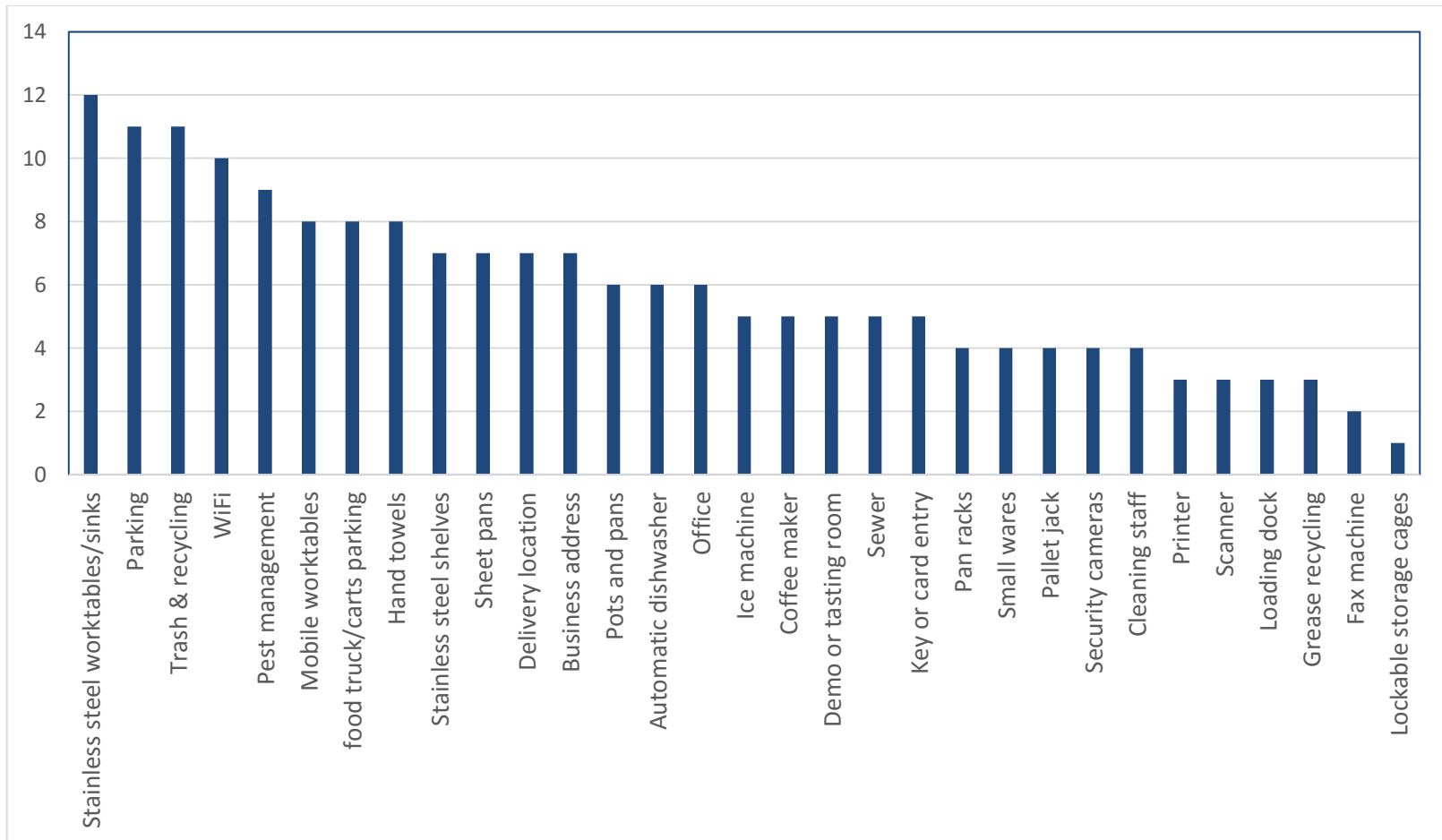


Figure 4.6. What other notable offerings are available? Please check all that apply. Measured in frequency.

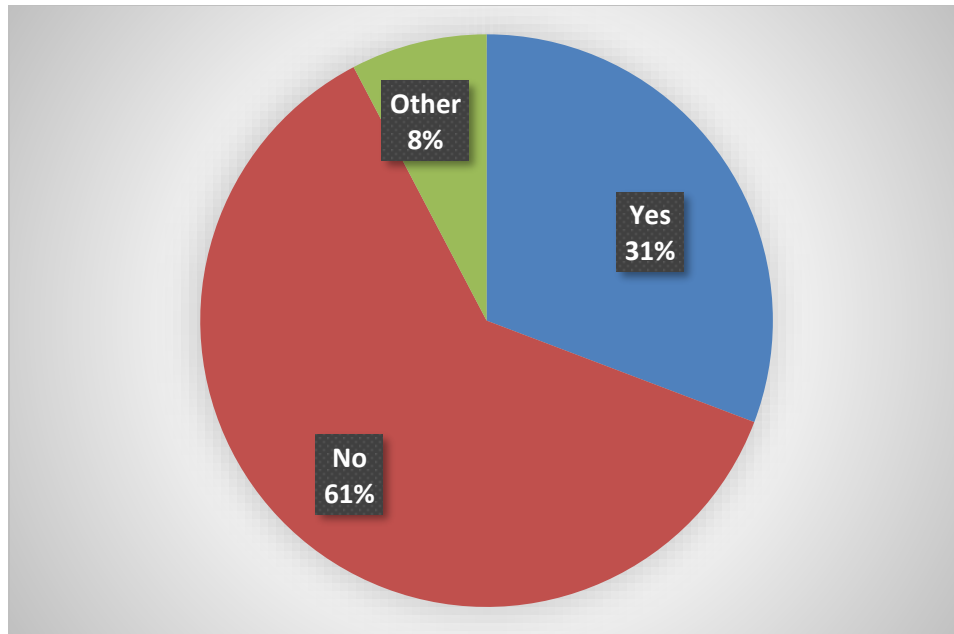


Figure 4.7. Does your kitchen offer specialty production?

To satisfy legal and regulatory standards, the kitchen operators require standard documentation from users. Operators were asked which documents should be collected by The Food Corridor on their behalf as part of its professional services. Most common were an application (our food business profile) (10), proof of food business liability insurance (8), state or local business licenses (7), a deposit (7), and a signed contract (6). Others wanted proof of ServSafe training or a food handler card (3), ingredient lists, and “some kind of home address.” See Figure 4.8 below, measured in frequency chosen.

