

9-1-2012

Farm-to-Fork: Understanding Locally-Oriented Farm-to-Vendor Food Systems: Access, Boundaries, and Power-Relations

Shawn Alan Trivette

University of Massachusetts - Amherst, strivett@soc.umass.edu

Follow this and additional works at: http://scholarworks.umass.edu/open_access_dissertations

Recommended Citation

Trivette, Shawn Alan, "Farm-to-Fork: Understanding Locally-Oriented Farm-to-Vendor Food Systems: Access, Boundaries, and Power-Relations" (2012). *Dissertations*. Paper 670.

This Open Access Dissertation is brought to you for free and open access by the Dissertations and Theses at ScholarWorks@UMass Amherst. It has been accepted for inclusion in Dissertations by an authorized administrator of ScholarWorks@UMass Amherst. For more information, please contact scholarworks@library.umass.edu.

Farm-to-Fork:
Understanding Locally-Oriented Farm-to-Vendor Food Systems:
Access, Boundaries, and Power-Relations

A Dissertation Presented

by

SHAWN A. TRIVETTE

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

Doctor of Philosophy

September 2012

Sociology

Farm-to-Fork:
Understanding Locally-Oriented Farm-to-Vendor Food Systems:
Access, Boundaries, and Power-Relations

A Dissertation Presented

By

SHAWN A. TRIVETTE

Approved as to style and content by:

Joya Misra, Chair

Ryan Acton, Member

Krista Harper, Member

Leslie King, Member

Jennifer Lundquist, Member

Don Tomaskovic-Devey, Department Head
Sociology

ACKNOWLEDGMENTS

I would like to thank my advisor, Joya Misra, for tirelessly reading countless drafts, providing feedback and encouragement, and offering generously of her time, insight, and guidance. I am a better sociologist for having worked with her. I would also like to thank the other members of my committee, Jen Lundquist, Ryan Acton, Leslie King, and Krista Harper, for their comments and suggestions on various drafts. Special thanks go to Ryan Acton for his role in compiling the farm-vendor database; this project simply would not have been what it is without his efforts in this regard.

Profound appreciation also goes to the various colleagues who have participated in writing groups with me over the years, including Ayse Yetis-Bayraktar, Kristy Watkins, Brittne Aiello, Abby Templer, Laura Heston, Sarah Miller, Jackie Stein, Patricia Sanchez-Connally, Kay McCurley, Aurora Vergara-Figueroa, Kat Jones, and Andy Inkster. Your (collective and individual) feedback, humor, and friendship have been immeasurably important. I also wish to thank all of the other friends and colleagues who have offered me support and encouragement during the research and writing process, particularly when writing was most difficult.

Last, I wish to thank the several farm and vendor participants who graciously gave of their time to answer questions, explain things, give me tours of their operation, and even (on occasion) feed me. Your involvement has been essential to the completion of this project and I wish all of you (and others like you) the best of success in your endeavors.

ABSTRACT

FARM-TO-FORK:

UNDERSTANDING LOCALLY-ORIENTED FARM-TO-VENDOR FOOD SYSTEMS

ACCESS, BOUNDARIES, AND POWER-RELATIONS

Access, Boundaries, and Power-Relations

SEPTEMBER 2012

SHAWN A. TRIVETTE, B.S., TENNESSEE TECHNOLOGICAL UNIVERSITY

M.A., UNIVERSITY OF MASSACHUSETTS

Ph.D., UNIVERSITY OF MASSACHUSETTS

Directed by: Professor Joya Misra

Locally oriented food has recently gained considerable popularity as an alternative to the industrial food system. Current scholarship on local food has typically focused on direct-to-consumer (DTC) arrangements, such as farmers' markets or CSAs. Yet other players besides producers and consumers engage with locally-oriented food. Food vendors (restaurants, retailers and grocers, and value-added food processors) have recently entered the scene and locally-oriented farm-to-vendor arrangements constitute one of the cutting edges of the development of local food systems.

This dissertation studies one such local food system in southern New England. Utilizing a mixed methods approach entailing social network analysis, in-depth interviews, fieldwork observations, and GIS analysis, this study interrogates how direct-to-vendor (DTV) local food systems operate. I show through the literature review that though local food systems hold considerable promise, they are not inherent mechanisms of sustainability. Next I turn to the question of what "counts" as local, examining the

range of distances farms and vendors within this region travel to sell or purchase food, and asking what are the forces and conditions that influence this range of travel? The greatest influences are number of ties to other local food entities, what type of farm or food-vendor they are, size, and urban proximity.

I then focus on key participants in the area of study. What are the challenges and constraints around developing a vibrant locally-based food system? These participants face continual pressure to expand their size and markets, emulating the dominant food system and thereby undercutting their sustainable potential. However, these participants also find ways to overcome what are sometimes contradictory interests to forge a functional locally-based food system based on reciprocity and trust.

Due in part to price premiums on local food many local food participants tend to be white and have high incomes and levels of education. In the final empirical chapter I ask: in what ways do these inequalities manifest systematically? By geospatially mapping the locations of local food outlets against census data on race, income, and education, I show that racial and class advantages are perpetuated in terms of people's proximal access to these local food outlets.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iv
ABSTRACT	v
LIST OF TABLES	xii
LIST OF FIGURES	xiii
CHAPTER	
1. INTRODUCTION: STUDYING LOCAL FOOD.....	1
Project Evolution	3
Project Setting: Southern New England and the Pioneer Valley	7
Research Questions	9
Interlocking Methods of Data Collection and Analysis.....	10
The Farm-Vendor Database.....	11
Collecting Social Network and Geographic Data	11
Social Network Analysis.....	14
Qualitative Methods.....	18
Data Collection	18
Rationale on the Use of These (Network and Qualitative) Methods.....	19
Data Analysis	21
Employing GIS Analysis	24
Census Data	24
On the Use of Regression Modeling.....	25
Overview of the Coming Chapters	26

2. CLOSE TO HOME: THE DRIVE FOR LOCAL FOOD.....	30
A Brief History of (Industrial) Food Production in the U.S.	32
The Logic of Local.....	35
Ecological and Environmental Soundness.....	39
Shorter Transportation Lines	39
Reduction of Scale	41
Local Food and Organic Production	43
Economic Vitality	44
Social Responsibility	48
Social Justice in Local Food: Food Security and the Local Trap	48
The Public Health Benefits of Local Food	51
Local Agriculture and Social Networks.....	53
Conclusion: The Individualistic Error	57
3. INEQUALITIES OF ACCESS IN LOCAL FOOD SYSTEMS	60
Background and Literature Review	60
Local Food as an Elitist Development	62
Data and Methods	64
Dependent Variables	65
Independent Variables	68
Results and Analysis	71
CSA Farms.....	71
Farm Stands	74
Discussion	77

Conclusion	80
4. HOW LOCAL IS LOCAL? DETERMINING THE BOUNDARIES OF LOCAL FOOD IN PRACTICE	83
Food Miles and Food Sheds: Articulating and Measuring Local Food	85
The Influences on Local Food	90
Methods and Data	93
Social Network Analysis.....	93
Qualitative Data Collection.....	96
Regression Variables	97
How Farm Does Local Food Travel?.....	99
Visually Inspecting the Social Network	100
How Far Do Farms Sell Their Food?.....	102
What Influences Distance?	104
Conclusion: The Limits of Local	108
5. "INVOICES ON SCRAPS OF PAPER": POWER, TRUST, AND RECIPROCITY IN LOCALLY-BASED FARM AND VENDOR RELATIONSHIPS	112
Methods.....	113
Impediments to Local Food	114
Farm Impediments	119
Scale of Production	120
Delivery and Transportation	121
Labor Costs	123
Summary of Farm Impediments	124
Vendor Impediments.....	124
Scale of Supply and Procurement Issues	125

Labor Costs	128
Summary of Local Food's Impediments	130
Establishing and Maintaining Local Food Systems.....	131
Developing Trust between Farms and Vendors.....	132
Communication.....	136
Building Reciprocity	138
Negotiating the Relationship.....	140
Vendor Flexibility and Accommodation	142
Loyalty and Goodness of Fit.....	146
Establishing Infrastructure for Locally-Based Farms and Vendors.....	147
Cooperative Distribution and Delivery Systems.....	148
A Farm-Vendor Liaison	151
Conclusion: Summary and Implications	152
6. CONCLUSION: WHITHER LOCAL?	155
The Road So Far: What We Have Learned	155
Is Local Food in Danger of Being Coopted?	159
Reflexive Localism: Avoiding the Local Trap	160
The Future of Local Food	162
The Paradox of Limited Supply and Market Saturation	163
Future Research Directions	166
So What? Takeaway Lessons.....	167
Sociological Implications: Addressing Broad Disciplinary Themes	167
Public Implications: Local Food as Sustainable Food.....	169

APPENDICES

A. COMPILING THE FARM-VENDOR DATABASE	171
B. PROFILES OF INTERVIEWED FARMS AND VENDORS.....	175
BIBLIOGRAPHY	181

LIST OF TABLES

Table	Page
3-1. Descriptive Statistics (by Census Tract).....	69
3-2. CSA Density Regression Models	71
3-3. Farm Stand Density Regression Models	75
4-1. Farm and Vendor Types	94
4-2. Range of Distance Local Food Travels	103
4-3. Maximum Distance Local Food Travels	103
4-4. Predicting Range for Selling Farms.....	105
4-5. Predicting Range for Buying Vendors.....	106
A-1. Farm and Vendor Comparisons	175

LIST OF FIGURES

Figure	Page
1-1. Study Area Map.....	8
1-2. Methods Flowchart	11
1-3. Conceptual Map.....	23
3-1. DTC Farms in Southern New England.....	66
3-2. CSA Density	67
3-3. Farm Stand Density	68
3-4. Regional Demographics	69
3-5. Impact of Including the Square of Income and Education on CSA Density	72
3-6. Impact of Including the Square of Income and Education on Farm Stand Density ...	76
4-1. Sociogram of Farms, Vendors, and Their Ties.....	95
4-2. Sociograms of Farm-Vendor Network, Coded by Region	101

CHAPTER 1

INTRODUCTION:

STUDYING LOCAL FOOD

Locally-based food systems are widely considered to be an important component of sustainable agriculture. While local food systems are not inherently sustainable in and of themselves, they do hold considerable promise in helping to establish sustainably based food supplies. But what does it mean to say that a food system is sustainable? People generally think of environmental issues when someone says "sustainable"; this makes sense in light of more traditional topics of sustainability, such as energy consumption, air and water pollution, or recycling and reducing waste¹. However, while environment and ecology are significant components of sustainability, they are not the only angles of consideration. Considering sustainability through the lens of food helps connect not only to the physical environment, but also to economy and society.

In the recent surge of interest around food, the link between agriculture and environment has been one of an interrelated set of questions. While the modern system of industrialized food supply provides many benefits, such as a wide variety of foods and year-round availability of them, it has also been critiqued as a system that wreaks considerable destruction. This destruction includes environmental degradation (Albrecht & Murdock 1990, 2002; Buttel, Larson, & Gillespie 1990; Lawrence, Cheshire, & Richards 2004), animal welfare (c.f. Singer and Mason 2006), food safety (c.f. Nestle

¹ We even see examples of this in institutions such as the EPA; though they have considerable material related to agricultural practices, their grant and fellowship awarding bodies do not consider agriculture as one of their major topic area. In some sense, this broader lack of association can be attributed to the power of the agricultural industry in America.

2007), food insecurity² (c.f. Nestle 2002), and even the recent rise in obesity (c.f. Jennings 2003), all of which have been linked to modern agricultural policies and practices. The interest and concern has not just been in the academic community. In September of 2007 *Scientific American* devoted an entire issue to the problems of our globalized food supply and addressed all of these issues in separate feature articles. A few months later NPR's *Living on Earth* focused part of an episode on these problems as well (entitled "Diet for a Dying Planet") and has continued to do so intermittently. Recent movies (such as *King Corn* [2007], *Food, Inc.* [2008], and *Dive* [2011]) and books (such as *Fast Food Nation* [Schlosser 2002] *The Omnivore's Dilemma* [Pollan 2006] and *Animal, Vegetable, Mineral* [Kingsolver 2007]) offer further exposés of the destructive patterns of our industrial agriculture system. Media outlets from the academic to the mainstream are raising people's awareness that something is wrong with the modern system of industrial food.

It was this conversation that drew me to this topic, as I began reading material suggesting that local food was *the* solution to our industrial food problems. Organic had its place, these writers argued, but organic had also been largely coopted by that industrial system. Local, though, inherently couldn't be coopted. Where organic had failed to remediate the unsustainability of our food system, local would succeed. Interrogating this claim of our salvation by local food was the one that greatly intrigued me.

In this introductory chapter I situate and set the stage for the dissertation as a whole. In doing so I strike a considerably more conversational tone than in the following

² A state of food insecurity exists when people are unable to legitimately and consistently procure the food they need.

chapters. I start with a retrospective on how the project evolved and how my evolving research questions guided the methods I ultimately employed. After discussing these questions I turn to a detailed discussion of those methods and the empirical components of this study. I then conclude this introduction with a preview of the coming dissertation chapters and some of the puzzles they help unravel around local food.

Project Evolution

Initially, I saw an emphasis in the local food literature on what I came to call direct-to-consumer (DTC) local food. DTC arrangements can be characterized broadly as ones in which individual consumers purchase their local farm-fresh food directly from the food producer. They are what most people assume local food means: farmers' markets, farm shares (also known as CSAs), farm stands, and pick-your-own [PYO] operations. Even the U.S. government perpetuates this equation of local equals direct-to-consumer: the USDA's recent promotion of local food centers almost exclusively on the rise in farmer's markets (see also Brown 2002) and the USDA further encourages people to plant local gardens and grow their own food. Overall, DTC arrangements have been on the rise for the last two decades, the main producers are small farms (typically with diversified operations), and they are associated especially with urban-adjacent areas (Thilmany & Watson 2004; Wells, Gradwell, & Yoder 1998). Research from the mid- to late-1990's has tended to focus on farmer's markets (and sometimes CSAs), claiming substantial support for purchasing local food (Gallons *et al* 1997; Kezis *et al* 1998; Lyson, Gillespie, & Hilchey 1995; Schneider & Francis 2005; Wells, Gradwell, & Yoder 1998).

Although many researchers had discussed DTC, the cutting edge in local food studies seemed to be in an even more recently emerging area I called direct-to-vendor (DTV). In DTV arrangements the farm sells directly to an organizational consumer (or vendor), such as a restaurant, grocery store, school, cafeteria, or food processor. Since a significant component of our food supply channels through vendors of various sorts attention needs to be focused on local food intersections in this area. However, the available literature on DTV food systems has been less abundant than that on DTC. Further, the work that has been done on DTV arrangements varies considerably in terms of depth and rigor. For example, Thomas Lyson (2004) briefly discusses a variety of modes of distribution, including restaurant agriculture and market co-ops, but with only a general description of how they operate and a few organizations working to establish such systems in their areas; similarly Alison Blay-Palmer (2008) only briefly describes the possibility of schools as institutional support for sustainable food systems, truck deliveries to poor urban centers, and community gardens feeding local people and local institutions³. Further, this literature has so far only focused on a few components that could be considered DTV, namely farm-to-school arrangements (which are currently the lion's share of scholars' attention to DTV arrangements; see Allen & Guthman 2006; Bagdonis, Hinrichs, & Schafft 2009; Hassenein *et al* 2007; Izumi, Alaimo, & Hamm 2010; Izumi *et al* 2006; Izumi, Wright, & Hamm 2010; Kloppenburg, Wubben, & Grunes 2008; Sonnino 2009; Vallianatos, Gottlieb, & Haase 2004) and restaurant agriculture, or restaurants that purchase directly from local farms (very little of which has been published in peer-reviewed journals; see IANR 2003; Starr *et al* 2003; Thilmany 2004).

³ Similarly, Michael Pollen's (2006) popular book, *The Omnivores Dilemma*, includes a section on a farm's deliveries to area restaurants, but there is nothing in the way of analysis of the functionality of these systems.

My intention, then, was to contribute to this budding literature by studying the fairly well-established DTV local food scene of the Pioneer Valley in Western Massachusetts. In particular I planned to focus on restaurant agriculture, employing a set of paired case studies of locally-sourcing restaurants and their attendant farms. This primarily qualitative and ethnographic study would be supplemented (slightly) with network data on farm-vendor connections throughout the Valley.

While the DTV side of local food remains central to the work presented here, I came to realize that it is quite difficult (if not impossible) to consider DTV arrangements without also considering DTC arrangements; they overlap and interlink more than I had expected. As such, the project has expanded to consider things like CSAs, farm stands, and farmers' markets. It has also expanded to include more vendors than just restaurants and to employ a very mixed variety of methods.

There were perhaps four major turning points that brought about these changes and all of them are examples of how it is important in any research to allow the questions asked to guide the methods employed. The first of these occurred when I finished my initial network data set compilation (done by hand in the summer of 2010). Initial network analyses showed other restaurants in the area that were perhaps even more locally-oriented than the ones I'd initially chosen, and ones I might not have noticed otherwise. This data set also allowed me to more easily see which farms were key providers to area vendors and that farms and restaurants did not actually work in "pairs" the way I'd initially conceptualized them. I decided to expand my interview base to include the most important farm and restaurant players in the region.

The second turning point came when I began conducting interviews with farmers. As I asked these farmers about their relationships with area vendors I quickly learned that, at least from the farm side of things, restaurants were but one component of a set of buyers they worked with. The main distinction these farmers made in their outlets of sale were between DTC formats and DTV formats, and if they subdivided further it was between a CSA and farmers' markets, both exclusively DTC arrangements. With only one notable exception⁴, farms treated restaurants, retailers, and other vendor types as pretty much all the same thing: wholesale outlets for their food. It therefore became clear to me that to interview only restaurateurs was to miss a significant piece of the vendor puzzle. So I returned again to the network data set to identify other key vendors, both grocery store and food processor (since they came up most often in farm interviews).

The third major shift occurred in the summer of 2011. Recognizing that the website I was using for my network database covered a much larger area than just the Pioneer Valley, I enlisted the help of Ryan Acton in compiling all these data (doing this by hand would have been nearly impossible). One of the first things I noticed from this dataset was how many farms were isolates in the network. In other words, they were locally-oriented farms but they had no connections to any area vendors; most of them were instead exclusively focused on DTC arrangements. Farm interviews in the months leading up to this had sensitized me to this possibility (I noticed with nearly every farmer I interviewed that the bulk of their farm's income was from some sort of DTC arrangement, *not* DTV arrangements), but it was not until seeing the extent of this

⁴ Some farms noted slight customization of orders between restaurants and grocers, mostly in terms of size of produce (large squash would be perfect as a base ingredient for a restaurant's special one night while smaller squash were more likely to sell at grocery stores) or produce blemishes (restaurants could more easily cut away bruised parts of produce, while deformities and bruises would often mean grocery store consumers would pick up a different item).

orientation in the network data that I realized I had to consider DTC arrangements in some way if I was going to paint a full picture of the DTV system.