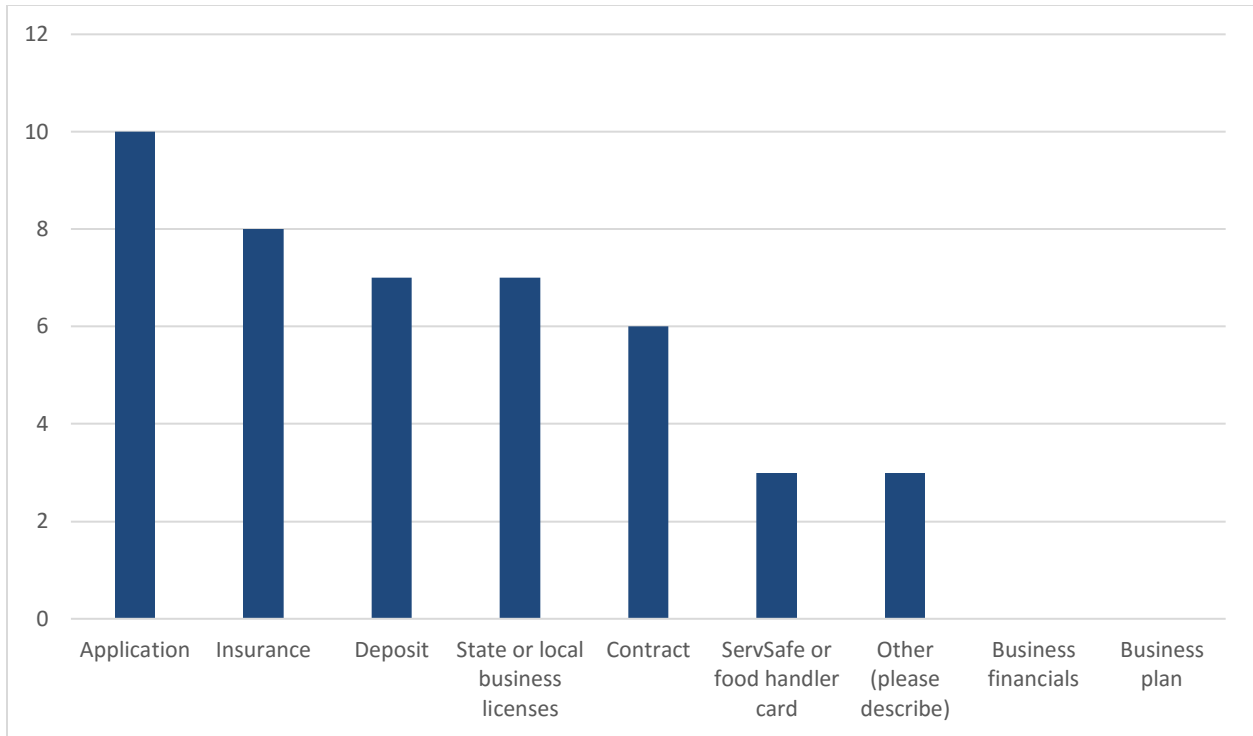


Figure 4.8. What documentation is required? Please check all that apply.

Commercial kitchens also shared similarities in their security measure and policies. Most assigned keys to users (7), required checking in/out (6), or required an employee to open door for the renter (5). Fewer had security cameras (4), keyless entry (password protected) (4), or required staff to be present during use (1). One kitchen boasted about their security measures: “We have cameras in all of our rooms and a sign in sheet in the front reception room. We're right next to a government building where cop cars drive by 20-30 times a day” while another embodied Yoda: “very trusting I am.”

The variety of facilities, equipment and scale of participating kitchens included in the survey resulted in a large variation in price, or cost for rental. Deposits ranged from \$0-\$1000, with an average of \$303. Hourly price for peak hours ranged from \$0 (included in a monthly plan) to \$50/per hour, with an average of \$25 and hourly price for non-peak hours ranged from

\$0 (included in a monthly plan) to \$35/per hour, with an average of \$19/per hour. Minimum monthly prices ranged from \$35 to \$1100 and were most commonly set at \$500. There was a clear discount inferred for those food business operators who were able to use the facilities with some regularity, while those who wanted to pilot gradually using only hourly rates would pay a premium for that flexibility.

4.3.2 Food business application form results. Similarly, interested food entrepreneurs filled out an intake form hosted on a website, provided documents (i.e. insurance, business licenses, food handlers cards), and were matched with kitchens fitting their needs and availability. Over the 3-month period, 41 food entrepreneurs in search of commercial kitchen spaces filled out the form. Respondents reported finding The Food Corridor via word of mouth, Facebook, county health department partners, Google searches, industry trade shows, and the Colorado Proud newsletter, a monthly publication distributed by the Colorado Department of Agriculture. In addition, the researcher set up 30-minute interviews with food entrepreneurs before finalizing a match with an appropriate kitchen.

4.3.3 Pilot study results: The tale of four food businesses. Over the 3-month pilot, four food businesses were matched with participating commercial kitchens. Each of the cases are described below.

Table 4.1

Matches Between Commercial Kitchens and Food Businesses

	Food Business	Commercial Kitchen
Case 1	Stuff N’ Mallows	Weld County School District
Case 2	Steve’s Texas Sauces	Knights of Columbus
Case 3	Citizen Cookie Company	Evolved Kitchen Commissary
Case 4	Modern Gingham Preserves	Basil Doc’s Pizza

4.3.3.1 Case 1: Stuff’n Mallows: Fort Collins Specialty Foods.

Business description: Baker, food product manufacturer

Product: Confectionery, Snacks

Current stage of business: Existing (3-5 year)

Seeking: Community kitchen (i.e. church, school, fraternal organization), Sharing a restaurant or bakery during off hours, Commissary or shared use kitchen, Commissary or shared use bakery, Co-owning/sharing a kitchen with a few similar businesses, Dry storage space

4.3.3.1.1 Background. Fort Collins Specialty Foods (FCSF) was founded by three Colorado State University graduates on a mission to create the perfect s'more. The company started as a class project and was further refined with support of the University’s Venture Accelerator program. With help from the university, local community, and friends and family, Stuff’n Mallows launched in the summer of 2013. Stuff’n Mallows are handmade gourmet marshmallows stuffed with tiny meltable chocolate chips. They are sold at retail shops in and around Fort Collins, Colorado and recently moved into wholesale distribution. With the signing of a national account with Bed, Bath, & Beyond, the small company was looking to scale out of

their hourly commissary kitchen into a larger production facility that could support their growth. Owners reported difficulties creating a new food product category and strategically growing to handle and control concomitant growth. In their search for commercial space, choices were slim. All of the kitchens in which they had previously worked had limitations, but it was noted that all contributed to the success of their product and teaching them about food manufacturing and business.

4.3.3.1.2 Needs. Fort Collins Specialty Foods requested a commercial kitchen within 11-30 miles of Fort Collins that provided an induction range, 60-quart commercial mixer, stainless steel table(s), induction cooktop, kettle, and delivery and storage capabilities. They also needed a designated room for specialty production of candy because, due to the use of powdered sugar and resulting cleaning challenges, the production can become quite messy, adding significant costs at some of the smaller commissary kitchens due to the longer clean up times required. They were in search of a facility that had 33-64 hours available per month for the 2016-17 timeframe. Requested days were flexible and they were willing to work during off-peak hours, especially for a discount. Because they were an already established company, they already had all required documentation, verification of food liability insurance, food business licensing, and food handling certifications for all employees had already been obtained.