The final shift came in part from an observation in the data and in part from expanded data access. In its most simple sense, the three-state database allowed me to expand the network analysis component of the dissertation. But because of the volume of information collected, it also allowed me to explore directions I might not otherwise have considered, particularly in terms of GIS analysis. I had been sensitized to location-related differences of access in my initial three-county database (Hampden County showed a dearth of local food connections relative to its two northern neighbors), but had no effective means of exploring this without geospatial coordinates, which came with the larger data set. So not only did this initially unanticipated database open the door to two of my dissertation chapters, it has allowed me to gain a much more complete picture of the food system under study, and (as I discuss in the Conclusion chapter) offers some suggestions for future avenues of inquiry following the dissertation.

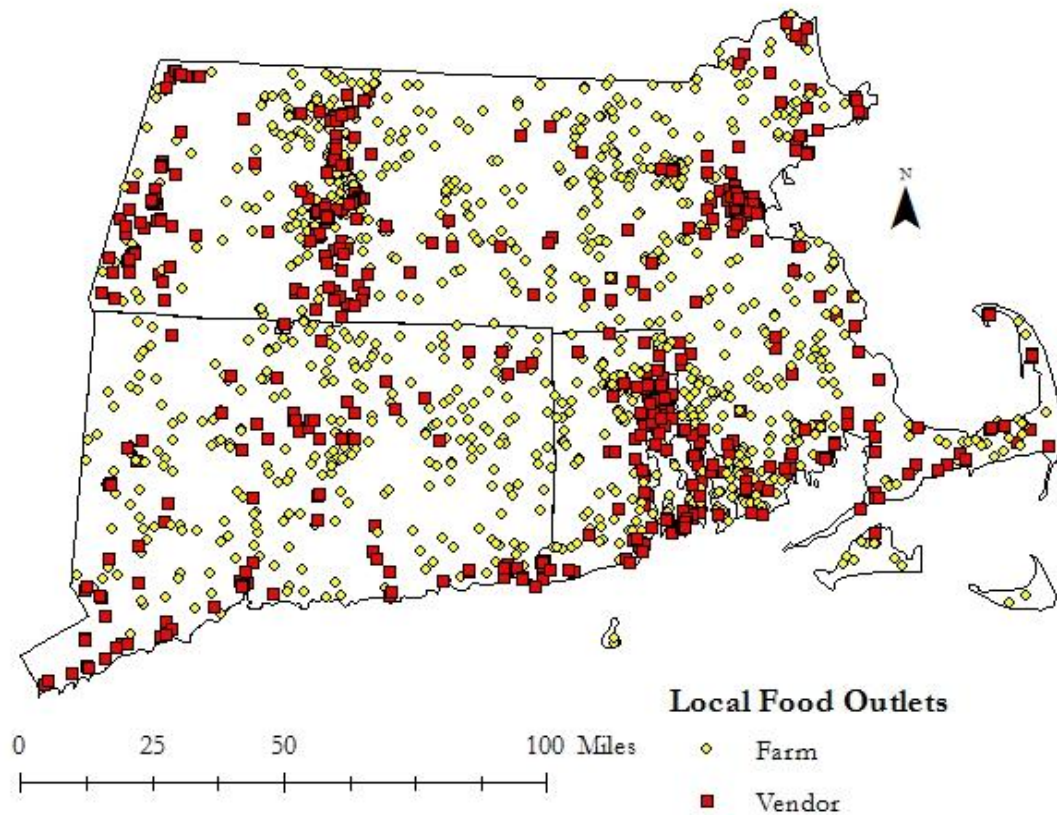
Project Setting: Southern New England and the Pioneer Valley

Because agriculture is closely tied to the land and climate, any such study is place dependent. My broad focus is the locally-oriented food and agriculture system in southern New England, with the qualitative portion of my project I focused on the Pioneer Valley of Western Massachusetts⁵ (see Figure 1-1). Agriculture in New England does bear some differences from the rest of the U.S. Average farm size in these states is considerably smaller than that of the nation's average and the market value of agricultural products per farm is also somewhat lower than the national average. There are a variety

⁵ Though names of people and organizations referenced in this study are pseudonyms, I use real place and region names. This appears to be common practice in agriculture studies, largely due to the very place-specific nature of agriculture.

of reasons for this, ranging from the historical development and needs of different regions to environmental and population differences to modern agricultural and urban planning policies of different states; the point is that though I believe many of my insights in this dissertation are generalizable to broader trends in local food, there are still ways in which local food develops in regionally distinct ways. In short, context does matter.

Figure 1-1. Study Area Map⁶



The Pioneer Valley is comprised of three counties and is known nationally for its fertile agricultural land⁷ and has also become well-known for its locavore-mentality (not to mention its very progressive politics). In truth, the most active and vibrant parts of this food system, both in terms of functioning farms and local-food-focused vendors, are in

⁶ The circled area is the three-county region referred to as the Pioneer Valley.

⁷ These three counties collectively hold approximately a quarter of the state's farms, a quarter of the state's available land mass, and a third of the state's farmland; two of these counties also have the highest percentage (over 15%) of total land devoted to farming.

the two northern counties of the region (Franklin and Hampshire), which are more rural, affluent, and racially homogeneous than the southernmost county (Hampden); this was the initial inspiration for Chapter 3. The growing season runs from approximately mid-May to late-October/early-November. According to the 2007 Census of Agriculture, the number of farms in this state rose from 2002 to 2007 even while the total acres of farmland (and therefore average size of each farm) decreased. Further, during this time period the number of smaller farms (under 200 acres) increased by almost a third while the number of larger farms decreased slightly (approximately 7%); this is a good indication of the increase in availability of locally-oriented agriculture⁸. The Pioneer Valley in particular is a useful case study in the operation of farm-to-vendor arrangements because of both how it has adopted the local food mantra and how this has allowed such a strong establishment of many diverse direct-to-vendor operations. While it, like most of New England, may be somewhat unique in terms of how locally-oriented its food system is, that uniqueness also makes it useful at indicating the route in which other local food systems may develop.

Research Questions

How is local food practiced? I see this question as contributing to a broader project of understanding how we as a society sustainable feed ourselves. However, as with most wicked problems (Rittel & Webber 1973) – and the question of sustainable food supply is clearly one – by necessity solutions are often found and understood piecemeal. Since local food is currently considered a significant component of

⁸ This is very different from trends nationally, where small scale farms have increased only 8% and larger farms have decreased 6% -- except for very large farms (over 2000 acres) which have increased 3% in the last five years. Even this state's immediate neighbors have not seen such a growth of small-scale (or decline of large-scale) farms.

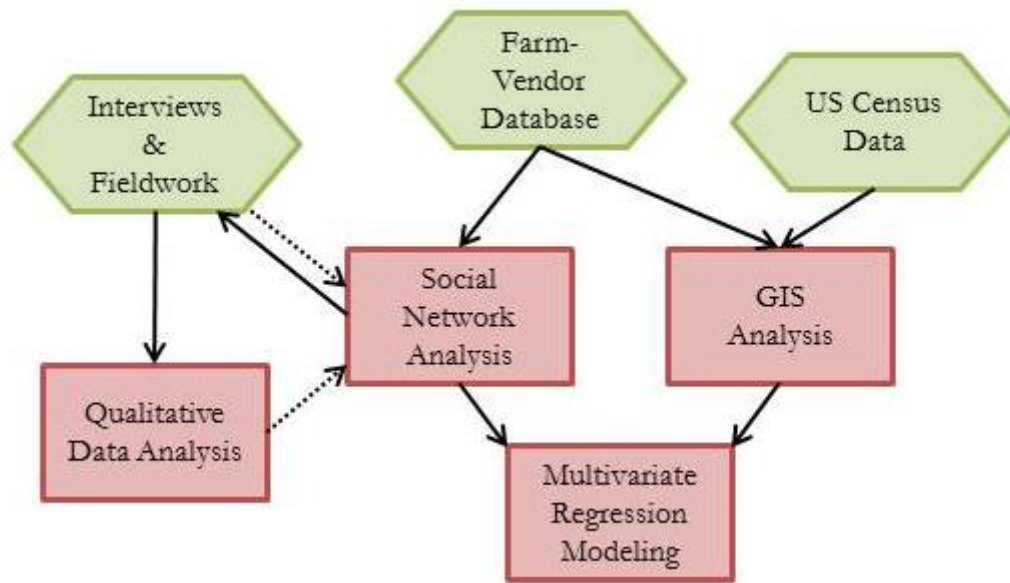
sustainable food arrangements, it makes sense to better understand how such systems work. What do people mean (in a practical sense) when they say local? What are its contours and what influences them? What are the dynamics between persons and entities engaged in locally based arrangements and how do people navigate these dynamics? What are the limits to local? Where are the fault lines of inequality in such systems? How do these inequalities occur and how might they be remediated? And perhaps more fundamentally, in what ways can local food be said to be a sustainable solution to the industrial food system and in what ways can it not?

These are the questions the ensuing chapters work to unravel. But before parceling out the specifics on how I go about them and in which chapters I answer which questions, further context is needed. Since I said above that the methods used should be guided by the questions being asked, having laid out those questions, I now turn to a detailed description of the methods employed to answer them.

Interlocking Methods of Data Collection and Analysis

This study is built on a true mix of methods, both in data collection and data analysis. Figure 1-2 provides a basic overview of the methods used and how they informed other parts of the project. Data sources fall into three basic categories: relational and attribute data on farms and vendors in southern New England, qualitative data (primarily interviews and fieldwork) on select farms and vendors in the Pioneer Valley (as well as the area's local food advocacy organization), and demographic data on the region from the U.S. Census. I employ four forms of analysis in making sense of these data: traditional qualitative data coding and analysis, social network analysis, geographic information science (GIS) applications, and multivariate regression modeling.

Figure 1-2: Methods Flowchart



The Farm-Vendor Database

Collecting Social Network and Geographic Data

Though initially intended as a supplementary data source, the farm-vendor database has in many ways become the centerpiece of the dissertation. The data come from the website www.farmfresh.org⁹, a website managed by several sub-regional local-food advocacy organizations that maintain information on a variety of locally-oriented farm and vendor participants in the region. These organizations work to support local agriculture by connecting farms, food outlets (restaurants, grocery stores, etc), and consumers throughout the region. When a farm or vendor becomes a member of one of these organizations their information is posted on the main website. Each farm or vendor gets a separate page with links to the other farms and vendors to which it connects, as well as at which Farmers' Markets they sell (if any) and whether or not they have a farm stand, CSA, or pick-your-own operation.

⁹ While this website contains information on southern New England, it only "zooms in" on one area at a time, as its purpose is to help would-be consumers find local food options in their area. Input a zip code to change the focus area.

Data were collected from this website using an automated web-based data gathering program called scrapeR (Acton 2010). See the appendix for specific details on the collection of this database. The database consists of 2,626 farms and 913 vendors (formally called "nodes") and includes both attribute and relational information. Attribute information includes the kind of operation a farm or vendor runs, what products they sell, where they are located (with latitude and longitude coordinates), the entity's web address (if available), farm size¹⁰, and what DTC arrangements a farm operated or participated in. Relational information (formally called arcs or ties) in this data set is a measure of economic exchange between entities; that is, a tie from one entity (usually a farm) to another (usually a vendor, or buyer) indicates that the first entity sells to the second^{11,12}. Tie data were coded using a union rule, meaning that a network tie exists if indicated by either a buyer or a seller (both parties do not have to indicate it). This method was used because seller and buyer information is not always consistent across entities. For example, there are numerous occasions where seller X indicates selling to buyer Y, but buyer Y makes no mention of buying from seller X; this is a common problem in self-reported network data (such as friendship ties), and the union rule is one of several possible methods for dealing with these discrepancies. Even using it, I suspect the ties present in the database are an undercount of actual ties that exist between these entities.

¹⁰ Much of this variable was collected manually from farm websites, as the data from farmfresh.org were incomplete.

¹¹ In this particular network I know which farms and vendors trade with each other, but I do not know the value (either relative or absolute) of these trades. I likewise do not have any information regarding how much of a farm's sales go to (or a vendor's food comes from) the industrial food supply.

¹² Generally, farms sell to vendors, but occasionally farms may sell to other farms and vendors may sell to vendors (most commonly a processor selling to another vendor outlet). Though it is possible for vendors to sell to farms (usually CSA operations selling something from a food processor), this direction of tie is incredibly rare and is not seen in these data.

There are a few important caveats related to this dataset. First, the organizations that compile and maintain the information are non-profits working first and foremost to build connections between farmers and the community; though their website is a component of that, keeping these pages (several hundred of them) immaculately accurate is time intensive and one of several projects they manage. As such, information on their website is only updated approximately once per year and many of those updates rely on farms and vendors (which are also busy running their own businesses) to self-report current information. Further, places go out of business, expand to form branch locations, or may even come under ownership or operation by the same person or organization; these changes may not be properly represented in the data. In short, what I have is but one snap-shot in time. Additionally, there is room for inaccuracy. Based on personal knowledge I was able to identify missing links between some of the actors in the network. This included farm-restaurant linkages that I know exist, but which were not indicated on the website as well as farmers' markets that showed a surprisingly low number of farm participants¹³. Since there is no simple way to rectify all of these errors, information was coded exactly as found without correcting the instances that I knew to be missing¹⁴. What this suggests is that this dataset is a conservative estimate of the prevalence of actual connections formed within locally-based agriculture circles. Even with these limitations, however, based on my knowledge of the food system I believe the information assembled to be reasonably accurate and likely the most accurate such database that exists.

¹³ Farmers' markets were ultimately not coded due to seasonal variation in how the website displayed markets.

¹⁴ I found no instances of over-counting. That is, I know of no ties in the network that do not exist in reality.

Social Network Analysis

Social network analysis is a useful set of mathematical tools for empirically measuring and analyzing various elements of social structure and inter-entity relationships (entities can be people or organizations)¹⁵. How different nodes are connected to each other says something about how the overall network functions. Using such techniques I was able to do two things: a) analyze the boundaries and context of locally-based food exchanges (which I did for the entire three-state region; see Chapter 4), and b) identify representative participants at different levels of involvement in the region's food system (which I did for the Pioneer Valley). My particular interest in the second part is in identifying the primary farm and vendor participants, which allowed for a very targeted sampling foundation for the qualitative portion of my study. These primary-player farms and vendors have the greatest number of ties to other farms and vendors that are *similarly interconnected within the food system* (Wasserman & Faust 1994; de Nooy *et al* 2005).

Analysis of this network dataset reveals that actors in the network participate with varying degrees of involvements. That is, some actors are connected to many others while some are connected to only a few or even just one. Since my interests in this study center on the operation of locally-oriented food systems, I have chosen to focus on farms and vendors that are the most heavily involved in this system, rather than ones that appear to be peripheral players. In formal network language, this entailed identifying the highest level k-core (in this case a 6-core) and selecting the most central farms and vendors from

¹⁵ Though networks are typically formally explained through mathematical and numerical presentations, visual inspection of networks (called sociograms) is also quite useful.

that core. Below I describe what these terms and methods mean and why I chose this route.

K-cores are one method of determining cohesive subgroups, especially in the context of the dynamics of differentially involved actors; those actors at high k-core levels can be considered more primary players than those at low k-core levels. A k-core is a connected group of vertices where each vertex has at least k connections within the core. This is not the same as the number of connections that exist within an entire network because a vertex must maintain k connections within the final core produced. Further, k-cores are nested; that is, all nodes within a particular k-core of a network also are part of a lower-value core of the same network, even though the nodes of a lower-value core may not be part of that network's higher-value cores. For example, if k-core analysis reveals a 3-core, that means that there are some nodes in the network that are *all* connected to at least three other nodes in the same core-value. A k-core is a way to identify relatively dense subnetworks and therefore cohesive subgroups, even though a k-core may not be a cohesive subgroup itself. I use k-core analysis to help identify various levels of food system involvement.

Centrality is another important concept I use. There are several different kinds of centrality in network analysis, but the one that is important to my purposes is the simplest form: degree centrality. Degree centrality of a node is simply the number of ties it has. The more connections a node has, the more central a player it is and therefore the more likely it is to create difficulty were it to be removed from the network or change its participation in some way.

Though centrality is a simpler concept than k-core, using degree centrality alone is not sufficient to determine the relative involvement of local-food network actors. For example, say a farm is a very central supplier in the overall network, but most of the vendors it sells to only exist on the periphery of the system (perhaps they only buy from that one farm). Though they have great potential for impact on several other actors, it would be questionable to include this farm as a primary player because of its relatively minimal impact on the food system as a whole. As such, the way I have identified primary-level actors is by first identifying actors in the highest k-core levels and then considering their centrality measure in this k-core context.

The overall network reveals a 7-core in the Rhode Island area. In the Pioneer Valley, where I focus my qualitative data collection, there is a 6-core. All entities selected for interviews come from within this core (with the exception of the student farm and restaurant noted elsewhere). After extracting a sub-network of just this region's 6-core I calculated centrality scores and selected the most central entities of the following types: general produce farms¹⁶, restaurants, grocers and retailers, and value-added food processors. Of 7 restaurants and 4 food processors I selected the 3 and 2 most central (respectively). Of 16 grocery outlets I selected 5 of the most central; one of the most central outlets was not selected because I learned it was under the same ownership as another (more central) outlet that was already included. Of the 8 general produce farms in this core I selected 5 for interviews. Two of the excluded farms are mid-range on the

¹⁶ I ignored farms specializing in some other food item, such as meat or orchard fruit, as these more specialized farms have a different impact on the overall food system. This can be demonstrated empirically in that the most central farms in the region (which vastly outscore the other farms in this core) focus on meat, dairy, or egg production. Orchards and farms with specialty items (like flowers, honey, or maple syrup) were excluded from interviews because of their theoretically peripheral nature in relation to the region's overall food supply.

centrality scale, with higher scores (centrality = 8) than two of the selected farms (centrality = 6). I excluded these two farms even though their scores fell between those of my final selections because their acreage was significantly greater than any of the other farms in this core¹⁷. Their size relative to the other high-centrality farms in this core suggests that their high involvement in the local food scene may in part be a function of their ability to produce more food than other core farms. Though they may be major players in the local food system, they likely also approach local differently than do their peers. Though including them in the interview sample might have yielded interesting results along lines of producer size, I decided to exclude them for the sake of consistency in my sample.

In the end I selected five farms, five grocery stores, four restaurants, and two food processors for closer examination¹⁸. I label these sixteen entities as primary players in the local food system (recognizing that a few farms and grocery stores not selected could also be considered primary players). In so doing, this implies that the lower-centrality-scoring portions of these k-cores are secondary players and the entities outside of this highest k-core are tertiary players. This is one of many approaches I could take, but whatever the exact demarcations, it is clear that the sixteen entities in question are among the most heavily involved in participating in their local food system. Since my primary interest is in an exploration of those participants most heavily involved in a local food system, it seems reasonable to focus on these actors and leave the determination (and study) of less involved players to future research endeavors.

¹⁷ I also know that both of these farms have a much stronger orientation to industrial and commodity agriculture than any of the other general produce farms in the core.

¹⁸ In addition to another student-run farm and restaurant.

Qualitative Methods

Data Collection

I approached the various farms and vendors for interviews regarding their connections and participation in the region's food system¹⁹. Interview questions focused on the relationships they had with their various suppliers and/or purchasers (as appropriate), evaluations of the positives and negatives (and ease and difficulty) of participating in a local food system, reasons for such participation, and how they both conceptualized the meaning of and practiced "local." Interview participants were variously approached via email, written letters, and phone calls; though some required multiple contact attempts, none declined to be interviewed (and several were quite enthusiastic). Most interviews took between forty minutes and an hour and were tape recorded for later transcription, coding, and analysis. Interviews took place in a variety of settings ranging from home dining rooms to public cafes and from greenhouses to offices. In all I conducted 25 interviews with representatives of 6 farms, 6 grocery stores, 4 restaurants, and 2 food processors; these numbers include a student-run farm and student-run restaurant both housed within my home institution²⁰. Student interviews took place in the late spring and late fall semesters of 2010 while all other interviews took place between January and May of 2011. Brief descriptions of all farms and vendors selected for in-depth study are included in the appendix.

In addition to interviews I also conducted limited field observations at most locations (including participant observation when possible, but mostly consisting of non-

¹⁹ See Rubin & Rubin (2005) for an in-depth discussion of designing and conducting interviews.

²⁰ These interviews were conducted as part of a pilot study in the early stages of this project and included 2 representatives of the restaurant, 4 farmers, and 1 student affiliated jointly with both the farm and the restaurant.

participant observations). Fieldnotes were written immediately after an interview (most interviews were conducted on-site) or observation session following techniques described in Emerson, Fretz, & Shaw (1995). In some cases, mainly for vendors, this involved a special trip to take detailed notes on a store or restaurant's setting. In one case I participated in a farm's weekly delivery run. During the pilot phase with the student farm and restaurant I observed two farm-restaurant planning meetings; this included taking limited fieldnotes and recording and transcribing the conversation.

All observations and interviews were done with the full permission of those involved (including the recording of the two farm-restaurant planning meetings). Most participants showed minimal concern for confidentiality; nonetheless, all people and organizations are presented here using pseudonyms and (with the exception of the student groups) distinguishing characteristics of these organizations are veiled to protect their identities. I have made every effort to refer to the people I interviewed simply by the farm or vendor-outlet they represent.

Rationale on the Use of These (Network & Qualitative) Methods

The network and qualitative methods are mutually constituted and it is important to recognize the ways in which both are necessary. We can see a series of relationships in the network data while the interview data show us the mechanisms by which they operate. Just as the interview data show us something the network data cannot, so also the network data form a unique and integral contribution: without the network data the selection of interviewees would be nothing more than a convenience sample and the chances that I would have stumbled across appropriate farms or vendors to interview (in a timely manner) regarding DTV arrangements are low. Rather, the network data have

allowed me to carefully target a farm and vendor sample most engaged and embedded in the local food system of interest. This methodological symbiosis should not be overlooked nor easily dismissed.

It is also important to discuss my rationale for the use of interview methods as opposed to ethnography and participant observation. There are certain benefits and limitations inherent to both forms of data collection. In some respects ethnography does allow for a more complete picture of social interactions than interviews because of the greater ease with which interviewees can hide or obscure information they don't wish known²¹. That said, participant observation is also very time-intensive and is not a practical option for the scale of this project (what Marshall & Rossman [1999] refer to as "Do-Ability"). My interest lies in the ties of exchange between farms and vendors. These ties are transient phenomena, not only because they are only present at discrete points in time, but also in the respect that they occur between two or more entities that are *not individual human actors*. To conduct an ethnography would require I focus in on one (or perhaps two) entities in this network. While this would have told me a great deal about the inner operations of this entity as well as its connections to those entities it most immediately connects with (in network-speak, its neighbors), I would have been limited in my ability to discuss the operation of the broader system as a whole. In fact, in my pilot study of the student farm and restaurant I intended this approach, but soon realized its limitation in that it would not capture enough of the bigger picture. Granted, it is possible to eventually capture this bigger systematic picture by conducting a series of ethnographies with the farms and vendors identified through the network analysis.

²¹ In general I have no reason to doubt any of the information provided to me in interviews; I have no reason to believe anyone made up any information, though some people did elect not to answer certain questions.

However, since this includes over a dozen entities and because of the season- (time) sensitive nature of agriculture, such a study is impractical because of the several years it would take to complete.

In some senses this project is a case study of a single food system. While I draw comparisons between the various entities within the food system, as environmental sociology reminds us (Buttel 1987; Buttel, Larson, & Gillespie 1990; Dunlap & Catton 1994; Dunlap & Martin 1983), everything is bounded by the physical context of the region in which it is located. Comparisons across different food systems will for the moment have to remain a goal of future research. Additionally, the qualitative analysis focuses in on the most central players in this food system, meaning I have left out more peripheral players. Since my primary interest is in the overall operation of a dynamic food system, I believe this choice is theoretically justified. Nonetheless, a focus on less-central players could reveal some nuance or elements not shown here and may also be a fruitful avenue of future research interest.

Data Analysis

Interviews and fieldnotes were coded using a mixture of grounded theory approach (Charmaz 1995[2001]; Corbin & Strauss 2008; Emerson *et al* 1995) and theoretical deduction. That is, I both allowed themes to emerge from the data and relied on the existing literature around DTV arrangements to sensitize my inquiry. The deductive allowed me to more easily and logically group broad categories of material and be on the lookout for certain possibilities; simultaneously, the inductive (grounded theory) approach opened me up to further themes and even paradoxes that had not been suggested by the literature. I wrote memos after almost every interview and field

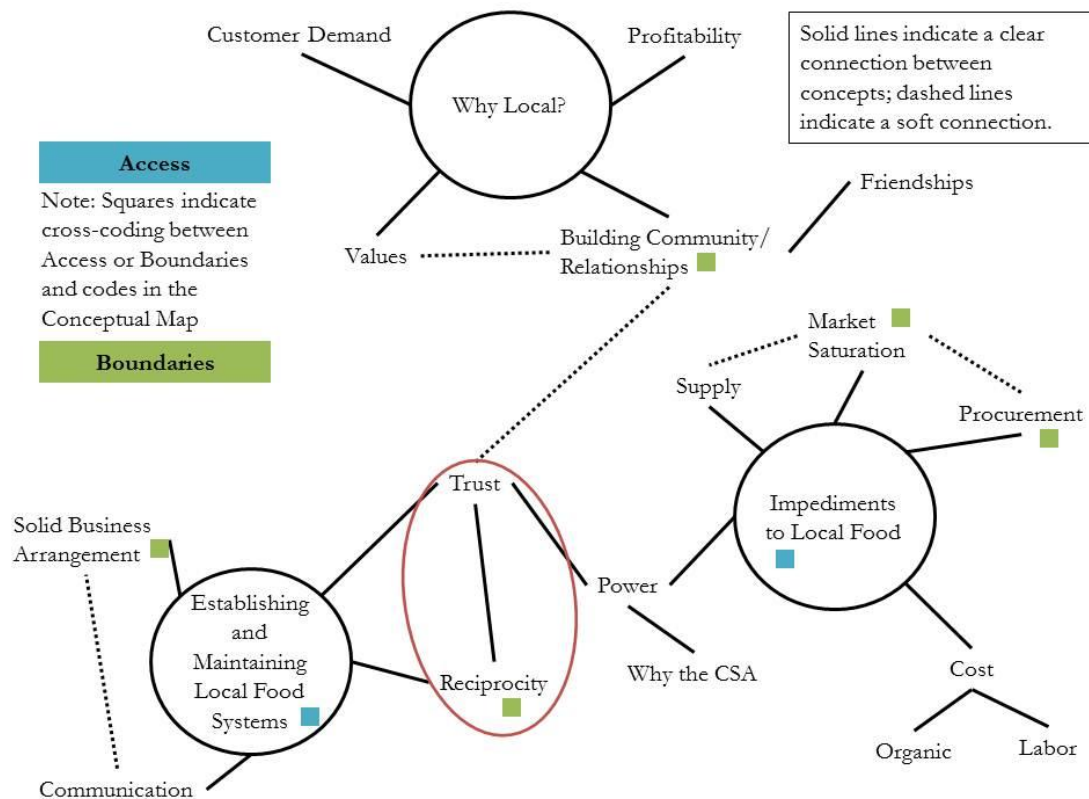
observation, referencing back to both the literature and previous interviews and observations as I went (see also Emerson *et al* 1995). From the literature I had been sensitized to questions of access, impediments to local food, and reasons for participating in local food systems. As I began coding interviews and fieldnotes I also noticed themes around how participants establish and maintain local food systems (or how they overcome the impediments to such systems) and how they conceptualized the boundaries of local food. Building on these themes, I developed a simple codebook (Bernard & Ryan 2010) for each code as well as a conceptual map in the form of a diagram (Corbin & Strauss 2008), which helped me identify the potential links between different codes. Data were coded into five broad, non-exclusive categories:

- Why Local?
- Impediments to Local
- Establishing and Maintaining Local Food Systems
- Access (to Local Food)
- Boundaries (of Local Food)

The first three of these categories were further divided into related sub-categories, such as customer demand and building community (Why Local?); supply, procurement, and market saturation (Impediments); and communication, solid business arrangement, trust, and reciprocity (Establishing and Maintaining). Drawing this as a map (see Figure 1-3) allowed me to note the mechanisms by which the main code groups linked to other code groups, particularly when data were coded in multiple sub-categories. I coded interviews and fieldnotes by hand, physically sorting elements into stacks of codes and making notes

when a section was multiply coded. As I completed sections of the coding I wrote integrative memos to articulate the picture as I was beginning to see it.

Figure 1-3. Conceptual Map



Using the conceptual map as a guide, I analyzed each coded theme using the pile sort method (Bernard & Ryan 2010) in which I re-read all excerpts coded under this theme and physically sorted them into logical groups and relationships; in some cases this resulted in the development of sub-themes while in others it simply helped me determine representative texts to quote and determine typical features of the theme. Occasionally it also helped me recognize miscoded items, which were then moved to an appropriate code stack.

Employing GIS Analysis

GIS analysis is an underutilized tool among sociologists. While I employ only very basic GIS applications in this project, such tools are useful both in the field of sociology and in studies of food and agriculture. GIS is the science of linking and analyzing data spatially to uncover location-based relationships. In this project I use the location of certain local food outlets (specifically DTC-oriented farms, though I could do the same for locally-focused vendors) to assess their placement in relationship to certain demographic variables (such as race and class). These entities are located in physical space, surrounded by particular social contexts, so it is worth considering how they associate with these contexts and what patterns may exist. Details of the exact GIS techniques used are described in Chapter 3. Below I briefly describe the third and final data source that was used to inform this part of the dissertation.

Census Data

Demographic data to inform the GIS analysis come from the U.S. Census American Community Survey Five-Year Estimates for 2005-2009. The census tract is the unit of analysis for this part of the study. Five variables were created using this source: race (measured as percent of the entire population that is non-Hispanic White), education (measured in average years of educational attainment for all persons over the age of 25), median household income, percent of households receiving food stamps, and population density (combining tract population with a measure of tract area). As noted in Chapter 3, nine census tracts were excluded from the analysis because their median income indicated an outlier effect; they each had over \$180,000 in annual household income.

On the Use of Regression Modeling

Regression modeling is a standard tool in most quantitative techniques and my case is no different. When one asks what the forces, conditions, or factors are that influence a certain phenomenon (like the boundaries of local food or the contours of inequality in local food systems), regression modeling is a straightforward way to assess possible answers. If one is able to quantify both the phenomenon in question (the dependent variable) and the possible explanations or influences (the independent variables) such an approach can yield powerful insights.

Though I do come to the use of regression modeling with some reservations (namely that not everything can be accurately or adequately quantified), I do see great value in quantitative work; I just think it needs to be nuanced by a qualitative approach. When I finally returned to my quantitative training in the last year of dissertation work²², I did so recognizing the strengths and limitations of both approaches to studying the social world. The use of multivariate regression modeling yields stronger insights on regional trends than can be attained from qualitative methods. At the same time, such methods are blind certain aspects of the phenomena they attempt to count because some things simply can't be counted. For example, in the boundaries chapter I quantify the range that local food travels and model this range along various farm and vendor factors that may influence the range; regression modeling is well suited to deal with this. However, physical distance is not the only way to conceptualize how local may be bounded; one could weigh factors such as a trading partner's business ethics or the quality

²² Despite a strong mathematical training from a degree in engineering and an easy time in my graduate statistics courses, I did have to brush off my stats book and refresh my memory on more than a few things.

of a relationship or even simply an intuitive sense of what "feels" local and these could influence not only how far local food travels but also whether or not local food participants would even see the same distance (in different directions) as within the same locality.

I say this not to undermine my own findings (I think measuring distance is one powerful way of thinking about local's boundaries), but to indicate that there is no one-size-fits-all solution to these questions. Just as my interview sample would have been nothing more than a convenience sample (rather than a targeted group of the most engaged local participants in the region) without the insights of (the quantitatively focused) social network analysis, so would my regression results be intellectually vacuous without some consideration of other (non-quantifiable) factors that may bear on the boundaries of local food²³.

Overview of the Coming Chapters

Local food is full of a variety of puzzles with difficult answers. But as DeLind (2011: 283) reminds us, the roots of local food are not in easy or convenient answers, but in wrestling with nuance and complexity. In the coming chapters I tackle some of these puzzles and work to unpack them. In doing so, I walk a fine line between praise and criticism of the local food ideal. Achieving the promise of local food requires a reflexive approach to local as well as a full inventory of the things that work (and for whom they

²³ Though this dissertation does not deal at all with identity politics (or even sexuality), I argue that such a nuanced consideration of both quantitative *and* qualitative approaches is an extension of the intellectual project of queering the academy, particularly queering the disciplines of sociology and agriculture studies. This does not mean I wish to disrupt the empirical foundations of either of these academic traditions (far from it), but that I want to destabilize their analytic categories just enough to remind us that the world is always a bit more complex than we often realize. In truth the often rigid demarcation between qualitative and quantitative methods only undermines the advancement of knowledge.

work) and those that don't (and, perhaps, who they may hinder). As I preview below, the chapters of this dissertation attempt to do just that.

In **Chapter 2** (Close to Home: The Drive for Local Food) I review the currently available literature on local food arrangements, particularly in the context of local as a sustainable alternative to the industrial food supply. While local food has considerable sustainable potential, it is not a panacea for society's food and agriculture problems, nor is it without its own pitfalls and problems as well. In particular I focus on how local food is and is not ecologically sound, economically viable, and socially responsible.²⁴

Chapter 3 [Inequalities of Access in Local Food Systems] turns further attention to the socially responsible leg of sustainability by asking who has access to local food. Due in part to price premiums on local food (relative to conventionally produced food) access to things like farmers' markets and CSA memberships has been critiqued as a classed and raced phenomenon: many local food participants tend to be white and have high incomes and levels of education. This chapter draws on GIS and regression analysis by coupling the locations of locally-oriented farms (with farm shares and farmstands) with U.S. Census data to examine in what ways the locally-based food systems in this region reflect the racial and class disparities documented in other local-food initiatives.

Following the question of who can get local food, I turn to a more theoretical (but still important) question: what counts as local food? **Chapter 4** [How Local is Local? Determining the Boundaries of Local Food in Practice] addresses the question of how local can be defined in practice, drawing primarily on social network analysis to identify how far local food travels in southern New England from point of production to point of

²⁴ This chapter also served as my second comprehensive exam and has been conditionally accepted at the Journal of Agriculture, Food Systems, and Community Development.

retail. I also use basic multivariate regression techniques to identify the main forces (such as number of exchange alters or type of operation) that contribute to the expansion or contraction of this range of travel. In other words, in addition to what counts as local food, what influences these boundaries?

This turn from access (in DTC arrangements) to boundaries (in DTV arrangements) allows us to investigate relationships between local food participants (particularly in DTV arrangements, since both farms and vendors are involved in provisioning local food). **Chapter 5** ["Invoices on Scraps of Paper": Power, Trust, and Reciprocity in Local Food Systems] turns, then, to an in-depth understanding of the economic and social relationships at the core of the food system in question. What are the major impediments to farm-to-vendor local food (for both farms and vendors) and how are these impediments overcome? Drawing primarily on interview and fieldwork data, I show how the dominant system creates the potential for unpleasant and undesirable power dynamics between vendors and farms and how these locally-oriented farms and vendors engage in trusting and reciprocal behaviors in an effort to mitigate these challenges²⁵.

These empirical divisions are, of course, somewhat artificial. In truth, all of these issues are interwoven and overlap with each other. Where we place the boundaries of local food is inextricably bound up with questions of access to that food. And access to food cannot be completely divorced from the power dynamics associated with local food systems – at both an individual and institutional level. So while I tease these broad themes apart for analytic scrutiny, there are many ways in which they overlap with each other. As such, **Chapter 6** is an attempt to weave together some of these seemingly

²⁵ Brief profiles of the farms and vendors included in this part of the study can be found in the Appendix.

disparate strands. In it I consider some of the broader implications of these findings, reflecting on what I have learned in this project and what directions future research in this area should consider. Additionally, I consider some of the limitations of this study, but also some of the generalizations and contributions that can be made to the broader literature on local food.

When it comes to local food I am both critical and hopeful. Ultimately I do see great potential for food sustainability in sourcing more of our food locally. I also recognize that this is not a perfect process, nor is it one that happens quickly. What I hope to make clear in the coming pages is that local food systems have considerable potential as sustainable food supplies, but they must be approached with a reflexive eye. If local food participants can keep the positive aspects of local food systems from being undermined and find ways to improve or overcome the negative aspects, they will be well on their way to realizing the sustainable promise of locally-based food.

CHAPTER 2

CLOSE TO HOME:

THE DRIVE FOR LOCAL FOOD

Just because it's organic, just because it's natural, just because it's local, is it ethical? No. Not necessarily. So we have to be careful as a society when we get on board with these trends.

-- owner of the food processor Mountain Jars

The rise of the agro-industrial food system over the past century has created many benefits for American society, but it has also generated a host of environmental and social problems in the way we as a nation (and a world) feed ourselves. In the last half-century, an increasing awareness of these problems, or at least a growing awareness that there are problems, has driven the formation of many alternative agriculture movements, the latest iteration of which has been a call for more locally-based food systems. Under the Obama administration even the USDA has gotten on board by creating new programs supporting locally-based farmers and encouraging local consumption. In his examination of the modern food systems in America, Michael Pollan (2006) follows his discussion of the industrial and organic food systems with a discussion of food localism, a trend in which people eat food produced close to home because of the social and environmental benefits this is supposed to bring. This move to eating locally is a relatively recent emergence in the nexus of alternative (and sustainable) food, especially when compared with organic.