4.3.3.1.3 Result. FCSF was matched with The Weld County School District (WCSD). WCSD became involved in the shared-use kitchen business as a means to support small scale food manufacturers' and business' growth, as another way to support local food systems, and to generate revenue. In the District, they have a central production kitchen, as well as over 30 school kitchens, with commercial equipment that is not in use during evenings and weekends. As they invested in equipment, storage, and processing capacities for their own purposes to support

scratch cooking for their Farm to School Programming, they were able to offer these resources to the broader food community through The Food Corridor. By supporting local food businesses, they hope the local food movement and local food systems will continue to grow and develop- ultimately assisting them in their local procurement goals.

Harboring state of the art equipment, the WCSD central kitchen provides school breakfast, lunch and snacks to thousands of children each day, as well as catering services to the district. They have a gated area for parking vehicles that is locked at night and on weekends. They also offer loading docks for both trailers and lift gate delivery vehicles. Their ideal renters were 1. Farmers (in support of their robust farm to school program), 2. Community groups, classes and events, and 3. Educators or cooking instructors. They were also interested in the additional revenues that could be obtained by servicing food entrepreneurs, mainly food truck operators and food manufactures. Because it is a school district, the kitchen requires that staff be onsite between the hours of 5:00 am and 4:00 pm and they require state or local business licenses, liability insurance, ServSafe or food handler card, and a contract. FCSF goals for the coming years were to reduce their cost of goods sold (COGS), expand distribution, and explore obtaining their own facility.

4.3.3.2 Case 2: Steve's Texas Sauces.

Business description:	Food product manufacturer
Product:	Condiments, Sauces/seasoning
Current stage of business:	New (1 st year)
Seeking:	Community kitchen (i.e. church, school, fraternal organization), Sharing a restaurant or bakery during off hours, Commissary or shared use kitchen

4.3.3.2.1 Background. A native Texan living in Colorado, Steve began his sauce company out of the desire to find a good salsa on par with his choices back in the Lone Star State. He started making his own salsa at home and after 5 years perfecting his recipe, decided to go commercial. His biggest difficulties were gaining exposure and keeping costs down, especially because he does not work on this sauce company full time. For the first year, he was fortunate to have friends who let him use their catering kitchen for no charge. Due to the growth of their own business, Steve was forced to search elsewhere for production. He was startled by the fact that shared kitchens often require first and last month's rent as a deposit, a set minimum number of hours per month, and were priced between \$15 and \$20 per hour. As a new business, he claimed he could not afford that at this early stage.

4.3.3.2.2 Needs. Steve was in search of a kitchen within 11-30 miles that supplied standard commercial equipment including an induction range, stainless steel table(s), sinks to wash, rinse and sanitize utensils, gas cooktop with 6-8 burners, and prep tables. He needed 17-32 hours a month for the 2016-17 year, and was interested in using off-peak hours and lower rates. Because he had already established his company, he was able to provide proof of food liability insurance, food business licensing, and food handling certification.

4.3.3.2.3 Result. A logical fit for Steve was the Knights of Columbus Hall in Loveland, Colorado. Because Steve needed limited production time and limited equipment, a church or community kitchen would satisfy his needs. A liaison from the church reached out to The Food Corridor after reading an article about the concept in the local newspaper. A long-term member of the KOC, the representative was excited about the opportunity to increase revenues in their newly renovated commercial kitchen, while supporting a local business in the community. The kitchen's stated goals were to "in concert with Larimer County Health Department food safety

standards, provide a full service commercial kitchen capacity to meet the food service needs of chefs, cooks and caterers in the Larimer County area." The kitchen housed standard commercial equipment like a range, food mixer, slicer, griddle, commercial oven and fryer, commonly used for church functions and events. A meeting of the two parties confirmed a good cultural and operational fit. Unfortunately, once determined to move forward, the liaison at the KOC informed us that the church was unable to secure institutional support for the rental. (See 4.4.3 for discussion about considerations for churches). Steve is still searching for a kitchen he can afford and is working on acceptance into a local retail chain and considering a co-packer arrangement to produce his product instead.

4.3.3.3 Case 3: Citizen Cookie Company.

Business description:	Baker
Product:	Baked goods
Current stage of business:	Pre-venture (idea phase)
Seeking:	Community kitchen (i.e. church, school, fraternal organization), Sharing a restaurant or bakery during off hours, Commissary or shared use kitchen, Commissary or shared use bakery, Test kitchen

4.3.3.3.1 Background. With this example, the budding idea was just launching and the operator had never before owned or operated a food company. A home baker founded the company on a whim after friends and family encouraged her with the famous adage "you could sell these!" Within 4-weeks, she acquired their business license, launched a website, Facebook and Twitter account, tested 50+ ingredients, and conducted a photo shoot. The product is a cream cheese sugar cookie in the shape of the Colorado state flag. The unique (and complicated) process, according to their website "takes a lot of math, science, and construction skills...and that is before we even start adding color, butter, and sugar." The cookies were geared toward gift

giving for wedding favors, corporate gifts, gift baskets, and political events. The initial test market was the local farmers' market in Northern Colorado. Reportedly, the biggest struggles were a.) no education or experience with the food industry and b.) having to quickly learn everything from recipe upsizing and ingredient budgeting to packaging to licensing to distribution. Regarding commercial kitchen space, she didn't know where to start. She claimed that online searches were not very helpful, because she was not aware of requirements or specifications.

4.3.3.3.2 Needs. Accessing a commercial kitchen, specifically a commercial mixer, were both critical and difficult next steps. This company needed a commercial mixer, reach-in cooler, stainless steel table(s), and a rack oven, but the process was very long, and therefore, time consuming. The steps included making batter in individual batches by color, putting them into molds, chilling, assembling, re-chilling, slicing, baking and finally, cold storage. She requested 17-32 hours for 2 months in 2016 for recipe testing on the weekends, since this was a side job for the entrepreneur.

4.3.3.3.3 Result. We connected Citizen Cookie with a local commissary kitchen Evolved Kitchen. During the interview between the kitchen and entrepreneur, the kitchen administrator warned that they were an hourly operation and that without clear understanding of the production process, the recipe testing could become quite expensive. This didn't deter the client from wanting to move forward. Evolved Kitchen was a traditional commissary kitchen, whose business model is to rent out commercial kitchen space by the hour to food businesses. The owner's stated goals were to "be able to take care of all the overhead without paying out of my own pocket. I would also like to make a small salary for the work I put into the space. Currently,

I feel that I am successful because of the excellent businesses that choose to use my space and the relationship I have with them all."

Unfortunately, the match may have been doomed from the beginning. Because the commercial commissary is an hourly rental and Citizen Cookies was still in test mode, the entrepreneur significantly underestimated the number of hours it would take to run the complicated process. An improved process, plan and needs analysis of the business may have helped to find a space that was more bakery oriented (i.e. large mixers, sheet pans, roll in refrigeration, etc.). She is no longer using Evolved Kitchen and ended up owing back payments for unpaid hours. This upcoming year, she reported plans on scaling production and breaking into retail/wholesale.