However, when it comes to sustainable agriculture, local food systems offer a mixed bag. For the moment, let us define sustainable agriculture as agricultural practices that "meet the needs of the present without compromising the ability of future generations to meet their own needs" (Feenstra, Ingels, & Campbell n.d.); such practices, then, should

be able to be maintained indefinitely without significant adverse consequences to the physical or social environment (Ikerd 2007). While this definition is rather broad – and I further nuance it below – it allows us to ask the following question: in what ways are local food systems examples of sustainable agriculture? That is, can local food systems be maintained as a food source without negative and cumulative impact on the surrounding physical and social environment? Though locally-based systems have much promise as a sustainable food source, these systems are not without their pitfalls. As such, we should be wary of jumping on the local-food-bandwagon as we run the risk of deifying the local as some sort of salvation to our dominant food system's problems. As with most "wicked" problems (Rittel & Webber 1973), the question of how we sustainably feed ourselves is not one with so easy an answer.

My goal in this chapter is to review what we know about locally-based food systems as one aspect of sustainable agriculture. In meeting the goals of sustainability there are things locally-based systems do well and areas in which they could improve. My central argument is that though local food systems hold considerable promise, they are not inherent mechanisms of sustainability. How, then, can they be improved? To address this, I begin with a brief review of the history behind our modern industrial food system to provide context for the alternative and local food movements. I then discuss the logic of local agriculture and the kinds of problems such systems are supposed to solve as understood in three areas: environment, economy, and social responsibility. I conclude by highlighting some of the structural changes needed to see the development of a truly sustainable (local) food system.

A Brief History of (Industrial) Food Production in the U.S.

To understand the rise of alternative, and especially local, food movements, we must first have a basic understanding of how the industrial food system developed. The bulk of our modern food supply is built on a global food system, providing not only a wider variety of food than one region alone can produce, but also a year round availability of most foods. Conventional wisdom would have us believe that the current system of food production in the U.S. is the best in all of history. Americans today (and others throughout the industrialized world) enjoy a plentiful supply of food with high variety¹. Further, many have this access consistently and uniformly: for example, fresh strawberries are available in winter (not just June, when they are "in season" in North America) and fresh tropical fruits like pineapple and kiwi can be found even in New England. These benefits, though, come at enormous, often hidden, costs.

U.S. food production has had a global element from its inception (Allen 2004); much of the colonial system was geared toward supplying bulk goods and commodities to Britain². Nonetheless, up through the mid-19th century, a majority of the U.S. population was engaged in farming; today the opposite is true (BLS 2010; Lobao & Meyer 2001). Regular booms in agricultural (and other) markets throughout the late-19th and early-20th century encouraged farmers to plant more crops in subsequent years which routinely created food surpluses. Since food demand is fairly closely tied to population size, and does not easily grow or shrink via other influences (see Cochrane 2003) this served to drive down food prices. These boom periods led to periods of bust as many

¹ It is important to note that this access depends largely on one's class standing and social location; many of the urban poor in the U.S. do not even have easy access to a grocery store, thus limiting the true "variety" of foods they consume.

² Murray (2007) notes how the global food trade has existed at least as far back as the Roman Empire with the trade of olive oil from Spain throughout the Mediterranean region.

farms experienced economic collapse, driving many people to migrate from the rural countryside to cities to seek employment. Increasing industrialization created jobs in the cities, further helping to draw farmers off the land (Andrews 2006; DuPuis 2002). While some farm organizations, even before the Great Depression, encouraged farmers to voluntarily limit production in response to shrinking markets (Andrews 2006: 161), they met with little success; these inadequacies in a voluntary system of control ultimately brought about many of the agricultural stabilization policies of the New Deal era (Andrews 2006; Rasmussen, Baker, & Ward 1976: 1-2).

New Deal agricultural stabilization programs were designed to reduce acreage planted, fix market quotas, levy taxes, purchase surplus crops, and even remove certain lands from production. These systems were designed to regulate prices (for the benefit of farmers) and conserve soil. However, they only applied to a few basic commodity crops (such as corn, soybean, and grain), not all of agriculture. Further, these price fixing mechanisms often raised the cost to consumers. They also created incentives for farmers to intensify production on their allotted land, thereby defeating the market stabilization goal as well as allowing them to increase their capital gains (not to mention the further environmental destruction due to fertilizer and pesticide use). Essentially, farmers did not trust the system to provide them with the means of survival they needed. In other words, federal policies from the war years on, originally designed to limit production, have instead done more to stimulate overproduction of certain foods (Andrews 2006: 170-1).

These subsidies gave farmers, especially those who managed to consolidate into ever larger production units, considerable wealth, as well as other players in the agricultural system, such as the agricultural supply industry. This wealth soon translated

to high political influence, which has helped perpetuate a system of low environmental regulation with respect to agriculture³. In addition, government support of these subsidized crops began to push many remaining farms into intensive production of primarily (and in some cases only) those crops. This increased the overproduction and contributed to the further deterioration of prices for subsidized crops and the increased need of the government (and therefore the taxpayer) to support farmers who produce those crops (Cochrane 2003).

The Second World War brought about many changes in consumption patterns that have lasted well into the 20th and 21st centuries. During the war, troops needed food supplies. One factor related to the war effort (though also a consequence of the rise of mechanized farming methods) was an increase in domestic food production. Crops were given increased subsidies to encourage this needed excess production (Andrews 2006: 180). Following the war, these increases further contributed to the economic problems of food surplus, which carry forward into today (Friedmann 2002). The federal government has attempted to deal with this overproduction by diverting it first to welfare relief and school lunch programs and later to food aid for post-colonial countries, practices that still exist today though the National School Lunch Program and the Food for Peace Act (P.L. 480). These international donations weakened farm prices and undermined the farm economies of recipient countries thereby encouraging urban growth as impoverished farmers moved to the cities for work (Warman 2003). Ultimately, what appeared to much of the American public to be gestures of goodwill and humanitarian relief were actually

³ Agriculture is not the only industry for which this occurred. Other industries include automobile, steel, and rail transport, just to name a few (Andrews 2006).

attempts to hide a politically embarrassing situation: domestic surpluses stimulated by government subsidies and policies⁴ (Andrews 2006: 171-2).

Also during the war, U.S. troops couldn't be fed off of the land they were in, often because it was heavily damaged by the war and not even capable of supporting local populations. To address this problem and the difficulty of long-distance food transport, scientists developed many ways to package and preserve foods while keeping it lightweight so it was easy to ship and easy to carry (Murray 2007). This technological drive for lightweight food continues in military and space research today. Many of these technologies are now found in the public sphere encouraged by and encouraging many people's increased desire for convenience, travel, and mobility. This has been fueled (literally and figuratively) by the low cost of transportation, largely through cheap oil and the ubiquity of refrigerated transport. Between cheap transport, abundant food processing and packaging technologies, and continued technological advances in farming⁵, it is now easier and cheaper to grow things in large scale and ship it than it is to diversify and feed ourselves from a certain locality.

The Logic of Local

Out of this increasingly globalized and industrialized food system has emerged an alternative (some would say sustainable) food movement. From its inception in the early

⁴ A 1996 "freedom to farm" bill would have phased out crop subsidies that had come to only benefit a small number of large corporations at the expense of taxpayers, the environment, and small-scale farmers. However, the farm lobby convinced Congress to instead increase subsidies via "temporary emergency payments." By 2002, a congressional election year in which the farm bill was due for reconsideration, most politicians (especially from farm states) were instead promoting subsidy increases in order to garner votes (Andrews 2006: 371-2).

⁵ This process is referred to as the Treadmill of Technology (Cochrane 2003; Buttel, Larson, & Gillespie 1990), because of the cyclic and reinforcing nature of using cost-saving technology to produce ever more food, which drops prices and encourages the use of yet more technological devices. This process is similar to the Treadmill of Production (Schnaiberg 1980; Schnaiberg & Gould 1994) and the Treadmill of Consumption (Bell 2004).

1960s through the early 1990s alternative food has largely been equated with organic food. Proponents of such approaches challenge conventional agricultural production and consumption patterns by focusing on natural processes to grow food that is healthy to the earth and healthy to eat (that is, not contaminated with synthetic chemicals). The rise of the organic movement is well-documented (Fromartz 2006; Duram 2005; Pollan 2001, 2006; Raynolds 2000⁶); beginning as a fringe movement and for a long time experiencing considerable animosity from mainstream institutions like the US Department of Agriculture (USDA), land grant universities, and major farm organizations, it was only in the mid-1980's that organic food caught on in more mainstream circles. As language related to organic and sustainable farming was gradually added to the 1985 and 1990 Farm Bills (Youngberg, Schaller, & Merrigan 1993), organic farms (and food processors) across the country began to go the way of conventional agriculture: smaller operations were bought up by major industrialized food producers while larger ones merely transitioned part of their land to organic production while maintaining an otherwise industrial operation. These trends have continued to this day such that now much of our organic food supply is part of an industrial (organic) food chain (Howard 2009; Raynolds 2004). Further, many (though not all) of the environmental externalities associated with the conventional industrial food chain have carried over into the industrial organic system making the environmental benefits of large-scale organic only marginally better than their conventional counter-parts (Cuddeford 2003; Guthman 2004b; Obach 2007). In other words, the counterculture movement of organic food was co-opted and mainstreamed by the industrial food chain making it considerably less "alternative" than

⁶ Raynolds also discusses the fair trade movement, which focuses on "equitable social relations." She argues that fair trade is better than organic as an oppositional movement by its focus on relations of trade and distribution.

it once was (Campbell 2001; Guthman 2004a,b; Pollan 2006; Walker 2004). The clearest example of this mainstreaming is that the USDA, with primary input coming from large agribusiness interests, has determined since 2002 what qualifies for the organic label (Deaton & Hoehn 2005; Pollan 2006).

While this standardization was ostensibly an attempt to clarify what organic means among what were (and still are) a variety of competing definitions, the meaning of organic is still hotly contested. While federal standards focus primarily on input substitution (i.e., using manure and compost instead of synthetic fertilizers), many alternative food advocates see organic in a more rigorous and holistic manner (i.e., ensuring farm ecosystem integrity through maintaining soil fertility, preserving water supply, and protecting human health and species diversity; see Crews, Mohler, & Power 1991). Recognizing that mainstream definitions of organic are not inherently sustainable, many in the alternative food movement have advocated for an expansion (or even a shift) in focus to locally-based food systems, arguing that locally-based food would be both more sustainable than organic and more difficult for conventional interests to co-opt (Guthman 2004b; Halweil 2002; Hines 2000; Hines, Lucas, & Shiva 2002; Kloppenburg, Hendrickson, & Stevenson 1996). While the co-optability of local food is beyond the scope of this paper (though some recent scholarship indicates that the concept is not nearly so safe as some believe; see, for instance, Fonte 2008), my goal in this paper is to evaluate the merits of locally-based food systems as sustainable alternatives to the conventional food system.

I consider locally-based (or locally-oriented) food systems to encompass food that is intended for consumption within the same area that it is produced. This element of

intentionality is important in distinguishing local food as an orientation to food production and consumption rather than simply the food that is available in a particular area. Often local food is marketed on the basis of shared values between farmers and consumers, though I do not include this element in my definition primarily because of the variation in how different actors may value local food, including (or not) such qualities as environmental benefits, local economic development, and personal health. While the definition of what constitutes "local" is open-ended and may vary depending on whom one asks (and has been conceptualized as everything from a radial distance [50 or 100 miles] to a collection of states [New England, the Pacific Northwest]), local by this understanding is a social proximity in which producer and consumer are connected to the same place (Fonte 2008). This way of understanding local food also distinguishes it from a perspective that places value on a product's origin for use in distant markets, such as Vermont maple syrup or Palizzi wine from Italy, though both may be found in many places throughout the world (Fonte 2008).

It is important also to further clarify my initial definition of sustainable agriculture. Beyond simply avoiding adverse consequences to the physical and social world, sustainability is broadly seen as consisting of three main components: ecological and environmental soundness, economic viability, and social responsibility (particularly in light of social and economic justice), which often also includes human health; I further articulate the details of each element below. Additionally, it is most helpful to think of sustainable practices and orientations as existing along a continuum rather than being absolutely sustainable or not sustainable; that is, certain practices can be more or less sustainable than others depending on to what extent they align with the hallmarks of these

three pillars. I turn now to an examination of locally-based food in light of each of these three legs of sustainability, highlighting the main points advocates make in favor of local food systems and empirical evidence that either supports or refutes them.

Ecological and Environmental Soundness

The environment is perhaps the first thing people call to mind when they think of sustainability. Indeed, environmental stewardship has been a central focus of the alternative agriculture movement since its inception (Crews, Mohler, & Power 1991). In a globalized and highly corporatized food system (O'Hara & Stagl 2001), an emphasis on producing as much as possible leads to agricultural practices that are destructive to the environment in numerous ways (see also MacCannell 1988: 25-26). It is for this reason that in the early years of the alternative agriculture movement sustainability was understood mostly in terms of organic agriculture: organic practices are about treating the land well and minimizing and eliminating farming methods that harm the soil and surrounding environment. However, organic food is not the only way in which we can understand ecological soundness. Locally produced food also promises several environmental benefits as a response to the industrial system, including shorter transportation lines and a reduction of the destructive patterns of large-scale production. Though I will address these areas separately, we must bear in mind that they are interrelated.

Shorter Transportation Lines

One of the natural consequences of the concentration of our food supply is the necessity to transport it long distances (Pirog *et al* 2001). This need for increased transport carries with it the need for fuel as well as proper means of storage so that food

stays fresh by the time it arrives at its destination and then makes its way into the hands of consumers. Much of the energy required for this currently comes in the form of fossil fuels, highlighting the problem of using nonrenewable resources and generating greenhouse gases (Hines *et al.* 2002; Peters *et al.* 2008). The concept of food miles offers us a way of thinking about the distance our food travels (Iles 2005; Paxton 1994). Simply put, the measure of food miles is the number of miles a given piece of food had to travel from its source of production (the farm) to its final destination (the plate). Many scholars and activists use the term food miles as a proxy for the environmental impact our food has simply by the resources it uses to travel from one place to another. They argue that it is more environmentally friendly to consume food grown within a local food shed⁷, because of its low food miles, than food that has been shipped vast distances (Brown 2003; Feenstra 1997; Kloppenburg *et al.* 1996; Kloppenburg & Lezberg 1996; Lea 2005; Lezberg & Kloppenburg 1996; Vogt & Kaiser 2008).

Food miles may be a useful concept for increasing agency and responsibility in food choices, but it does have important limitations. For one thing, what counts as local is often quite difficult to determine (see Hinrichs 2003; Iles 2005; Selfa & Qazi 2005). How do we account for items considered essential to an area yet not fully produced there? How do we even define what constitutes a food shed? Peters *et al.* (2002) and Pirog *et al.* (2001) attempt to resolve these questions for the states of New York and Iowa (see also Thompson, Harper, & Kraus [2008] for an assessment of the San Francisco area), yet these studies highlight the very difficulty of finding an answer: it is very complicated to get the seemingly basic data for such supposedly simple concepts.

⁷ The term foodshed was first coined by Walter Hedden (1929) and reintroduced by Arthur Getz (1991). Similar to Hedden, Getz outlines a foodshed simply as "the area defined by a structure of [food] supply."

Perhaps more fundamentally, however, a focus on the local may in some ways leave out other aspects of sustainability, such as the means by which an item is produced or the economic conditions of production (i.e., fair trade). In other words, environmental impacts may not be totally represented by food miles (Edwards-Jones *et al* 2008; Oglethorpe 2010). For example, transportation is not the only – or even the greatest – food-related contributor to greenhouse gas emissions (Edwards-Jones *et al* 2008; Heller & Keoleian 2003; Weber & Matthews 2008).

In short, food miles may be a useful concept, but its use as a tool is limited by the degree to which insights gained from it can be applied to change the agricultural system to actually *make* it more sustainable (Iles 2005). As a means of reducing energy inputs and pollution generated in long-distance transportation local food shows considerable promise. Insofar as locally-oriented food reduces transportation lines, consumption of fossil fuels and emission of greenhouse gases will also be reduced. However, the distance food travels is but one aspect of a complex system of food production and it is imperative that future studies on energy expenditure in (local and non-local) food production account for this more holistic picture (Duram & Oberholtzer 2010).

Reduction of Scale

The economic logic of mass production often necessitates production on a large-scale; in 2007, though average farm size in the U.S. was 418 acres, of the 2.2 million farms in the country, almost 200,000 were larger than 1,000 acres (USDA 2009). As the agricultural scale increases new considerations and methods of growing and pest control must be taken into account. Large-scale farming in the U.S. typically involves the use of heavy machinery which allows one person to plant, maintain, and harvest vast areas in a

relatively short time. However, these machines damage soil structure (more readily than smaller equipment or draft animals), have potential to accelerate erosion, increase silting of waterways, and necessitate the use of fossil fuels (depleting a non-renewable resource and releasing greenhouse gasses into the atmosphere).

Proponents of local food systems claim that such systems tend to be small scale which therefore minimizes the need for heavy machinery and the destruction they cause. While it is true that smaller farms have lower environmental impacts than larger ones (Altieri 1995; Bell 2004; Rosset 2005), the evidence linking locally-oriented and small-scale farms is less clear. Large-scale farms can (and certainly do) provide for their local communities, though their primary orientations tend to be toward mass markets (Bell 2004): "...in an industrial farm context...the agricultural economy is integrated into the world system and becomes detached from the local rural community" (MacCannell 1988: 57). Indeed, this orientation of large-scale farms to long-range markets supports the notion that locally-oriented farms are more likely than non-locally-oriented farms to be of relatively smaller scale. And it further stands to reason that small-scale farms may have a shorter range of distribution due to their limited supply of goods relative to larger farms. We should be cautious, however, in assuming that this link between small-scale and short distribution range is necessarily so; consider, for example, small farms which specialize in a rare or very durable product, which may market its goods over a wide region. Inasmuch as locally-oriented farms are smaller than mass-market farms, their need for large machinery will also be minimized, as will the destruction such equipment causes.

However, further research is needed to clarify exactly what connection exists between local-orientation and small-scale⁸.

Local Food and Organic Production

Organic food production is often argued to have a net environmental benefit relative to conventional production, if for nothing else because organic production prohibits the use of synthetic fertilizers and pesticides that damage surrounding soil and water resources (Allen 1993; Glaeser 1997; Nierenberg 2003). Though organic production today is done increasingly on an industrial scale oriented toward a wide-ranging market, early organic advocates often argued that part of the organic movement entailed consuming food close to the source of production (Belasco 2007).

While not all locally-oriented farms are certified organic, a much higher proportion of them tend to be than those which provide for the national and global markets; one large survey finds that approximately one-third of farms selling at farmers' markets are organic (Kremen, Greene, & Hanson 2003) while another study cites as much as 90% of CSA⁹ operations farming organically (Union of Concerned Scientists 2004); compare this to estimates that less than 4% of the overall U.S. food market currently goes to organic sales (OTA 2010)¹⁰. To the extent that locally-oriented farms are more likely than mass-market-oriented farms to promote organic practices (whether

⁸ As one anonymous review points out, while my discussion of "small scale" suggests some sort of discrete type or size, scale is more accurately a continuous variable and contingent upon the practices being used and the products being grown, fed, or produced.