4.3.3.4 Case 4: Modern Gingham Preserves.

Business description:	Food artisan or value added-producer (not a baker)
Product:	Preserves and jams
Current stage of business:	Existing (3-5 years)
Seeking:	Community kitchen (i.e. church, school, fraternal organization), Sharing a restaurant or bakery during off hours, Commissary or shared use kitchen, Accelerator or incubator kitchen (focus on business support), Co-owning/sharing a kitchen with a few similar businesses

4.3.3.4.1 Background. The owner was interested in creating a work environment in which she could be a present parent for her kids and had the idea to use fallen fruit or unpicked fruit on urban trees to make unique preserves. She launched in May 2012. Her biggest challenges were supply chain, storage and manufacturing access. She started at a take and bake pasta restaurant but outgrew the space within 1 year. She then switched to Denver Kitchen Share in north Denver and stayed for 2 years, but had challenges getting extra kitchen time when needed. The

entrepreneur moved to a new commissary in May 2015, and left in April 2016 as they changed their pricing, storage options, and times available to access the commissary. Finding production space has probably been the biggest challenge for her business.

4.3.3.4.2 Needs. Modern Gingham Preserves was searching for a kitchen within 11-30 miles with Induction Range, Stainless Steel Table(s), stockpot burners (nice, but not required), Dry storage, Cold storage. Her process is to slice fruit, macerate with sugar for 24-72 hours, cook in a copper pot and then hot fill and process in a boiling water bath. She needed 17-32 hours a month for the 2016-17 period and was interested in early morning hours during the week. Since she was an established company, she already had her legal documents in addition to professional development from attending a food processing course.

4.3.3.4.3 Result. We matched Modern Gingham with Basil Doc's Pizza. Basil Doc's owner, Mike, was a long time business operator looking for the right fit. His goals were to "have the space share opportunity used 4 out of 7 days/week. Up to a max. of 7." The licensed kitchen in his pizza parlor offered a range, commercial ovens, food mixers, stainless steel tables, walk-in refrigerator and dry storage, perfect for Modern Gingham's needs. It worked. According to the client, "I am at a kitchen that mostly suits my needs. I would need to make my own facility to make it perfect, but it is the least amount of stress I have had in working and producing my preserves since I started in May 2012." Her business is a work in progress and is looking for ways to grow in the coming year.

4.4 Discussion

4.4.1 Pilot activities. Operators of existing commercial kitchens were willing to participate in the pilot and understood the value of obtaining additional revenue opportunities. The intake forms developed for the study were successful at identifying the needs of the food businesses and the offerings of the kitchens. Open ended questions allowed kitchens to provide more qualitative descriptions of their goals and objectives. Selection of a food business to rent from the various types of kitchens was successful in three out of four cases, perhaps signaling that some level of business development and organizational planning is needed for a food business to accurately assess whether this strategy aligns with their mission and to identify a good-match facility. The church kitchen match was not successful for administrative and legal reasons discussed below.

4.4.2 Food safety. Because these were commercial kitchens licensed by local health departments, all kitchens were concerned with food safety risks associated with allowing new people into their kitchen. To minimize the risk, legal documentation was required including food handler or ServSafe certifications, business licenses, and food liability insurance. Collecting these documents on behalf of the kitchen reduced a barrier to entry and eased the process. While none of the kitchens in this pilot were certified gluten- or allergen-free, these issues were mentioned during our intake session with the school district. Future programs must be mindful of cross contamination and allergy risks associated with sharing space. Cleaning and sanitation protocols are also recommended.

4.4.3 Churches. Because churches have a history of serving food to the needy, they often have licensed commercial kitchens. Other than during events that involve the congregation, like Sunday service, fish fry, or bible study, the kitchen sits idle. There are important things to

consider before choosing to rent or lease space, specifically to a for-profit business. It is recommended that church leaders consult with tax and legal professionals before making space available. Below are a few considerations referenced by the Church Administrative Professionals.

1. Under tax law, churches are exempt from property tax. As long as a church's property is used exclusively for programs and activities that furthers its exempt purpose as a charitable, educational and/or religious organization, it most likely will not be required to pay any property tax. If a church's governing documents, specifically its Articles of Incorporation and/or its Bylaws, include support of and for the community, the case could be made to pursue offering space for private use.
2. Oftentimes state law that determines usability varies largely from state to state and even county to county. For example, some states allow church facilities to be used up to a certain percentage of the time for non-exempt activities without requiring that they pay property taxes while others do not allow any non-church group (tax exempt or not) to use church facilities before requiring that property taxes are owed. Further, property tax exemption could be revoked altogether, inciting an exorbitant tax bill on the church. It is recommended that any church thinking of perusing this opportunity contact an attorney who is qualified to advise the church about local property tax laws and ordinances.
3. If a church is successful in finding out that its tax exemption will not be jeopardized, they must then consider the effect that charging rent will have on Unrelated Business Income Tax or UBIT. When a church receives more than \$1000 in UBI a year, it needs to file a 990-T with the IRS.

4. Rents received from real property (the building or anything that is bolted down in it) may or may not be considered UBI. On the other hand, personal property (anything inside the building that is not bolted down) is generally considered UBI. To complicate matters, if a church facility is debt financed (under any loans) then any rent received for any use of the building is considered UBI. If there is no debt on the building, then any rent collected is not considered UBI. Churches often generate UBI that can result in taxes being owed through things like bookstores or coffee houses (“Church Administrative Professionals,” 2016).
5. Church officials must also be diligent in considering potential renters, specifically if a renter or their immediate family member is involved with the church’s decision making. The IRS deems such people as “disqualified” persons.
6. In some instances, leasing space may require amending zoning regulations and board approval (Lockhart, 2016).
7. Finally, church leaders are required to require fair market value for rent by researching lease rates for comparable space in their community and charging accordingly.

4.4.4 Storage. One of the limiting factors often associated with sharing commercial kitchens is storage. Kitchens prioritize their own daily operations over the needs of renters and refrigerator and freezer space tends to be limited in commissary and restaurant kitchens. This was true for both pilot participants in these categories. For the school district, space was abundant, specifically in the summer time. In the case of WCSD, they chose to charge renters additional docking fees for deliveries. Security of overnight storage (dry or cold) is a risk that was mitigated through locked cages, cameras, and check-in/check-out procedures.

4.4.5 Additional themes. Common themes across the cases included level of readiness, experience and business acumen for the food entrepreneur. The newer entrepreneurs had unreasonable expectations for commercial space, expecting the costs to be lower and access to be abundant. It is important to remember that commercial kitchens have undertaken the capital investment for the space and equipment and are responsible for utilities, maintenance, pest control and other monthly expenses. Access to a turn-key solution for a new or emerging food business should not be presumed. Companies that were growing or scaling their businesses had a better grasp on their costs, margins, and process, empowering them to negotiate and find success.

4.5 Conclusion

In 1988, researcher Russell Belk argued and theorized that you are what you own. Later, with the advent of the internet into our daily lives, consumer research began to explore new consumption practices like “collaborative consumption” (Rogers & Botsman, 2016), “commercial sharing systems” (Lamberton & Rose, 2012) and “access-based consumption” (Bardhi & Eckhardt, 2012; Denning, 2014).