⁹ CSA stands for Community Supported Agriculture. A CSA operation is a farm in which customers purchase a membership, usually before the start of the growing season, in return for a (typically) weekly share of produce or other products from the farm. Such arrangements allow farmers much-needed capital (especially in the off-season when money may be tight) and are considered effective ways of distributing the unpredictability and uncertainty of farming more equitably among the community. See Henderson 2007 for more on CSAs.

¹⁰ It is worth noting that many locally-oriented farms not certified organic may nonetheless be employing organic practices without having obtained organic certification (and may refer to themselves with terms that are not regulated by a particular body, such as "beyond organic" or "natural").

certified organic or not), any adverse impact on the surrounding environment will also be minimized. However, similar to the discussion of farm scale, farms can engage (or not) in a variety of ecologically sound production practices independent of their market orientation; while locally-based food systems may have a tendency toward such practices, local and organic do not necessarily go hand-in-hand.

So how does local food stack up in terms of promoting environmental soundness? There is some evidence that locally-based food is much more likely than food from the conventional system to be organic, which can mean at least some net environmental benefit. And local food's low food miles show a clear environmental benefit in terms of reduced transportation needs. However, there are certainly other significant aspects of the agricultural system that impact the climate-energy picture which are not captured in a focus on local food, including the link between local food and small-scale farming. On the whole, then, locally-based food systems do show potential for promoting some environmental aspects of sustainability, but these need to be understood as part of a broader approach to food production.

Economic Vitality

Aside from being ecologically sound, sustainable agriculture systems must also be economically vital (Ikerd 2007); a system cannot be considered sustainable if its producers are unable to economically provide for themselves. To contextualize this, I first examine some of the economic hardships created and exacerbated by the industrial food system. Recall that federal policies and subsidies encourage mass production and oversupply. Such practices mean lower prices (at least for farmers, if not consumers) and thereby favor large farms and agribusiness. This actually serves to limit market

possibilities thus making it harder for smaller producers to compete and driving them out of business¹¹ (Norberg-Hodge 1998; Stephenson & Lev 2004: 210). The rise of supermarkets has added to the loss of market possibilities since it is much easier for large businesses to source material from one or two major distributors that can reliably ensure access to whatever may be desired than it is to work with many small farms which may have varying levels of crop availability (Halweil 2002). This principle applies not only to supermarkets, but any institution purchasing large quantities of food, such as large restaurants, office cafeterias, and university dining services. Small farms have a difficult time competing with the availability and convenience agribusiness provides¹².

The "solution" for many farmers has been to contract through large agri-business firms. This means an ability to continue farming (and often retain their land) but at a cost of lower income and (often) a need to find other employment (Bell 2004; Cochrane 2003). Though the question of Fair Trade is typically only considered in regard to internationally-produced goods, such as coffee and tropical fruits, it also needs to be asked of domestic producers: are they being paid a fair and livable wage for their work¹³? If they are part of the industrial agriculture system, the answer is often no.

¹¹ Though my focus is on the US, it is worth recognizing that these economic difficulties and structural impediments impact agriculture in less industrialized nations also (Gellerman & Curwood 2007; O'Hara & Stagl 2001), in part because the major corporations that control the food supply are multi-national ones, with decreasing attachment to the parent nation-state (Bonanno *et al.* 1994; for some examples, see Hines *et al.* 2002, Lang 1996, and Nierenberg 2003). It seems clear that States increasingly have less and less power in relationship to corporations when it comes to food (Bonanno & Constance 2006), which one could argue has been true of all corporations (though the current world economic situation may afford some changes in this regard – changes that I am doubtful will apply to the food industry). If the multi-national corporation is effectively outside the bounds of the state in terms of regulation, then it highlights an important limitation of the ability of policies to effect sustainable change in agricultural systems.

¹² NAFTA and other free trade agreements have also negatively impacted agriculture by encouraging centralization of food processing in areas where labor is cheapest – leaving other producers out of work (McDonald 2002).

¹³ Though asked in terms of economic vitality, such a question is also one of social justice.

It is this set of economic difficulties that locally-based food systems purport to remedy. Advocates of locally-based agriculture claim that such systems meet the requirement of economic vitality because such systems support small-scale and family farms and help a regional economy thrive. The ability of local food to support a regional economy makes sense. Purchasing food locally keeps money and capital circulating within a region, rather than going to a corporation with headquarters elsewhere¹⁴ (Feenstra 1997; Halweil 2002; Hines 2000). Similar examples of this phenomenon can be seen in other local economies not necessarily food related (Gibson-Graham 2010; Hess 2009).

The ability of local food to support small-scale and family farms is less certain, for reasons similar to the unclear link between local food and small-scale production discussed above. Nonetheless, even if we assume for a moment that local food and small-scale are more or less equivalent, the ability of local food to support small-scale, family farms faces considerable structural hurdles (Lyson 2004). The very policies that support large-scale agriculture serve to undercut small-scale producers because of how they ultimately influence both individual and institutional food consumers: through pricing and sourcing. The scale of the industrial food system allows for greater ease of distribution and delivery than smaller farms can provide (Hinrichs 2000; Guthman, Morris, & Allen 2006). Even ignoring a farm's size altogether, farms with an orientation toward a wide-ranging market are better prepared to handle changes and upsets in that

¹⁴ As an example of counterpoint, consider the impact of excess U.S. food production on the international stage. In an effort to deal with our national over-supply of food, the excess food that is not turned into value-added products is sent into the world market, sometimes for sale and sometimes as food aid. As external products flood a given market, farmers in the region are driven out of business, thus losing their income base. Further, money used to pay for the newly arrived food does not stay in the local economy. With money leaving the area, soon everyone's ability to pay for food is reduced.

market than are farms geared primarily (or solely) toward local distribution and consumption.

Given these constraints, what makes local food work as an economically viable operation is the choice that consumers make to invest in such a system. While numerous studies show that many consumers do indeed want local food (Bond, Thilmany, & Bond 2006; Brown 2003; IANR 2003; Izumi *et al* 2006; Schneider & Francis 2005; Sonnino 2009; Starr *et al.* 2003; Stephenson & Lev 2004; Vallianatos, Gottlieb, & Haase 2004; Vogt & Kaiser 2008), their reasons for it are variable enough that some could potentially be met through non-local means (such as quality or concerns over food safety). Crews, Mohler, and Power (1991) suggest that economic viability (or profit) may not be a useful criterion of sustainable agriculture in part because markets are unstable. This instability can be seen both in the potential for changes in laws and policies which provide economic support to certain activities as well as something as basic and unpredictable as a shift in consumer preferences. Crews *et al.* (1991: 149) further argue that:

If we use both economic and ecological criteria to define sustainability, progress toward ecological sustainability almost certainly will be hindered. We should work toward structuring society in such a way that sustainable agricultural practices are profitable (for example, by modifying commodity programs to end incentives for continuous corn cropping), rather than including profitability within the definition itself.

What makes local food systems economically viable, then, is an interest on the part of consumers in that locality to purchase locally. Insofar as they are willing to do so, such purchases do show the potential for significant benefit to the economic prosperity and stability of the community as a whole. However, as I discuss below in the section on social justice, this benefit may not apply equally to all participants. Considering this and

the caution by Crews *et al.* (1991), perhaps locally-based food systems are not particularly powerful forces for promoting economic aspects of sustainability.

Social Responsibility

The third and final leg of sustainability is social responsibility (Ikerd 2007). There is very little purpose in seeking to live sustainably if we don't remember for whom we seek to do so: people. The socially responsible promise of local food is that such systems ensure that people have an adequate amount and variety of safe, healthy, and nutritious food, linking locally-based systems to questions of public health and food security. Though not exactly a function of social responsibility, I also consider here the claim that locally-based systems generate greater social connections between consumers and producers. I begin this section by employing a social justice framing to consider how local agriculture does and does not provide food security¹⁵. Following this, I briefly examine the feasibility of locally-based food systems to address concerns of public health. Lastly I review the (limited) empirical evidence for the increased social networks claim.

Social Justice in Local Food: Food Security and the Local Trap

Food security can be defined in many different ways, but at its core it is about the ability of people to legitimately and consistently procure the food they need. The inability to readily access food is a social health problem known as food insecurity. Food insecurity can be understood on two levels: when supply of food to a particular place is disrupted and when people are unable to afford or access food by legitimate means, even if it is otherwise physically available. Locally based agriculture is often argued as

¹⁵ Another important aspect of social justice which I do not consider here is gender equity in involvement in sustainable agriculture systems (see Cone & Myhre 2000; DeLind & Ferguson 1999; Hall & Mogyorodny 2007; Meares 1997; Peter *et al.* 2000; Trauger 2004).

ensuring greater food security, both in terms of regional security and individual food access (see Enshyan 2004; Lang 1996; Thilmany & Watson 2004). In this section I address each of these considerations in turn.

Our large-scale food production system forces us to rely on a very centralized supply. For example, should some extreme event (such as a terrorist attack or major weather event) cause the disruption of food supplies for even more than two or three days, many of our large urban centers would soon find themselves in a dire situation, as most large cities have a low reserve food supply (Halweil 2002; Hines 2000; Henderson 2007). Such potential danger is a powerful argument in favor of regionally reliant food systems. Ideally, locally-based food systems should be capable of feeding a given region's population; however, because of the current format of agricultural production, many regions in the U.S. would likely need significant infrastructural development and agricultural rearrangement to realistically provide for their own localities (see Peters *et al.* 2002 and Pirog *et al.* 2001).

In addition to providing enough food for a given region's population, food security also entails that such systems be able to do so in a way that all people in that region are able to physically and financially access that food. Currently in the U.S., hunger and malnutrition are due largely not to lack of availability of food, but to social policies regarding welfare and the poor – in other words, access is the key to dealing with hunger. Somewhat paradoxically, while the consolidation of agricultural production in the U.S. has led to a food abundance for many U.S. citizens, it contributes to malnutrition

and hunger both domestically and in non-industrialized parts of the world¹⁶ (Nestle 2002).

It is on this point that proponents of local food are perhaps the most susceptible to being challenged. Local food systems (especially direct-to-consumer enterprises like CSAs and farmers' markets) are often charged with being elitist developments. CSA memberships, for example, typically consist of well-educated, high-income families¹⁷ (Cone & Myhre 2000; O'Hara & Stagl 2001); further, both CSAs and farmer's markets have low institutional capacity to provide food security to low-income residents (Guthman, Morris, & Allen 2006). This income disparity may not only exist between CSA members and everyone else, but also between CSA members and farmers (Cone & Myhre 2000).

The potential pitfall inherent to the logic of local food is what Born and Purcell (2006) call the "local trap". The local trap is the assumption that regionally-based (and presumed small-scale) agriculture is *de facto* ecologically sustainable and socially just; this correlation is not necessarily true. Rather, sustainability and justice come out of particular agendas which may use the ideas of large and small scales (and local and global) strategically. DuPuis and Goodman (2005) make a similar argument: they do not deny the political power of the local as a force against globalization, but they do recognize the parochialism and elitism that can come from an un-interrogated understanding of the local (See also Allen [2004] and DuPuis, Goodman, and Harrison

¹⁶ The flooding of global markets is ironically one major reason so many people in the world are hungry (Lang 1996; Mancus 2007); the problem is not one of food demand being unmet, but people being unable to pay (Lezberg & Kloppenburg 1996). The tragic irony is that though the available food is even cheaper to purchase than if it had been produced by local farmers, most people find themselves unable to afford it.

¹⁷ See Hinrichs & Kremer (2008) for an examination of a CSA-related outreach program designed to increase participation of low-income families through a subsidy program.

[2006]). In other words, food relocalization can be problematic if questions of social justice are left invisible. People derive a variety of meanings from localism. While it can encourage receptivity to difference and diversity, it can also be parochial and defensive (Hinrichs 2003; Winter 2003).

Rather than rejecting localism, DuPuis and Goodman argue for a reflexive localism that harnesses the power of the local while struggling against inequality in local arenas. "An inclusive and reflexive politics in place would understand local food systems not as local 'resistance' against a global capitalist 'logic' but as a mutually constitutive, imperfect, political process in which the local and the global make each other on an everyday basis" (DuPuis & Goodman 2005: 369). Hess (2009) tackles this issue more concretely by highlighting some major critiques to the social justice side of localism (namely that localism benefits wealthy families, communities, and nations at the expense of less-affluent ones) and discussing ways localism can potentially address these critiques so as to not fall further into the local trap (for example, through low-income scholarships or sliding-scale memberships to CSAs, farmers' markets accepting food stamps, and fairly traded goods).

The Public Health Benefits of Local Food

Part of the socially responsible (some might even say social justice) promise of locally-based food systems is providing safe and healthy food in safe and healthy ways. Just as the high concentration of conventional food production generates environmental hazards, so does it also generate public health hazards, both in terms of the food available to us and in the ways in which it is produced. For example, increasingly frequent and widespread food contamination scares (resulting in illness and even death in the human

population) have been linked to problems in the conventional food production system (Altekruse, Cohen, & Swerdlow 1997; DeLind & Howard 2008; Tauxe 1997; Waltner-Toews 1996). This is not to suggest that food contamination cannot occur in locally-oriented systems, but the range (and likely severity) of its impact would be considerably less than such contaminations in the conventional system.¹⁸

Some people participate in local food as a way of avoiding the problems (and perceived risks) in the rest of the food system. This is what Szasz (2007) refers to as the Inverted Quarantine: we use commodities to shield or insulate ourselves from the outer environment. We do this with organic food in an attempt to avoid pesticides and other harmful chemicals, and we do this with local food as well, to avoid yet other unknowable risks (Bonanno *et al.* 1994; Knight & Warland 2005; Szasz 2007). In an attempt to remove oneself from that potentially harmful system some people shop with local food in mind.

It was a similar logic of risk assessment and avoidance that drove us from the regional food supply systems of earlier centuries and decades. DuPuis (2002) highlights this through the lens of milk production and what she calls the Perfect Story: increasing technological innovation will increase our food supply and protect us from harm. In her discussion of the rise of modern industrial agriculture, she argues that a major drive

¹⁸ While not something that advocates claim locally based food systems are able to solve (and therefore also beyond the scope of this paper), aside from diseases, there are other health problems associated with industrial food production. Many over-produced products, especially corn, are processed into now-ubiquitous value-added food goods. High fructose corn syrup, a cheap sweetener derived from corn, is one of the most common examples. Such products are often calorie-packed and found everywhere from grocery stores to fast food venues and are considered a primary reason the United States is experiencing what some have called an obesity epidemic (Jennings 2003; Nestle 2007). Many medical studies link obesity to a host of medical problems, such as diabetes, heart disease, asthma, and even early death. Essentially, we pack more and more calories into our food in order to use up all the excess food. On a fundamental level, this is a problem attributable to a capitalist-orientation to food production, which requires continual growth and expansion to survive.

behind this shift was the "industrial bargain": an alliance between consumers, mass-production capitalists, and intensive farmers to create a system of cheap nutrition (89). But we can now see the imperfections in this Perfect Story as consumers have come to question the sources of their food and now try to make sense out of a complicated yet minimally-available realm of information (see also Blay-Palmer 2008).

There are many things in our day-to-day life that are outside of our control and consuming local food is one way rational actors try to deal with this. Yet it is very difficult to step completely outside of the system and live apart from it. Even if we try, we find ourselves confounded by the systems from which we are trying to separate. Local food is no different. While consuming local food as a way to avoid the broader risks of the industrial food system might work on an individual level for some, local food is not immune from problems like food contamination. Such green consumption provides a sense of personal responsibility and empowerment with respect to environmental risks while also carrying doubts and insecurities about choices made (Connolly & Prothero 2008). Again we see a need for a reflexive localism that allows us to approach potential solutions to the problems of our dominant food system with a societal view in mind rather than one that only considers the individual-level.

Local Agriculture and Social Networks

Perhaps the most difficult to assess claim of local food advocates is that locally-based systems create greater connections among people, and sometimes greater connections between people and their food (see Halweil 2002, Hines 2000, Henderson 2007, or Pollan 2006). There is evidence that many local food participants *believe* in the potential for these increased connections (Cone & Myhre 2000; DeLind 1999, 2002;

Wells, Gradwell, & Yoder 1998) and studies dating as far back as the 1940s suggest that communities with small (though not necessarily locally-oriented) farms have better communities and higher levels of civic engagement than those with large farms (Goldschmidt 1946; Lobao, Schulman, & Swanson 1993; MacCannell 1988; MacCannell & White 1984). One not-insignificant challenge in assessing this claim of greater social connections is determining and measuring a basis of comparison. That is, when we say local food systems generate greater community ties, to what are we comparing these connections? Further, how are we to measure the prevalence of said connections? The concept of "greater connections" is an excellent rhetorical and philosophical device, but lends itself to very little empirical substance. In fact, there is some evidence that this claim has some key limitations. Though local markets may on some level encourage human connections and direct interaction, they are still places where relationships can be commodified by providing an alternative to "monoculture market economy" without challenging the fundamental commodification of food (Hinrichs 2000). Further, one primary reason many people don't participate directly in local food systems is because it lacks convenience: they want food to be available when and where they desire (Cone & Myhre 2000; Schneider & Francis 2005; Stephenson & Lev 2004). For example, for families who participate in a CSA one year but then don't renew their membership the following year, the inconvenience factor is the primary reason: working with in-season produce each week requires a significant change in most people's lifestyles (Cone & Myhre 2000: 191).

If we broaden our scope from local-orientation to include a variety of practices often included under the purview of sustainability, then it is possible to speak to the kinds

of social networks necessary and inherent to the production of sustainable agriculture knowledge, at least among farmers and producers. If Lyson's (2004) understanding of the intersection between sustainable and local food holds true (what he calls civic agriculture), then such a shift in focus makes sense, as what we know about social networks as a function of sustainable practices should similarly hold true in locally-based food. It is an open-ended question, however, whether such links between sustainability writ large and (producer) social networks also apply when the focus is restricted to locally-oriented food systems and also whether such networks occur among consumers as well. Nonetheless, I present here a brief review of the literature on sustainable practices as broadly conceived and their impact on social networks.

What we know about sustainable agriculture knowledge and social networks comes from research on farmers and food producers. Some scholars (Brodt *et al.* 2006; Lyson & Guptil 2004) argue that conventional and sustainable farmers approach farming from fundamentally different paradigms informed by contradictory world views and these paradigms impact farmers' willingness and interest with regard to sustainable agriculture¹⁹. On the other hand, some scholars argue that farmers are reflexive actors who navigate expert and local knowledge in their decisions whether or not to adopt certain practices, whether the latest technological trend (such as Bt corn) or a new (possibly sustainable) method, and are more likely to be influenced by first-hand or local experiences than by state or expert observations (Bell 2004; Kaup 2008). Regardless, there is ample evidence that those who adopt sustainable practices often establish social ties and networks with other sustainable farming practitioners to better facilitate idea and

¹⁹ Abaidoo and Dickinson (2002) argue that sustainable and conventional agricultural systems themselves are founded upon fundamentally different paradigms.

knowledge exchange (Bell 2004; Carolan 2006b; Hassanein 1999). Organizations and networks of farmers who practice sustainability are a primary way for this to happen. Sustainable agriculture becomes socially possible as a practice through such organizations because they act as informational and conversational venues for farmers interested in sustainability to engage with each other. The reason for such organizations and networks may in part be because farmers, especially members of sustainable agriculture organizations, see low governmental support for sustainable farming methods, prompting them to instead rely primarily on each other and their personal experience for information about sustainable practices (Carolan 2005, 2006a).