While the term “sharing economy” has become familiar in describing a market mediated transaction where no ownership takes place, it is somewhat of a misnomer. The term “sharing” implies either giving or occupying jointly with another or others. Further, the term leaves out the need for retribution, trade, or payments often applied in economies. Instead, similar to conclusions of Bardhi and Eckhardt (2012) and Denning (2014), the researcher recommends the application of the term “access economy” to describe the social change of people preferring access to ownership or accepting benefits of access. The new economic and social changes to business have been seen in various industry verticals (i.e. lodging, transportation), with

opportunities for applications in new horizontal value chains. Opportunities for new “solution providers” (Denning, 2014) to connect assets with business owners is immense.

In this pilot study, the increased access points provided by The Food Corridor supported food businesses in launching and/or growing food enterprises through intermediating access to otherwise underutilized capital, in the form of commercial kitchen infrastructure. Further, an emerging community of practice or collective is also taking form, inspired by the growth of shared use kitchens. The Network for Incubator and Commissary Kitchens was launched in March of 2016 as a private Facebook group and currently hosts over 550 members. The group supports the food industry through sharing data, best practices, and technical assistance to build and grow successful shared-use kitchens businesses.

Results from this pilot should be treated as preliminary and interpreted with caution, as no formal power calculations have been conducted (Lancaster et al., 2004). That said, the MVP was achieved and has proved sustainable for at least a subset of food processors and kitchen owners. Interest was generated on both the kitchen and food entrepreneur sides. Successful matches were made and additional revenue streams were obtained through the rental of underutilized commercial space. Two of the food entrepreneurs remain in the space matched in this pilot program and their businesses are sustaining. In conclusion, there may be significant opportunities for applying sharing economy methodologies to the food system.

REFERENCES

- Bardhi, F., & Eckhardt, G. M. (2012). Access-based consumption: The case of car sharing. *Journal of Consumer Research*, 39(4), 881–898. Retrieved from <http://www.jstor.org/stable/10.1086/666376>
- Blank, S. (2013). Why the lean start-up changes everything. *Harvard Business Review*, 91(5), 63–72. Retrieved from <https://hbr.org/2013/05/why-the-lean-start-up-changes-everything>
- Church Administrative Professionals. (2016) Things for churches to consider before renting space to a for-profit. Retrieved from <http://www.churchadminpros.com/rent.htm>
- Cranwell, M. R., Kolodinsky, J. M., Donnelly, C. W., Downing, D. L., & Padilla-Zakour, O. I. (2005). A model food entrepreneur assistance and education program: The Northeast Center for Food Entrepreneurship. *Journal of Food Science Education*, 4(4), 56–65. doi:10.1111/j.1541-4329.2005.tb00063.x
- Denning, S. (2014). An economy of access is opening for business: Five strategies for success. *Strategy & Leadership*, 42(4), 14–21. doi:10.1108/SL-05-2014-0037
- Dent, B. (2008). The potential for kitchen incubators to assist food-processing enterprises. *International Journal of Entrepreneurship and Small Business*, 6(3), 496. doi:10.1504/IJESB.2008.019141
- Eisenmann, T. R., Ries, E., & Dillard, S. (2012). *Hypothesis-driven entrepreneurship: The lean startup* (SSRN Scholarly Paper No. 2037237). Rochester, NY: Social Science Research Network. Retrieved from <https://papers.ssrn.com/abstract=2037237>

- Feldmann, C., & Hamm, U. (2015). Consumers' perceptions and preferences for local food: A review. *Food Quality and Preference*, 40(Part A), 152–164. doi:10.1016/j.foodqual.2014.09.014
- Freudenberg, N., Silver, M., Hirsch, L., & Cohen, N. (2016). The good food jobs nexus: A strategy for promoting health, employment, and economic development. *Journal of Agriculture, Food Systems, and Community Development*, 6(2), 283–301. <http://dx.doi.org/10.5304/jafscd.2016.062.020>
- Hamari, J., Sjöklint, M., & Ukkonen, A. (2015). *The sharing economy: Why people participate in collaborative consumption* (SSRN Scholarly Paper No. 2271971). Rochester, NY: Social Science Research Network. Retrieved from <http://papers.ssrn.com/abstract=2271971>
- Lamberton, C. P., & Rose, R. L. (2012). When is ours better than mine? A framework for understanding and altering participation in commercial sharing systems. *Journal of Marketing*, 76(4), 109–125. doi:10.1509/jm.10.0368
- Lancaster, G. A., Dodd, S., & Williamson, P. R. (2004). Design and analysis of pilot studies: Recommendations for good practice. *Journal of Evaluation in Clinical Practice*, 10(2), 307–312. doi:10.1111/j.2002.384.doc.x
- Lockhart, B. (2016). Bridgeport's church kitchens hold commercial promise. *Connecticut Post*. June 20, 2016. Retrieved from <http://www.ctpost.com/local/article/Bridgeport-s-church-kitchens-hold-commercial-8310982.php>
- Low, S. A., Adaja, A., Beaulieu, E., Key, N., Martinez, S., Melton, A., & Jablonski, B. (2015). *Trends in U.S. local and regional food systems*. Retrieved from <http://www.ers.usda.gov/media/1763057/ap068.pdf>

- Macke, D., & Markely, D. (2006). Entrepreneurship and rural America. *Rural Research Report*, 17(4) 1-6. Retrieved from <http://www.iira.org/wp-content/uploads/2014/08/Entrepreneurship-and-Rural-America.pdf>
- Rainbolt Nurse, G., Onozaka, Y., & Thilmany McFadden, D. (2012). Consumer motivations and buying behavior: The case of the local food system movement. *Journal of Food Products Marketing*, 18(5), 385–396. <http://dx.doi.org/10.1080/10454446.2012.685031>
- Ries, E. (2010, July 5). Lessons learned. *The Entrepreneur's Guide to Customer Development*. Retrieved from <http://www.startuplessonslearned.com/search?q=customer+development>
- Ries, E. (2011). *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*. Crown Publishing Group, a division of Random House, Inc. New York.
- Rikkonen, P., Kotro, J., Koistinen, L., Penttilä, K., & Kauriinoja, H. (2013). Opportunities for local food suppliers to use locality as a competitive advantage: A mixed survey methods approach. *Acta Agriculturae Scandinavica Section B: Soil & Plant Science*, 63 (Suppl1), 29–37. doi:10.1080/09064710.2013.783620
- Rogers, R., & Botsman, R. (2016). *What's mine is yours*. Harper Business Online. Retrieved from <https://www.harpercollins.com/9780061963544/whats-mine-is-yours>
- Schor, J. (2016). Debating the sharing economy. *Journal of Self-Governance and Management Economics*, 4(3), 7–22.
- Specialty Food Association. (2016) The state of the specialty food industry 2016. Retrieved from <https://www.specialtyfood.com/news/article/state-specialty-food-industry-2016/>

United States Department of Agriculture. (2017). Trends in U.S. local and regional food systems.