So, does local food promote social responsibility, particularly in terms of equitable access to food, increased public health, and stronger social ties? In short, it can, though as DuPuis and Goodman (2005) and others remind us, this is but one possible outcome of local food and not an inherent one. Without reflexive engagement in the part of consumers and producers, locally-based food systems are just as likely to promote inequitable access as they are food security. Similarly, local food has the power to provide public health benefits, but only inasmuch as it is *systematically* developed as an alternative to the industrial food supply. And it is possible that local food systems could promote stronger ties within a community, but this is not necessarily so (nor, I argue, is it the most important function of local food as a means of encouraging social responsibility). Locally-based food systems, then, may have great potential for promoting the socially responsible leg of sustainability, with the important caveat that such systems (as with most methods of promoting social responsibility) require significant reflexive and systematic engagement.

Conclusion: The Individualistic Error

There is one more potential pitfall inherent to the claims of a non-reflexive localism that can be found woven throughout all of the various claims made about locally-based food systems; I call it the individualistic error. Many scholars and advocates of localism (including Kloppenburg and colleagues as well as Brian Halweil [2002] and Colin Hines and colleagues [see Hines 2000 and Hines, Lucas, & Shiva 2002]) reason that if people know how problematic conventional food is in its production process they will seek out better food sources. While there is evidence to suggest that this may be true in some instances (for example, regarding fear of food contamination; see Blay-Palmer 2008, Fromartz 2006, and Nestle 2007), education on these issues is not enough; instead we need institutional change and social network reconfiguration to see a true shift to sustainable systems (see Carolan 2005, 2006a). Even within sustainable agriculture organizations, this is not an easy line to walk (Campbell 2001). In their calls for greater awareness and education on the problems of global food production, such advocates have a tendency to oversimplify awareness of these problems with a logical shift toward sustainability²⁰. In short, individual-level solutions are not effective for dealing with structural problems (Szasz 2007). Recall, for example, the government subsidies geared toward certain crops but not others, or the fact that our severe overproduction of food indicates that hunger, domestically and abroad, is caused not by lack of food but by inequality and inability to access it. These problems will not be

²⁰ Johnston (2008) highlights a related case to this shortcoming in her study of the citizen-consumer concept as it relates to shopping at Whole Foods. Though the citizen-consumer concept encompasses the belief that how you shop can promote social change, the citizen-consumer is likewise inconsistent with growth-oriented capitalism.

resolved by convincing people of the wonderful-ness of local (or even sustainable) agriculture.

In considering the shift from an industrial to a sustainable food system, Blay-Palmer (2008) argues that "there are usually no clear boundaries between [industrial and alternative food] systems. More often it is the case that the two systems overlap. At the very least, *they are both contained within the same regulatory frameworks that serve to reinforce and constrain certain features of both systems*" (134; emphasis added). To become more than marginal, niche spaces in the food system, alternative agriculture systems will have to work with and within the governmental regulatory frameworks that govern the broader system of food production. Political support for a locally-based food system, then, is more than simply a local matter (Blay-Palmer 2008: 151):

First, a territorial and not a sectoral approach is needed to integrate agriculture with other elements....Second, decisions made about food systems need to be founded in subsidiarity, that is decisions should be made as low down the governmental hierarchy as possible. And third, to make this effective and relevant, consultation is needed to empower people as part of the process and to ensure that reflexivity is built into the process.

Throughout this article I have attempted to walk a fine line between highlighting the potential benefits and solutions of a locally-based food system and pointing out the potential pitfalls and shortcomings of adopting such an approach uncritically. I believe that despite all of the complexity and uncertainty there are a few things about which we can be very clear. First, the conventional industrial food system we have today is not sustainable; this is true regardless of which leg of sustainability one considers. Second, locally and regionally based agriculture systems have great potential to resolve or remediate many of the conventional system's problems, most notably through a reduction

of transportation distances, a remediation of food inequalities, an ability to be regionally (though not totally) self-reliant, and a way out of the economic and social risks of global-industrial agriculture; however, we should not assume that such systems offer an inherently sustainable solution. To meet the promise of sustainability through locally based food systems will require not only the active engagement of reflexive consumers and reflexive producers but also structural and systemic changes to the ways in which our food is produced and distributed.

CHAPTER 3

INEQUALITIES OF ACCESS IN LOCAL FOOD SYSTEMS

It's really important to us that [local] food is accessible...that it's not a luxury and people can afford it.

– *co-owner/operator of Crystal Brook Farm*

Locally-sourced food has recently become a very popular trend, both in consumer choice and in food scholarship. The literature on local food, though, notes how the consumption of local food is not an option available to all consumers. Instead, access to local food is differentiated along lines of race and class. This study contributes to these conversations around the inequalities of access by shifting from the largely case study approach scholars have taken to this point to a food system level study. Rather than doubt the broader applicability of these previous studies, this study confirms and expands their findings through a new venue of research. I find that the inequalities documented in these individual sites of research hold when considered through a broader lens (the local food system across southern New England), but do so in complex and nuanced ways depending on the type of local food outlet considered.

Background and Literature Review

There are a variety of reasons people seek local food options (Allen 2004). Local food is often considered healthier and fresher than food from the conventional system (Cone & Myhre 2000; see also IANR 2003). Additionally, locally sourced food is a way of supporting local farmers and a local economy. It is also widely considered an environmentally friendly alternative to the conventional food system because people assume such practices to be less land-intensive and carbon-emitting (see Bagdonis, Hinrichs, & Schafft 2009; Izumi *et al* 2006; Sonnino 2009; Vallianatos, Gottlieb, & Haase 2004; Vogt & Kaiser 2008). Whether any of these reasons are accurate

assessments of local food is beyond the scope of this paper, but what is important for this discussion is that regardless of the reasons, local food has become a highly desired food source at least in part because of its perceived benefits.

While there are many possible benefits to local food, Born and Purcell (2006) identify one significant pitfall in what they term the "local trap". The local trap is the assumption that regionally-based (and presumed small-scale) agriculture is *de facto* ecologically sustainable and socially just; this correlation is not necessarily true. Rather, sustainability and justice come out of particular agendas which may use the ideas of large and small scales (and local and global) strategically. DuPuis and Goodman (2005) make a similar argument: they do not deny the political power of the local as a force against globalization, but they do recognize the parochialism and elitism that can come from an un-interrogated understanding of the local (See also Allen [2004] and DuPuis, Goodman, and Harrison [2006]). In other words, food localization can be problematic if questions of social justice are left invisible.

One of those questions of social justice is in whether or not disadvantaged groups can access local food. As Connelly, Markey, and Roseland (2011) argue, "Without attention to the underlying values of the local food system, the localization of consumption and production risks being limited to the fetishization of local food for the most well-resourced consumers, based on principles that correspond more to weak sustainability and weak social economy approaches" (314). If local food practitioners and advocates are not reflexive in their approach to local food, such systems will do little to achieve their full promise or potential to remediate many of the underlying environmental and (especially) social problems they are touted to (see also Allen and

Wilson 2008). In the following section I outline the current literature on local food and access by marginalized groups.

Local Food as an Elitist Development

Early research on local food – particularly CSAs¹ – argued that such food systems helped to de-commodify food, particularly in how food and food production became re-embedded in local social relations (see Hinrichs 2000 for an example of this). Such arrangements allowed people to both know their food producer as well as access fresh, high quality food.

More recent scholarship has begun to focus on the social inequalities that are maintained and perpetuated in local food systems. Specifically, researchers have recently documented that the consumers in direct-to-consumer arrangements "tend to be college educated and of middle-class origin" (Macias 2008: 1098). For example, CSA memberships, the most commonly studied local food arrangement in the last decade, typically consist of well-educated and high income families (Allen 2008; Cone & Myhre 2000; Macias 2008; O'Hara & Stagl 2001). Shifting her focus to another mechanism of local food², Hinrichs (2003) finds that attendees to an annual local food event in Iowa are primarily from the upper-middle and educated class – "the movers and shakers in local politics and the regional economy" (41). She also notes that this class-distinction is true within the slow rise of more direct-to-consumer forms of local food in Iowa (such as farmers' markets and CSAs). While few studies systematically observe the race of local

¹ A CSA (Community Supported Agriculture) operation is a farm in which customers purchase a membership, usually before the start of the growing season, in return for a (typically) weekly share of produce or other products from the farm.

² This event is the Iowa Banquet, an annual event celebrating food grown and produced in Iowa – but one that simultaneously conflates "local" with "Iowa-grown".

food participants, Allen (2008) does suggest how such arrangements tend to have little racial diversity and often favor white participants.

Recognizing the privileged position of many local food consumers, some people and organizations have attempted to create alternative avenues of access, particularly for lower-income families and individuals. Some of the more common methods have included sliding scale CSA memberships, CSA payment plans (rather than paying one lump sum at the start of the season), and methods of accepting publicly-funded food stamp benefits at farmers' markets. Hinrichs and Kremer (2008) document one such outreach program to increase the participation of low-income families in a local CSA, primarily through grant money to assist with membership fees and increased advertising throughout the community. Though the CSA program they studied did increase participation in terms of income, it did little to increase diverse participation by occupational or educational status. This effort translated, they argue, into including the more advantaged poor into an already privileged and advantaged system.

This example helps highlight the ways in which privilege perpetuates itself, even within local food systems. As Patricia Allen (2008) argues, "the [local food] alternatives being developed are much more accessible to relatively more privileged people, despite intentions to the contrary" (159). Both CSAs and farmers' markets have low institutional capacity to provide food security to low-income residents (Guthman, Morris, & Allen 2006). It seems, then, that farm security trumps social justice (or, to use Jon Ikerd's [2007] terminology around the legs of sustainable agriculture, economic vitality has become more important than social responsibility). Rather than creating caring and ethical social relations, as local food advocates have argued, local systems often embody

the power dynamics of the global system, making the commodity chains in local food shorter, but not necessarily more fair. Just as on the global scale, power relations in local food systems are rarely equal and communities are far from homogeneous, whether in terms of material and cultural resources or goals and aspirations (Allen 2004). In short, local food systems do not necessarily empower traditionally marginalized persons and groups to suddenly have a voice (Allen 2004). Rather, inequalities may be magnified at the local level.

In what ways can these inequalities be seen on the local level? Prior research indicates a clear class effect, measured in terms of both income and education, though perhaps leaning toward income as the main motivating factor because of the higher cost barrier to most local food relative to more traditional sources. If these findings translate from the case study to the systemic levels we should see a positive association between the locations of local food outlets and both income and education. That is, local food outlets are most likely to be found in areas with high income and education levels. Race is also an important variable to investigate, both because some studies have suggested local food's overall Whiteness and because of the complicated ways in which class and race often intertwine in most studies of inequality. Are local food outlets systemically accessible to primarily White consumers in the same way they are also accessible to primarily upper-middle class consumers?

Data and Methods

I answer these questions by examining the physical availability of local food outlets along the lines of class and race variation. While many studies point to cost and related barriers in accessing local food, none identify physical proximity as a mechanism

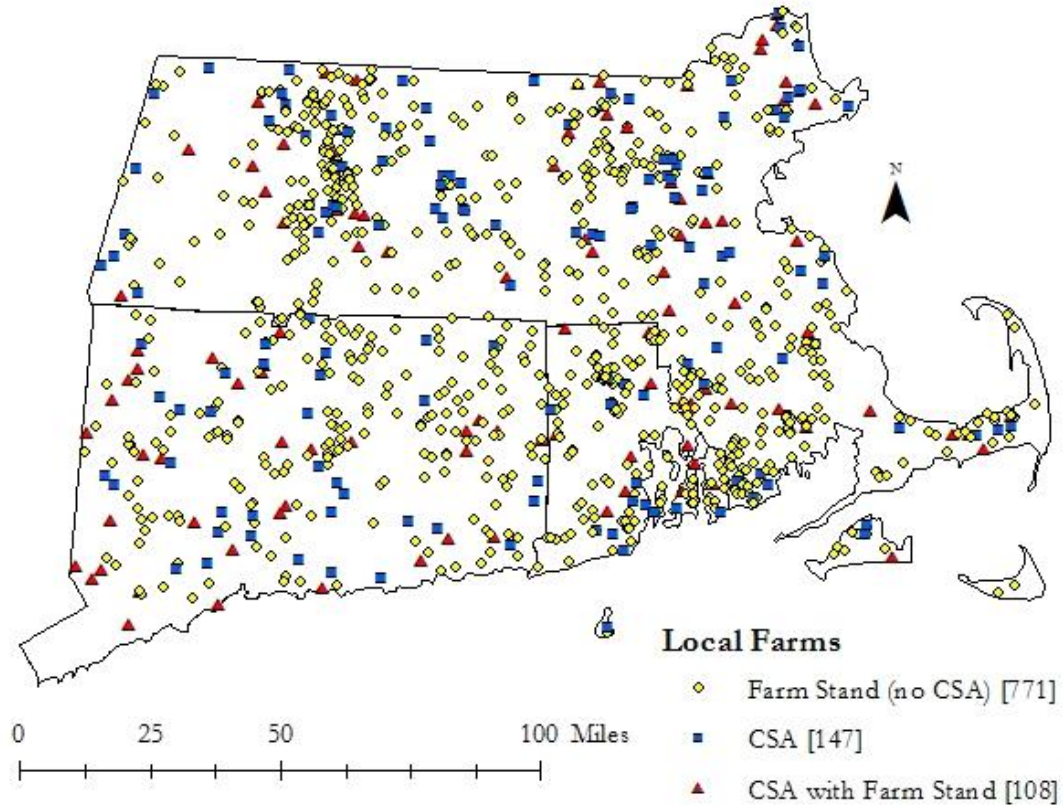
that either enables or limits such access. Yet without the physical ability to access local food, other mechanisms of seeking equality of access are moot. The majority of these studies, while consistent in their aggregate findings, also approach local food access through case studies. Macias (2008) calls for more quantitative and systematic research in this area (rather than this more common case study approach) in order to explore "the relationship between mode of local agriculture and the equitable distribution of local food" (1099). The current research project addresses both of these concerns, examining access to local food across a regional (three-state) local food system and operationalizing "access" in terms of physical proximity and availability.

My primary research question is whether the racial and class disparities indicated in the local food literature in a case-study approach hold in a more systematic way across a locally-oriented food system. I operationalize this question by examining whether the race and class measures discussed below predict the density of various local food outlets across the region of interest. This is done using straightforward OLS regression analysis. These variables were informed (and in one case created) utilizing GIS tools (see Gatrell, Reid, & Ross 2011 for another example of employing GIS to address questions of food system access).

Dependent Variables

The information on farm participants in southern New England (Massachusetts, Rhode Island, and Connecticut) comes from the website www.farmfresh.org, which presents information on a variety of locally-oriented farm and food buyer participants across the three (and bordering) states. This information was compiled by several sub-regional local-food advocacy organizations. Among other things, this website indicates

Figure 3-1. DTC Farms in Southern New England



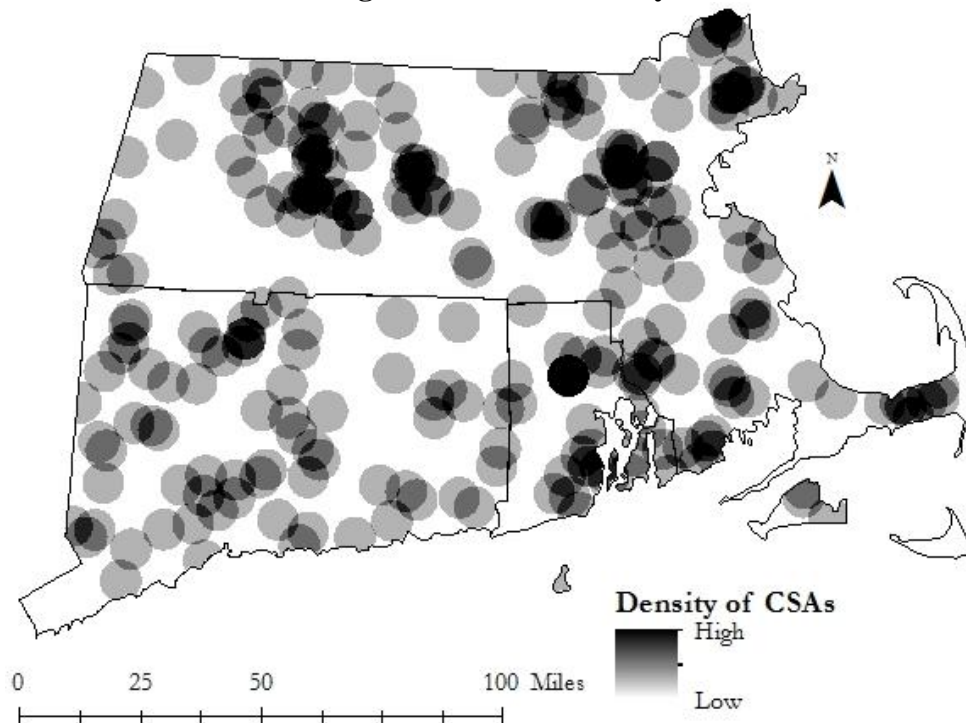
latitude and longitude coordinates for all entities as well as whether a farm engages in any direct-to-consumer (DTC) operation (Figure 3-1). Data were collected using an automated web-based data gathering program called scrapeR (Acton 2010). The complete data set consists of 2,626 farms and 913 vendors; however, this project draws on a subset of 1,026 farms. To be included, a farm had to exist within the borders of one of the three New England states and have at least one on-site DTC operation (consisting of operating a CSA and/or having an on-site farm stand³). For reference, there are a total

³ Running a Pick-Your-Own (PYO) operation also constitutes a DTC outlet; however, such formats are fundamentally different from CSAs and farm stands and so were excluded from the analysis. PYO farms are methods of obtaining large quantities of one or a few food items (rather than the variety of options associated with other farm types) and are often advertised as a recreational activity (especially with children) more than a means of food procurement.

of 13,826 farms across these three states, according to the 2007 USDA Census of Agriculture.

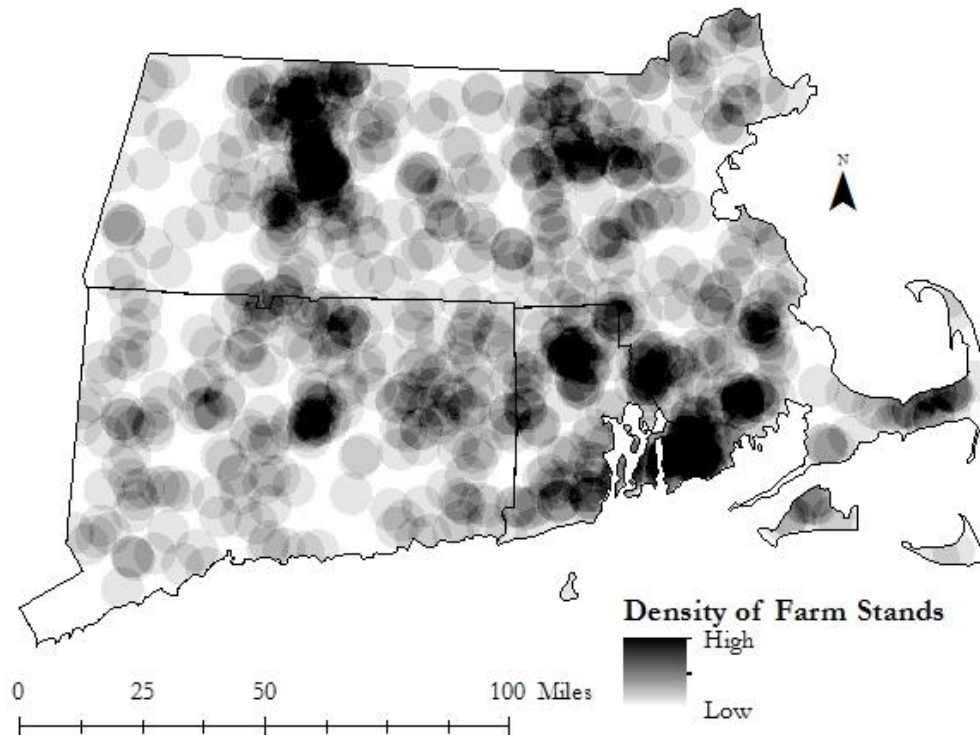
The locations of these entities allowed me to create a spatial layer variable for both CSA farms and farms with farm stands. I created a density measure of these local food outlet types using one of ArcMap 10's built-in functions called "Point Density". Point Density creates a raster grid⁴ by calculating the number of entities (or points) that fall within a specified neighborhood around each location in the region. The densities of CSAs and farm shares are shown in Figures 3-2 and 3-3. To allow for interface with Census tract-level data described below (which are not spatially continuous), I used another built-in function (Zonal Statistics) to calculate the mean density value for each Census tract. These mean densities are my dependent variables.

Figure 3-2. CSA Density



⁴ Raster grids are continuous spatial data files. In raster data, each cell in the grid corresponds to a location; cells within a file are evenly sized across the region. Each cell contains a data value from a continuum. For example, a raster grid may contain data on soil type, elevation, or property values across a region.

Figure 3-3. Farm Stand Density



The greater number of farm stands relative to CSAs makes them appear to be denser across the region. However, considering the densities relative to the counts of each farm type, CSAs are more tightly clustered (particularly around western Massachusetts, the suburbs of Boston, Massachusetts' North Shore, and the areas around Providence and Newport). While there is an average of approximately five and a half farm stands per square mile across the region and half that for CSAs, the farm stands outnumber CSAs by a margin of almost 3.5 to 1. Further, 719 tracts have a mean CSA density of 0 while the same can be said of farm stand density for only 296 tracts.

Independent Variables

The independent variables for this study come from the U.S. Census. Specifically, I draw on the American Community Survey (ACS) Five-Year Estimates for 2005-2009. I use this data set to determine racial demographics, median household income, and educational level; all data are at the tract level for the region of interest (see

Figure 3-4). I also use population counts and size of the census tracts to calculate a simple population density measure to use as a control variable. Descriptive statistics for the region can be seen in Table 3-1.

Figure 3-4. Regional Demographics

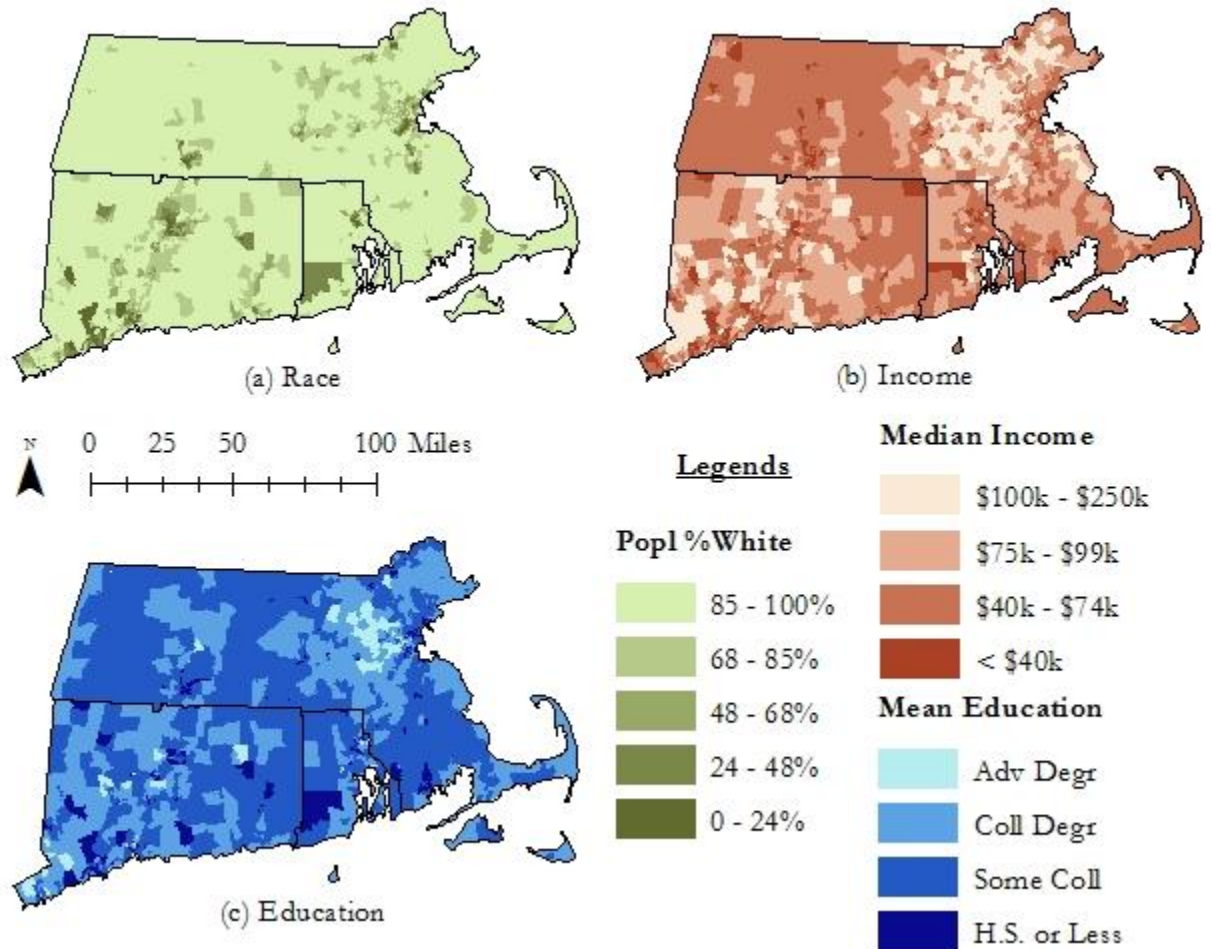


Table 3-1. Descriptive Statistics (by Census Tract)

	<u>Mean</u>	<u>Std Dev</u>	<u>Max</u>
CSA Density [†] (/mi ²)	2.24	1.78	11.29
Farm Stand Density [†] (/mi ²)	5.47	4.50	36.04
Percent White	75.18	25.77	100
Median Household Income (\$1000)	66.1	29.4	250
Mean Education (yrs)	13.5	1.5	17.4
Population Density (/mi ²)	5869	8619	92850

[†] Excluding census tracts with zero mean density

The ACS measures race for every person in the population. Specifically, I quantify race as the proportion of non-Hispanic Whites relative to the total population. The region as a whole has relatively little racial diversity, with most minorities concentrated in urban and semi-urban areas. The region as a whole is 77.3% White while the average census tract in the region is approximately 75% White. Though some census tracts have no White people residing in them, most in this region are over 2/3 White.

The ACS provides median household income already calculated at the tract level. At the state level in 2009, Massachusetts and Connecticut both had median household incomes of \$64,081 and \$67,034, respectively, while Rhode Island's median household income was closer to the national average at \$54,119. As Figure 2 and Table 1 show, there are considerable spatially-manifest income disparities across this region. As is usual with income distribution, this variable is also highly skewed. Nine census tracts (out of 2,406 total tracts) have median incomes high enough to indicate an outlier effect and so are excluded from the analysis. This exclusion means the highest median income for the region by tract is effectively \$180,000. Even with this exclusion, models separately consider income as well as income and its square as a way of dealing with the non-normal distribution of this variable. As I show below, such modeling shows the complex influence of this variable on local food.

Education is measured in the ACS for each person over the age of 25 and is demarcated by the highest grade level a person completed or the highest degree they attained, including time spent toward an uncompleted degree. I quantified this into years of education in order to calculate the mean years of education for each tract. This region is fairly well educated with most people having completed at least some college and

many holding a college or even advanced degree. Still, as Figure 2 shows, those with more than the average education level do tend to cluster in certain areas, most notably around the suburbs of Boston. Though the distribution of education is fairly normal, I also compute models that include the square of education (as with income); I find that including the square of income improves model fit and reveals important complexities that would not be seen with only the singular education term.

Results and Analysis

CSA Farms

When it comes to the density of CSAs, class is a much clearer predictor than race. Education and income measures have consistently positive associations with CSA density, something the literature predicts; the presence of CSAs is likely in areas with higher levels of income and education. Somewhat surprisingly, race is a weak predictor of CSA density. Table 3-2 shows the results of the regression models using CSA density as the dependent variable. Because of the vastly different units of each variable, standardized coefficients are presented.

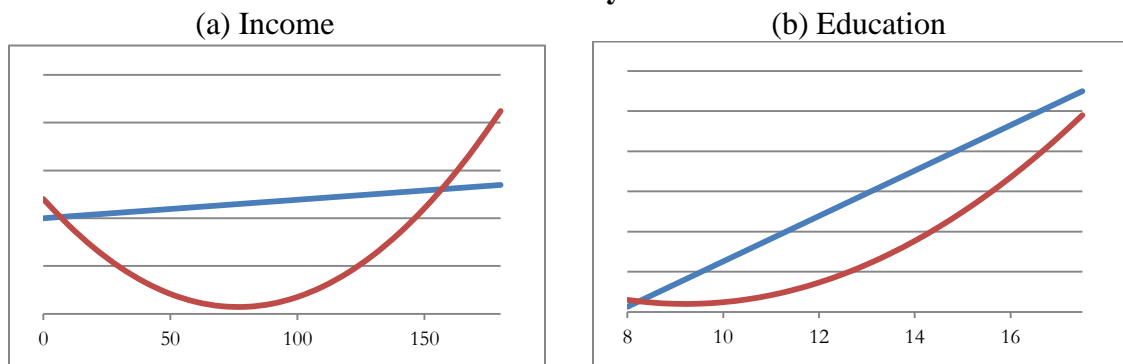
Table 3-2. CSA Density Regression Models (Standardized Coefficients)

Model	1	2	3	4	5	6	7
Income (in \$1000)	-0.18 * (0.071)			-0.36 *** (0.086)	-0.21 * (0.084)		-0.33 *** (0.091)
Income ²	0.35 *** (0.07)			0.36 *** (0.081)	0.38 *** (0.077)		0.33 *** (0.084)
Mean Yrs Educ		0.22 *** (0.014)		0.24 *** (0.029)		0.25 *** (0.024)	0.25 *** (0.03)
Mean Yrs Educ ²		0.078 *** (0.014)		0.042 * (0.017)		0.067 *** (0.015)	0.038 * (0.017)
% Popl White			0.059 ** (0.022)		0.019 (0.022)	-0.064 * (0.028)	-0.037 (0.023)
Popl Dens (/mi ²)	-0.069 ** (0.021)	-0.11 *** (0.021)	-0.086 *** (0.022)	-0.1 *** (0.022)	-0.065 ** (0.022)	-0.12 *** (0.022)	-0.11 *** (0.023)
R ²	0.04526	0.06547	0.01414	0.0722	0.04505	0.06714	0.07241

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '+' 0.1 '.' 1 [Intercepts in all models are effectively zero]

Including the square of income improves the fit of all models with the income variable, regardless of what other variables are included⁵. While there is an overall positive relationship between the two variables, the effect is curvilinear; the association between income and CSA density is particularly strong at higher income levels. Figure 5 shows graphically the impact of including the square term versus not including it; for legibility the figure relies on unstandardized coefficients (not presented in Table 3-2). It is worth noting that when education is not controlled for the left side of the curve flattens out considerably, shifting the inflection point (and in a sense the "beginning" of CSA density's association with income) from about \$75,000 to about \$40,000. These findings suggest that CSAs may be associated with the higher income classes in an even stronger way than prior research suggests. Income as a measure of class is a powerful predictor of CSA density.

Figure 3-5. Impact of Including the Square of Income and Education on CSA Density



Note: Y-axes are unlabeled (and not uniform) because values are outside the range of the density measure; this is due to using unstandardized coefficients. The coefficients used are from Model 4.

Education is also a powerful class-based predictor of CSA density. In fact, the standardized coefficients indicate that between education and income, education is the

⁵ Including just the square of income (without the unsquared term) is an improvement over using solely income, but the fit is better still when both terms are included.

more powerful predictor of CSA density (see Figure 3-5)⁶. Though scholars have noted that CSA participants tend to be both high income earners and highly educated, it is still somewhat surprising that education would be such a powerful driver of CSA density (and by extension CSA locations). This finding suggests that participation in CSAs is not just an expression of economic ability, but also one of cultural capital. Local food is a "rationalized myth" (Meyer & Rowen 1977) in that we believe it is a good thing in which to participate. Having a CSA share is associated with a belief that local food is an inherently good thing to participate in and CSAs in particular are one of the best expressions of that participation. Consuming local food is in some ways a signal to others that one is aware of the benefits of such local orientation to food, even if those benefits are not clearly defined or even empirically accurate. In short, local food is a product given social value in that consuming it is a way to mark status (Beckert 2009). Understood in this light, it makes some sense that people with higher levels of education will want access to CSAs because they have been acculturated into the understanding that it is a good thing to do. Taken this way, these findings support the observation that consuming locally tends to be an upper- and upper-middle class trend. What is especially interesting is that this finding of the importance of education holds even when controlling for any other variables (including income), indicating that the class phenomenon of CSAs carries a cultural component in addition to a political economic component and that the link between education and local food may be understudied.

The association of CSA density with race is weak at best. When considered alone (Model 3) areas with high concentrations of Whites are slightly more likely to have CSAs

⁶ As with income, including the square of the education term improves overall model fit and attains significance.

than areas with high minority populations. When controlling for income (Model 5), this effect disappears altogether. What is especially striking is that this effect reverses (and maintains significance) when controlling for education (Model 6). However, it is also important to bear in mind that, even amidst such contradictory findings, when models with the race term are compared against otherwise similar models without the race term it is clear that the inclusion of race explains very little of the variance in CSA density (see for example, the R^2 value in models 2 & 6 and 4 & 7). This reinforces the argument that CSA density and access, at least in this region, are primarily a function of class and not race.

Farm Stands

The results on farm stand density tell a story with a very different emphasis (See Table 3-3). Unlike with CSAs, the strongest predictors of farm stand density are race and population density. Farm stand density is highly associated with predominately white areas and with less urban areas. Further, models with just these terms (either singly or together) explain as much or more variation in the farm stand density term than most other models. In the CSA models, in contrast, population density remained significant in all models, but with only a modest impact; the race term lost significance in several models, indicating an even more muted overall association between CSAs and race. However, when it comes to farm stands, both terms are incredibly important predictors. Access to farm stands as a local food outlet is primarily a function of race: such outlets occur primarily in predominately White communities and not in predominately minority communities.

Shifting focus, the influence of class is considerably more nuanced for farm stands than it is for CSAs, and also less influential than race. Including either education or income with race (and population density) nets approximately the same increase to the model's R^2 value (see Models 3, 5, & 6). We see once again that race is a very powerful demographic predictor of farm stand density and also that either primary class measure is about as powerful as the other as an explanatory variable. Further, in models with both income and education but without race, the impact of each term is nullified (Model 4). That said, when included together with race (Model 7), both terms remain significant, indicating that both terms are measuring unique, if still related, aspects of class.

Table 3-3. Farm Stand Density Regression Models (Standardized Coefficients)

Model	1 [†]	2 [†]	3	4 [†]	5	6	7
Income (in \$1000)	-0.08 (0.071)			-0.06 (0.087)	-0.53 *** (0.083)		-0.37 *** (0.09)
Income ²	0.11 (0.07)			0.061 (0.082)	0.43 *** (0.076)		0.29 *** (0.083)
Mean Years Education		0.025 (0.02)		0.026 (0.03)		-0.11 *** (0.024)	-0.064 * (0.03)
Education ²		0.03 * (0.014)		0.023 (0.017)		0.078 *** (0.015)	0.062 *** (0.017)
% of Population that is White			0.17 *** (0.022)		0.27 *** (0.027)	0.27 *** (0.028)	0.32 *** (0.029)
Population Density (/mi ²)	-0.2 ** (0.021)	-0.21 *** (0.021)	-0.14 *** (0.022)	-0.21 *** (0.022)	-0.14 *** (0.022)	-0.15 *** (0.022)	-0.15 *** (0.022)
R ²	0.04229	0.04306	0.06432	0.04249	0.08019	0.08046	0.08664

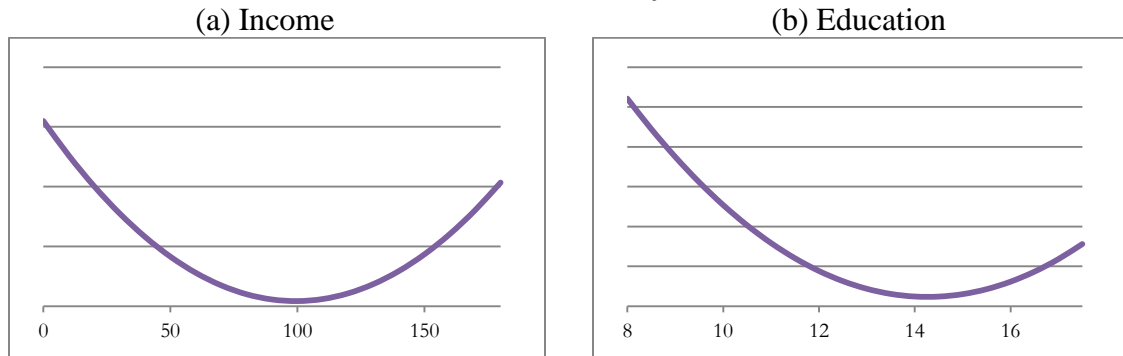
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '+' 0.1 '.' 1 [Intercepts in all models are effectively zero]

[†] In models without the square terms coefficients fail to attain significance.