Retrieved from <https://www.usda.gov/wps/portal/usda/usdahome?contentid=usda-results-local.html>

CHAPTER 5. CONCLUSIONS

Specialty food businesses, characterized as *local*, *craft* or *artisan*, produce unique and highly differentiated food items often made in small quantities from high-quality ingredients. Nationally, the increasing market demand for specialty food is simultaneously spurring a growth in food entrepreneurship and business start-ups that need access to licensed commercial space. Due to their unique values, a subset of food entrepreneurs may be considered ‘social entrepreneurs’ who use their business as a catalyst for social, cultural, or environmental change. This set of dissertation research questions, empirical models and hypotheses were developed as a triangulation of three innovative approaches to analyze and assess theories developed across various fields to explain the factors influencing how the food sector is evolving to address emerging consumer and supply chain dynamics. These include the development and application of several fields and concepts to food entrepreneurs including: a) Perceived Business Effectiveness among food managers; b.) how previous research on entrepreneur characteristics can be applied to the specialty food niche; and, c.) potential experience and opportunities food entrepreneurs may relate to the Community Capital Framework.

5.1 Key Findings

The primary objectives of this research was to determine the unique mission, values or community capital-based attributes of food entrepreneurs and to evaluate how this set of factors may affect a food entrepreneur’s interest and key criteria when searching for commercial kitchen space. The primary methods included a national survey of food entrepreneurs (n=140) and a pilot program resulting in 4 case studies from Northern Colorado. Multidisciplinary empirical analysis was applied to explore relationships including calculation of gamma correlations to highlight key

issues to food entrepreneurs and a 2-step probit regression analysis exploring interest in a new supply chain platform and the marginal effects of significant factors.

Survey results and statistical modelling found that food entrepreneurs in search of commercial kitchen space had dissatisfaction with finding appropriate space ($p=0.04$), availability of enough days/time to rent ($p=0.00$), location ($p=0.07$), availability of equipment ($p=0.02$), and parking ($p=0.07$). Results also found significant gamma correlations suggesting strong interconnections among questions related to food safety, social fairness, and resource mobilization indicators like sourcing locally and participating in the sharing economy. Further, respondents looking for commercial space were 9% more likely than those not looking for space to use a theoretical sharing economy technology to help them find and access commercial kitchen space.

The 3-month pilot program successfully placed 4 food entrepreneurs searching for production space in 4 different commercial kitchens in northern Colorado. The kitchens included a school district, church, commissary kitchen, and functioning pizza parlor. A major contribution of this work is in the identification of key drivers for food entrepreneurs in the emerging access economy, suggesting that “access” to goods and services may becoming more desirable than “ownership” of them.

5.2 Implications for Business Development

One of the findings of this research was the clear opportunity to leverage existing commercial kitchen space and match it with food entrepreneurs that need access. Access to physical infrastructure or resources is challenging traditional models around the need for ownership. This emerging “access economy” has limited examples in the food industry. This research is paramount in testing the motivation underlying the need for, as well as the operational

application of the access economy to infrastructure in the food space, specifically in accessing commercial grade kitchens.

Given the findings of this study, a digital marketplace of food system infrastructure and assets could be a powerful tool in leveraging local food economies. Furthermore, shared-use kitchens in the United States suffer from regulatory ambiguity that often limits their potential and stretches the compliance capacity of entrepreneurs. Based on the results of this research, the investigator launched The Food Corridor to assist operators of shared-use kitchens. TFC's mission is to enable efficiency, growth, and innovation in local food systems. In observing the struggle of their clients in navigating the tricky waters of local departments of health, conflicting state and county policy, and inadequate licensing options, the researcher identified an opportunity to explore the national policy landscape for shared-use kitchens to identify best practices and policies to support the emerging industry.

Exploring and understanding the uniquely shared values in the food industry provided an opportunity to leverage networks or business industry clusters. Since this research was conducted, a community of practice called The Network for Incubator & Commissary Kitchen (NICK) has emerged. The Network for Incubator and Commissary Kitchens (NICK) is an online community hosted privately on Facebook Groups and is moderated by The Food Corridor. The Food Corridor is an online marketplace where food entrepreneurs can find and book commercial kitchen space. After conducting a survey of 140 shared use kitchens nationally, the researcher identified a need to aggregate technical assistance provided to this emerging sector. Subsequently, the NICK group is comprised of over 700+ shared-use kitchen owner/operators, directors, and program and facility managers, as well as food system partners who focus on sharing information and resources related to policy, education, extension, services, and economic

development. The NICK supports the food industry through sharing data, best practices, and technical assistance to build and grow successful shared-use kitchens businesses.

5.3 Policy Implications

One of the main limitations of this work is identifying common language in efforts to continue to support and grow the shared-use kitchen industry. In response, respondents were asked how their local health department food code defines **shared-use kitchen**, if at all. Interestingly, twenty-five (66%) of respondents were unable to provide a definition of shared-use kitchen, indicating that their municipal, county, and state food code has yet to define or license the business model. Shared-use kitchens who reported “no definition” were licensed as school kitchens, food service establishments, preparation facilities, processing plants, catering kitchens, food manufacturing, commercial kitchens, and wholesale food processors.

This variability translates to varying regulatory requirements and oversight that may or may not be conducive to the shared-use kitchen model. Likewise, many required a combination of licenses to cover all the services provided under a shared-use kitchen license. This results in multiple licensing fees, inspections, and sometime arduous requirements that are not directly applicable to shared-use kitchen model. We concluded that adopting a common definition into municipal, county, and state food codes and statutes can reduce redundancy, clarify policy requirements, and support the emerging model in supporting local food systems. TFC collated the responses of those who provided a definition of shared-use kitchen into one unified definition provided below:

A **shared-use kitchen** is a place of business for the exclusive purpose of providing commercial space and equipment to multiple individuals or business entities to commercially prepare or handle food that will be offered for wholesale, resale, or distribution. ‘Commercially prepare or handle’ includes, but is not limited to, the making, cooking, baking, mixing, processing, packaging, bottling, canning, or storing of food. **Shared-use kitchens** may include multiple workstations, professional-grade equipment,

cold and dry storage areas, and proper sanitation equipment. The spaces may serve as a commercial production area, a packaging facility, and/or a commissary for mobile food vendors, among other uses. Such facilities often include professional development, networking, and business consultant services provided to clients to expand local food systems and empower entrepreneurs and small business owner.

Kitchen Incubators are on the rise and vary greatly depending on facility, programs, and services they provide. Table 5.1 provides a summary of 3 types of kitchen and incubator categories, non-incubation facilities, incubation facilities + programs, and incubation programs without facilities. Future research is needed to measure the economic and other community capital impacts of how kitchen incubators and food entrepreneurs will evolve in local food economies. Furthermore, the use of ecosystem services and networks (formal or informal) seems to be an important contributor for “scaling up” a regional food sector. This research provides an important contribution to understanding how technology platforms and the access economy may be an opportunity strategy to further leverage existing resources and serving the social values of food entrepreneurs.

5.4 Next Steps and Future Research

Some of the major challenges effecting food entrepreneurs are related to starting and growing a business. A food entrepreneur may have a unique product passed down from a family recipe but starting a business requires much more than passion and a good idea. Strong business acumen is essential to enter the industry and networks of ecosystem services are emerging to help address these constrains. For example, there are course and consultants available to help learn to scale a recipe, understand pricing and margins, keep accurate books and budgets, navigate legal and regulatory barriers, and understand packaging and labeling. A shared-use kitchen, where numerous food entrepreneurs create a culture of support, networks of service providers, and shared sales platforms and outlets that can leverage the community. Investor

groups looking to support local food systems can also partner with shared-use kitchens to support food entrepreneurs and economic development in their region.

There is notable potential for leveraging existing infrastructure and services in a community's food sector. In rural areas, the needed infrastructure may include trucks, cold storage for farmers, and processing facilities or meat lockers for ranchers can provide the connective tissue to leverage a county's agricultural roots. In an urban area, shared-use kitchens that contain high value equipment, like a bottling line, can open the door to new unique products that can easily reach markets using existing distribution networks and channels. The Food Corridor platform could be used to make the invisible needs more visible and help standardize the process. This access could truly transform food economies of all sizes.

Table 5.1
Kitchen and Incubator Types

Type	Subtype	Description	Primary Facility Use	Aim	Common Features	Variations	Best Suited For
Non-Incubation Facilities	Community Based Kitchen	Church, school, community center, culinary school, etc.	Other community use	Community service; revenues	Limited hours. Not designed for production. Limited equipment. Limited onsite storage.	Community kitchen designed to support food-based community, nutrition and food system activities	Small batch production; market feedback stage
	Business Rental of Excess Kitchen Time/Space	Existing food business renting extra kitchen time/space to other businesses.	Other food business	Overhead cost reduction; revenues	Limited hours. Fluctuating time and space. Limited equipment. Business may rent empty floor space, not equipment.	May offer copacking	Part-time production needs that match availability. Entrepreneurs that can pay market rates and do not want or need services.
	For-Profit Shared Use Commercial Kitchen	Privately owned commercial/ commissary rental kitchen	Entrepreneurs/ small food businesses	Income; supporting artisan food	Equipment varies to meet target customer needs (food trucks, caterers, packaged, etc.). Facility size varies.	Shared Kitchen + Cluster of Private Kitchens	Entrepreneurs that can pay market rate rents and services (if offered)
Incubation Facilities and Programs	Incubator Kitchen	Commercial kitchen(s) with entrepreneurial support services	Entrepreneurs/ small food businesses	Support job creation, food cluster, poverty reduction and/or food system	Facility size varies from small to very large. Supports launch and growth stage companies	Shared Kitchen + Cluster of Private Kitchens; Copacking; Distribution; Retail	Entrepreneurs interested in support who can benefit from services
	Food Innovation Center	Multi-program facility	Entrepreneurs/ small food businesses/ technical services	Food cluster, Ag development, jobs, business growth, food system	Incubator, technical services, food science, industry research and education	Some facilities may offer entrepreneurial services but not rent kitchen facilities	Entrepreneurs and growth stage businesses in need of services, technical assistance and research insights.
Incubation Programs Without Facilities	Network of Community Kitchens	Coordinated rentals or referrals of community-based kitchens + business support services	Other community or business uses	Support job creation, food cluster, poverty reduction and/or food system	Match-making between renters and facilities. May provide management assistance or guidance to kitchen operators		Entrepreneurs in communities where a large incubation facility is not feasible or supported by demand.
	Subsidized Use of For-Profit Shared Kitchen	Business support services + reduced rate rentals for program participants	Market rate renters	Support job creation, food cluster, poverty reduction and/or food system		May have qualifying criteria, such as income or asset limits	Entrepreneurs that cannot pay market rates and are willing to participate in support services.
	Virtual Incubation and Acceleration Programs	Business support services	N/A	Support job creation, food cluster, poverty reduction and/or food system		May be focused on certain segments of the food industry, may not be geographically focused	Entrepreneurs and growth stage businesses in need of services but not facilities.

Adopted from work completed with Dawn McCausland of DawnMMConsulting, 2017.

While the potential is immense, some limitations or constraints exist, mainly around commitment of the food entrepreneur, regulatory frameworks that require licensed food businesses have a centralized place they produce food, and kitchens requiring or needing additional insurance coverage. The Food Corridor has begun to address these limitations in the platform by requiring the food businesses to upload their business license, insurance, and food handler certificates. By imputing the expiration dates, the system will track and notify the kitchen administrator and the food business when compliance concerns emerge.

Because every food system is different and diverse, community members will know their communities best and can act as liaisons or affiliates to adopt the software and communicate the impacts. Networks of community assets exist already at universities, extension offices, departments of agriculture and non-profits which can be leveraged and engaged on a national level. A future conference of shared-use and incubator kitchens would be a great way to disseminate best practices and bring the industry together. Overall this research established a major contribution in identifying key drivers for food entrepreneurs and the potential for the emerging access economy to transform local food systems.

APPENDIX A. LIST OF SURVEY QUESTIONS

- Q1. I would be willing to sacrifice some business profits to be involved in a project that sustains a unique aspect of my community's food culture and economy (e.g. long term market, peer businesses, non-profit program).
- Q2. I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all).
- Q3. I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy.
- Q4. I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use.
- Q5. Foodborne illness and outbreaks are a real concern to human health.
- Q6. Current food regulations are not effective in managing food safety risks.
- Q7. As a food business owner, it is my moral responsibility to comply with food standards, regardless of additional costs to food businesses for compliance.
- Q8. I commit to serving customers who require special diets (gluten-, nut- or allergen-free), even if there are lower profit margins from such food products.
- Q9. I believe that technology can help me better connect with local business opportunities and partners who have a positive impact on the local economy.
- Q10. My business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities.
- Q11. Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies.
- Q12. Business peers and mentors who are important to me think I should adopt and use more technology in my business.
- Q13. I have switched products for my business (ingredients, packaging, cleaning supplies) for ecological reasons.
- Q14. I have convinced members of my family and friends to buy local products.

APPENDIX B. GAMMA CORRELATION MATRIX

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
Q2	0.39													
Q3	0.38	0.48												
Q4	0.46	0.54	0.54											
Q5	0.15	0.14	0.12	0.19										
Q6	0.05	0.04	-0.01	0	0.02									
Q7	0.26	0.36	0.37	0.25	0.62	-0.11								
Q8	0.25	0.17	0.22	0.1	0.13	0	0.29							
Q9	0.17	0.17	0.3	0.15	0.14	-0.05	0.17	0.15						
Q10	0.3	0.11	0.38	0.24	0.23	0.04	0.22	0.21	0.39					
Q11	0.29	0.57	0.55	0.51	0.06	-0.03	0.38	0.32	0.22	0.21				
Q12	0.06	-0.05	0.02	0.03	0.07	0.04	0.01	0.18	0.18	0.2	0.04			
Q13	0.32	0.41	0.43	0.37	0.02	-0.06	0.19	0.28	0.12	0.3	0.54	0.12		
Q14	0.23	0.27	0.5	0.39	0.02	0.02	-0.01	0.2	0.14	0.22	0.47	0.05	0.41	1

APPENDIX C. GAMMA PAIR CORRELATIONS

Strongest Correlated Gamma Pairs and Associated Construct

γ	Question	ESI Construct
0.62	Q5. Foodborne illness and outbreaks are a real concern to human health.	Symbolic diversity
	Q7. As a food business owner, it is my moral responsibility to comply with food standards, regardless of additional costs to food businesses for compliance.	Symbolic diversity
0.57	Q2. I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all).	Symbolic diversity
	Q11. Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies.	Resource mobilization
0.55	Q3. I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy.	Resource mobilization
	Q11. Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies	Resource mobilization
0.54	Q2. I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all).	Resource mobilization
	Q4. I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use.	Resource mobilization
0.54	Q3. I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy.	Resource mobilization
	Q4. I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use.	Resource mobilization
0.54	Q11. Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies.	Resource mobilization
	Q13. I have switch products for my business (ingredients, packaging, cleaning supplies) for ecological reasons.	Resource mobilization
0.51	Q4. I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use.	Resource mobilization
	Q11. Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies.	Resource mobilization

0.46	Q1. I would be willing to sacrifice some business profits to be involved in a project that sustains a unique aspect of my community's food culture and economy (e.g. long term market, peer businesses, non-profit program)	Resource mobilization
	Q4. I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use.	Resource mobilization
0.39	Q4. I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use.	Resource mobilization
	Q14. I have convinced members of my family and friends to buy local products.	Quality networks
0.39	Q9. I believe that technology can help me better connect with local business opportunities and partners that have a positive impact on the local economy.	Quality networks
	Q10. My business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities.	Quality networks

APPENDIX D. SURVEY QUESTION KEY

Question #	Question	Key
Q4	How many years have you been in business?	YEARS
Q5	How old are you?	AGE
Priorities and Values Questions		
Q5_1	I would be willing to sacrifice some business profits to be involved in a project that sustains a unique aspect of my community's food culture and economy (e.g. long term market, peer businesses, non-profit program).	PROFITS
Q5_2	I believe that my business decisions can have a strong impact on social fairness (e.g., fair treatment of workers, food access for all).	FAIR
Q5_3	I believe that where I choose to buy goods and services and who I do business with can have an impact on my local economy	LOCAL
Q5_4	I believe participating in a shared economy (e.g. Craigslist, food coop, community kitchen) helps to conserve natural resources by minimizing land, water and energy use.	SHARED
Q5_5	Food borne illness and outbreaks are a real concern to human health.	ILLNESS
Q5_6	Current food regulations are not effective in managing food safety risks.	REGULATE
Q5_7	As a food business owner, it is my responsibility to comply with food standards, regardless of additional costs to food businesses for compliance	COMPLY
Q7_1	I commit to serving customers who require special diets (gluten-, nut- or allergen-free), even if there are lower profit margins from such food products	DIETS
Q7_2	I believe that technology can help me better connect with local business opportunities and partners.	TECH
Q7_3	My business benefits from networking with business peers and mentors to identify best practices and learn about new market opportunities.	NETWORK
Q7_4	Every food business can have a positive effect on society by purchasing ingredients sold by socially responsible food companies.	SOCIAL
Q7_5	Business peers and mentors who are important to me think I should adopt and use more technology in my business.	ADOPT
Q7_6	I have switched products used by my business (ingredients, packaging, cleaning supplies) for ecological reasons.	ECOLOGY
Q7_7	I have convinced members of my family and friends to buy local products.	BUYLOCAL

Priorities		
Q9	Describe your current status accessing commercial kitchen space for your business.	SPACES
Q11	Are you currently searching for commercial kitchen space?	STATUS
Q13	On average, how often do you use commercial kitchen space?	USAGE
Q14	What is the maximum number of miles (one way) you would travel to utilize a commercial kitchen?	MILES
What are your ideal hours for using commercial kitchen spaces?		
Q15_1	Early morning (5am-8am)	H5AM
Q15_2	Late morning (8am-11am)	H8AM
Q15_3	Afternoon (11am-2pm)	H11AM
Q15_4	Late afternoon (2pm-5pm)	H2PM
Q15_5	Evening (5pm-8pm)	H5PM
Q15_6	Overnight (8pm-4am)	H8PM
Experiences		
Q16_1	Finding appropriate space	EX_SPACE
Q16_2	Relationship and communication	EX_COMM
Q16_3	Scheduling and booking process	EX_BOOK
Q16_4	Equipment availability	EX_EQUIP
Q16_5	Price or cost	EX_COST
Q16_6	Technical business support	EX_BIZDEV
Features & Opportunities		
Q17_1	Location	F_LOCATION
Q17_2	Price or cost	F_COST
Q17_3	Scheduling and booking process	F_BOOK
Q17_4	Availability of ideal days/times	F_ETIME
Q17_5	Availability of enough days/times	F_ETIME
Q17_6	Online payments	F_ONLINE
Q17_7	Cleanliness	F_CLEAN
Q17_8	Equipment availability	F_EQUIP
Q17_9	Parking	F_PARK
Q17_10	Storage (dry)	F_DRY
Q17_11	Storage (cold)	F_COLD
Q17_12	Security	F_SECURE
Q17_13	Technical business support	F_BIZDEV
Q17_14	Group insurance rates	F_INSURE
Q17_15	Relationship and communication	F_RELATION

APPENDIX E. SUMMARY STATISTICS TABLES

Table E1

General Demographics

	Mean	Standard Deviation
STATE	14.29	12.3
BIZ	4.71	2.16
YEARS	2.39	1.17
AGE	4.1	0.89
PROFITS	5.14	1.41

Table E2

Values

	Mean	Standard Deviation
FAIR	5.85	1.28
LOCAL	6.67	0.7
ILLNESS	5.98	1.3
REGULATE	3.79	1.71
COMPLY	6.14	1.34
DIETS	4.68	1.72
TECH	5.79	1.42
NETWORK	5.97	1.19
SOCIAL	6.06	0.94
ADOPT	4.13	1.53
ECOLOGY	5.28	1.55
BUYLOCAL	5.74	1.31

Table E3

Priorities

	Mean	Standard Deviation
SPACES	2.55	1.83
SEARCH	0.44	0.5
USAGE	3.69	2.46
MILES	2.37	0.95
H5AM	3.31	1.81
H8AM	2.42	1.36
H11AM	3.06	1.38
H2PM	3.75	1.24
H5PM	3.72	1.62
H8PM	4.71	1.85

Table E4

Experiences

	Mean	Standard Deviation
EX_SPACE	2	0.78
EX_COMM	2.21	0.69
EX_BOOK	2.11	0.65
EX_EQUIP	2.08	0.69
EX_COST	1.91	0.68
EX_BIZDEV	1.88	0.57

Table E5

Opportunities

	Mean	Standard Deviation
F_LOCATION	2.74	0.53
F_COST	2.82	0.49
F_BOOK	2.48	0.59
F_ITIME	2.6	0.58
F_ETIME	2.66	0.57
F_ONLINE	1.85	0.69
F_CLEAN	2.79	0.54
F_EQUIP	2.67	0.57
F_PARK	2.28	0.63
F_DRY	2.47	0.61
F_COLD	2.44	0.67
F_SECURE	2.42	0.62
F_BIZDEV	2.06	0.66
F_INSURE	2.01	0.72
F_RELATION	2.55	0.6