With CSA density, income had a curvilinear but overall positive effect. With farm stands the curvilinear impact of income is even more pronounced (see Figure 6). In almost all models, income is only relevant when included as both income and the square of income. Even in models with no square term included and a significant finding on income, comparing R^2 values to models without the singular income term shows that including this term does not provide much explanatory ability, particularly when also compared against similar models that include both the singular and the square terms. The inflection point of these curves, when coefficients are significant, occurs around \$95,000.

It appears, then, that farm stands are most accessible to areas at the extreme ends of the income distribution, both the very rich and the very poor. This suggests that access to farm stands may be available for very low ends of the income spectrum, somewhat contrary to what the literature would predict, but not for all income brackets.

Figure 3-6. Impact of Including the Square of Income and Education on Farm Stand Density



Notes: The (unstandardized) coefficients used are from Model 7. Y-axes are unlabeled (and not uniform) because values are outside the range of the density measure, due to using unstandardized coefficients.

When considered by itself, education's impact on farm stand density is positive; there are more farm stands in areas with higher education levels. In all other models where the education coefficient attains significance, the association flips uniformly to negative. That is, controlling for any other factor, farm stands are more likely to be found in areas with lower mean education or there is no association with education at all. This finding is a stark contrast to the CSA models. Including the square of education as well shows that this effect may disappear in areas with a mean education of a college degree or higher. Graphing farm stand density according to the education coefficients from these models shows a declining slope up to the inflection point (between 14 and 14.5 years, which corresponds to some college) and then a generally flat or only mild positive slope after that (see Figure 6). This suggests that the influence of education on farm stand density is nuanced. The positive effect of education may mostly be for areas

with higher education levels, but this may also simply be an artifact of other measures, such as income or race.

Discussion

Similar to what the literature suggests, access to local food outlets does not occur equally across all social strata. What can be seen here, however, that cannot be seen in the more case study approach taken in previous research, is that these inequalities do not occur in uniform ways. While inequalities of access to CSAs (the most commonly studied form of local food) occurs primarily along lines of class, inequalities of access to farm stands is predominately a raced phenomenon (though certainly influenced in complex ways by class factors). What explains these differences? In this section I consider some of the broader (and less easily measured) factors behind these demographic inequalities in local food access.

It is first worth considering some of the philosophical and practical differences between the operation of CSAs and farm stands. As an operating model for a farm, a CSA is a relatively new phenomenon, one driven heavily by the recent rise of the local food movement. Farms operating CSA shares tend to be established *around* this box share format, in part because such an orientation demands a polyculture growing arrangement and functions in a fundamentally different way than industrial/commodity agriculture. Because their primary customers are individuals and families, they have an interest in being near areas with large enough potential consumers to support them. Though they also need space in which to operate, farmers operating a CSA may be more inclined than other farmers to be near population centers (though this does not just mean urban spaces).

Farm stands, on the other hand, have existed for much longer than CSAs and require considerably less effort as a distribution system. Many farm stands function as supplementary income to a farm and they are quite easy to establish with most agricultural types, whether that be farms selling to a local market through CSAs and farmers' markets or commodity agriculture farms. While they supplement a farm's main income from another source, they often do not provide a significant income base. Though farm stands are certainly effective means of obtaining fresh, local food, they are rarely touted as a main local food outlet for would-be consumers.

Further, there are over three times as many farms with a farm stand in this study (879 farms) as there are farms operating a CSA (255 farms; 108 farms are included in both categories). Coupled with the differences between CSAs and farm stands just discussed, some of these findings begin to make more sense. For example, while all farm types are more likely to be found in areas with lower population density (reflecting their need for space in which to operate), this effect is much stronger for farm stands than it is CSAs. This further supports the claim that CSAs tend to exist closer to urban and suburban zones than other farm types, indicating their establishment as an intentional means of meeting the (local) food needs of these greater population centers. It may also reflect CSA farms being younger than other farm types, though I do not have consistent age data on farms in the database to verify this.

Taken together, the class measures of education and income suggest something important about the cultural understanding of local food. While participating in a CSA share may be a marker of cultural capital, purchasing from a farm stand does not carry such import. In a way, CSAs are "more local" than farm stands, perhaps in part because

of that very difference in both philosophical orientation and physical setup just discussed. CSAs are not *just* a means of obtaining fresh, local food; they are also imbued with other positive qualities that generally are not associated with farm stands. These symbolic associations may contribute to the difficulty of equalizing access to local food and suggest that understanding class access (even more generally) involves understanding both material and symbolic differences.

Such location (and longevity) may also help explain the findings on race⁷. The minority populations in this region tend to be clustered in or near urban centers. With CSAs pushing closer to these populated zones (while still remaining far enough removed to have operating space), access becomes that much easier for racial minority groups. Farm stands, on the other hand, existing as they do in more rural areas, are likewise further embedded in predominately White areas.

It is also worth considering the curvilinear finding on income, which occurs for both CSAs and farm stands. Though I do not have access to such a variable, including a measurement of property values may shed further insight on the effect of income on farm density. Areas with lower incomes may be more likely locations for farming operations because such areas are also likely to have lower property values, making it more affordable to establish (or maintain) a farm. This may be especially important in explaining the lower end of the income spectrum and its association with CSA density, particularly if such farms are relatively new start-ups. If this hypothesis is true, it suggests that the difficulty of access by lower income groups may be even stronger than

⁷ If this association is also one of farm age, it may also help explain the negative affect of education for farm stand density. Predominately farming-oriented communities have historically also been areas with lower access to education, indicating that the education finding could be a historical artifact more than an indication of access.

these models indicate since even though CSA farms may be in slightly lower income areas they are still marketing themselves to higher income customers.

This returns us to the discussion of the local trap that opened this chapter. While locally-oriented food systems are often billed as a mechanism of promoting food sovereignty and security it seems that what they are actually doing is helping to reinscribe privilege. Unless locally-based food is available and accessible to all within a particular locality, such systems of food provisioning only provide food security to those who are already food secure. At least in this area, it seems that local food is predominately the domain of well-resourced and privileged consumers. If local food advocates want to see the development of socially equitable local food access, they will need to find ways of overcoming these issues.

Conclusion

Physical proximity to local food outlets is one very important measure of access to local food. Just as with food deserts, if local food is not physically and even easily available, that is an initial barrier that must be overcome before other factors may be considered. However, physical proximity is a necessary but insufficient condition for people to be able to access local food. After such food has been made physically available⁸, they must still be able to afford the higher costs often associated with such food outlets (as well as possess the knowledge, abilities, and resources to make use of said food items⁹). It is the cost side of the equation that this research is ill-equipped to

⁸ It is also important to remember that physical proximity is not static. For example, just because one does not live immediately near a local food outlet does not mean they do not pass such a place on their way to or from work. Unfortunately, incorporating such travel route data is beyond the scope of this research.

⁹ Access to local food systems is not just a question of economic standing or educational attainment (though these are closely related factors), but also one of available time (Macias 2008). Not only does accessing local food often require an extra time commitment beyond a routine trip to the grocery store, where most people procure their food (Allen 2006; see also Cone & Myhre 2000, Schneider & Francis

address. Future research in this vein might consider, for example, comparisons between the prices of CSA membership versus costs of similar items in mainstream grocery stores. By extension, the lack of a racial association with CSAs may not tell the whole story. It is entirely possible that on-the-ground studies of CSAs in this region would still document racial disparities in participation. Physical access is but the first condition necessary to obtain local food; it is by no means the only condition, and other exclusionary practices could still be at play.

The constraints of the current political economic system and tendencies toward neoliberal governance forms typically limit efforts toward true food justice, whether in local or other food systems (Allen 2008). Allen further argues that "privileged people may participate [in local food] and be 'protected' and therefore fail to agitate for a better food system, leaving the vast majority of the world's population to cope with the problems wrought by the conventional agrifood system" (2008: 159). This is similar to Szasz's (2007) articulation of the inverted quarantine, in which consumers use commodities to shield or insulate themselves from harmful components in the outer environment. As Szasz notes, such actions are intrinsically class-based. In short, for local food to be more than a niche, elitist phenomenon, local food advocates, practitioners, and scholars must connect with those most negatively affected by inequality (Macias 2008).

2005, and Stephenson & Lev 2004), unprocessed (local) foods take time to prepare, which families (especially single-parent households) may not have. This time constraint compounds further when one considers the gendered labor constraints common in many (heterosexual) households: women are primarily given responsibility for food procurement and preparation, indicating the gender inequalities that exist in local food involvement in addition to the race and class ones (Cone & Myhre 2000; McIntyre & Rondeau 2011).

In terms of proximity, though, who has access to local food? Clearly, access to local food is stratified along lines of race and class. However, the ways in which it is stratified vary depending on the type of local food one means. Within the local food system of southern New England, access to CSAs is predominately determined by class: those with higher levels of education and higher incomes have easier access to joining a CSA, however these outlets appear to be relatively racially egalitarian, at least in terms of physical availability and accessibility. Farm stands, on the other hand, tell a very different story; access to these local food outlets appears heavily demarcated along racial lines: minority groups have less access to them than do Whites. Class, on the other hand, shows a mixed effect, indicating perhaps that farms with farm stands are both elite-located operations as well as available to less-advantaged (White) groups.

It remains to be seen how such findings would compare with local food systems in other regions. Not only are these three states much smaller than most others in the nation, agriculture developed here differently than it did in, say, the South or the Midwest, and its overall trajectory and current state are hard to compare with other areas. Nonetheless, the fact that these findings hold up at least in a general sense with case study-oriented findings suggests that there is something systemic about the inequalities of access to local food outlets. If the strength of education's impact on CSA density holds in other areas, for example, it suggests that there is a very significant symbolic/cultural element in CSA participation, an element that so far has been under-theorized and under-documented (and one that is difficult to see solely in case studies of CSAs). Absent similar studies, it is safe to conclude that access to local food is stratified in not just isolated, but systemic ways.

CHAPTER 4

HOW LOCAL IS LOCAL?:

DETERMINING THE BOUNDARIES OF LOCAL FOOD IN PRACTICE

There's no easy definition for a complex question.

-- owner of The Citizens' Cup when asked: "How do you define local?"

Imagine a downtown restaurant with a chalkboard displaying the evening's dinner special. A worker carefully and colorfully writes in "Traditional Irish Boiled Dinner" and beneath it the words "ALL LOCAL" in large block letters. This was the backdrop during my interview one afternoon with the owner of The Citizens' Cup, a restaurant-tavern known for its emphasis on local food and strong ties within the community. In answering the question that prompted the quote in the epigraph, the owner pointed to this chalkboard and began to explain how each item on the night's menu was local. The corned beef was corned on site and the beef came from a farm in a neighboring county. Nearly all of the vegetables came from local farms. "That dinner is about 90% local," he concluded. "But...all the flour we use for baking, it comes from...Vermont, but it's wheat grown all over the place. Is that local or not? I don't know. So there's locally grown and there's locally supplied. And there's locally manufactured." In short, there is no easy definition for a complex question.

Local food has recently gained a lot of popularity, both among the general public and food scholars. By local food I mean what Fonte (2008) refers to as the reconnection perspective, in which local is a social proximity reconnecting the producer and the consumer in the same place¹. Yet attempts to articulate what *counts* as local have only

¹ Fonte (2008) describes this in contrast to the origin-of-food perspective, in which local is about the valorization of a product's origins in distant markets. Simply put, I am focused on local food for local

recently emerged; further, these studies show that there is no clear definition of local food (Dunn *et al* 2011; Duram & Oberholtzer 2010; Smithers, Lamarche, & Joseph 2008). I contribute to this growing discussion by examining farm and food-related establishments in southern New England that self-identify as local and the range of distances they travel to sell or purchase food. In other words, I measure the boundaries of local by looking at how locally-identified places practice "local". This study, then, is built upon two interrelated research questions, one empirical and one theoretical. First, what is the range of travel for local food at least in the context of southern New England? Second, what are the forces and conditions that influence this range of travel? While the first question is one that is regionally focused, the second one lends itself to possible generalizability across other regional contexts. I argue that as local food systems develop and gain in prominence, local food practitioners need greater understanding of the contours of what counts as local and the elements that influence those contours.

I begin by tracing how various scholars and activists have articulated local, particularly through the use of the "food miles" concept, and considering some of the elements that likely influence the range of travel for local food. I then present a more detailed account of the particular food system under study and the methods employed to measure local food. Following this I answer each research question in turn, discussing both quantitative and qualitative measures of local food in the region of study and regression models that reveal what does and does not influence these measures. I conclude by considering some broader questions around the limits of local food.

consumers (reconnection perspective) as opposed to local food for distant consumers (origin-of-food perspective).

Food Miles and Food Sheds: Articulating and Measuring Local Food

The concept of "food miles" (the distance food travels from the point of production to the point of consumption) has become nearly a household term. First introduced in Angela Paxton's (1994) seminal report, food miles are meant to help consumers (and even producers) account for energy expenditures in food transportation: the fewer miles food must travel, the less fuel is consumed. This means not only lower levels of energy consumption for food with low food miles, but also less pollution production, particularly in the form of greenhouse gases. Though the food miles concept has been frequently critiqued for failing to account for all energy expenditures involved in (especially local) food production (see Economist 2006 and Sonnino 2009), it has nonetheless gained considerable traction and popularity in attempting to articulate and measure local food. Academics in such diverse fields as sociology, agricultural economics, public health, and environmental policy encourage eating within a foodshed² as a way of promoting more environmentally and socially sustainable food sources (c.f. Feenstra 1997; Iles 2005; Izumi, Wright, & Hamm 2010; Jekanowski, Williams, & Schiek 2000; Kezis *et al* 1998; Lyson 2004; Pirog *et al* 2001; Thilmany & Watson 2004; Vogt & Kaiser 2008). The ubiquity of the food mile concept can be seen in popular and public understandings through recent books – like *The 100-Mile Diet* (Smith & MacKinnon 2007), *The Omnivore's Dilemma* (Pollan 2006), and *Animal, Vegetable, Miracle* (Kingsolver 2007) – and even congressional legislation, such as the Food,

² Arthur Getz (1991) first defined the term "foodshed" as "the area defined by a structure of [food] supply." While the term has come to be treated as how much food a region could potentially produce or a proscription for the area from which one should source food (see Halweil 2002; Kloppenburg, Hendrickson, & Stevenson 1996; Kloppenburg & Lezberg 1996; Wilkins 2005), Getz' original conception of the term was simply about defining actual food production and travel, regardless of how large or small the area.

Conservation, and Energy Act of 2008, which defines "local and regional" as food that is marketed within 400 miles of the product's origin or within the state it was produced (p. 245).

Without a clearer definition of what local food means, local food runs the risk of going the way of organic food. Organic food is widely considered to remediate some of the worst environmental problems perpetuated by the industrial food system. However, the enterprise of organic food was in many ways coopted by the very dominant food system to which it was supposed to be an alternative. What this means is that much of organic food production today follows a similar path as the conventional system, only with a substitution of less environmentally harmful inputs. Many alternative food activists and scholars argue that this has dramatically diminished organic food's sustainable potential (c.f., Buck, Getz, & Guthman 1997; Guthman 2004; Holt & Amilien 2007; Lockie & Kitto 2000). Due in part to this cooptation of the organic trend, such scholars and activists have turned to local food as a new way of reforming the food supply. Some have even argued that local food is impervious to the cooptation trend seen with organic because it is not possible to globalize the local (see Halweil 2002; O'Hara & Stagl 2001; Pollan 2006). However, such an understanding of the resiliency of local food to change the industrial system is, at best, naïve. There is no reason local food can't be coopted by the larger food system and nothing inherent to local food that protects it from being utilized by this dominant system in a way that undercuts its sustainable potential. As but one example, consider farms oriented primarily to the national or even global supply chain: there is little to prevent them from marketing a portion of their goods locally, though doing so does little to promote a truly environmentally friendly food

system and likely creates more difficulty for locally-oriented farms to gain a foothold. In this way, local, like organic and even fair trade, becomes nothing more than a value-added attribute. If "local" can mean anything, then there is no political utility to the term at all. One part of guarding against such an outcome, and helping local food to thrive, is to establish a clearer understanding of what local means (Giovannucci, Barham, & Pirog 2010).

As a way of providing a definition that is oriented toward the practical needs of local food producers and retailers, scholars have attempted to elicit how these various local food practitioners conceptualize local, typically by using interview or survey techniques with food producers, consumers, and retailers. As one might expect, the answers vary widely. Local food is most commonly defined according to some sort of distance measure (Dunn *et al* 2011; Fonte 2008; Hartman Group 2008; Pirog & Rasmussen 2008; Selfa & Qazi 2005; Smith & Mackinnon 2007) or by use of a geographic or (more commonly) political boundary (DeCarlo, Franck, & Pirog 2005; Dunn *et al* 2011; Duram & Oberholtzer 2010; Pirog 2003; Pirog & Rasmussen 2008), which could include a region of states or counties but most commonly includes a single state (Darby *et al* 2008 [Ohio]; Futamura 2007 [Kentucky]; Hartman Group 2008; Hinrichs 2003 [Iowa]). However, Dunn *et al* (2011) found that local food can also be defined according to ease of procuring or availability of products as well as having personal connections to producers while Tovey (2009) identified conceptions of local food as including both a distance *and* a relational component. Even for definitions of local based on a geographical distance, the radius of inclusion spans from 50 to 400 miles, though most find 100 miles to be the usual limit. Further, these definitions differ

between producers and consumers and even across regions and between urban and rural settings. For example, Selfa & Qazi (2005) find that consumers have a greater concern with freshness, taste, and quality in defining local than do producers while Dunn *et al* (2011) note that perceptions of local between retailers and end-consumers may differ, giving the example that 400 miles (the maximum range of their study) may not seem local to a consumer, but may seem local to a retailer. Regional differences may also be a factor in what counts as local: "For instance, the urban density on the East Coast may mean that local in Washington, DC, is defined as within 100 miles from the city. If you live in Utah, however, the distances between urban areas may mean that 'local' can stretch hundreds of miles" (Duram & Oberholtzer 2010: 100).

While such definitions are useful (if broad) for giving substance and practicality to the concept of local, the wide variation amongst them indicates that it is important to not establish too rigid a definition of local as that could limit the utility of the term just as much as having no definition whatsoever. Even when understood as a range of quantifiable food miles, what can be included in local varies considerably with region, climate, and product. In other words, where the boundary is drawn for local is going to differ between places like New England and the Pacific Northwest. This is true not only because of differences in growing conditions from region to region (or even country to country), but different social and political constructions of local boundaries; for example, not only does New England have different growing conditions than California (a key agricultural state in the U.S.), the states of Massachusetts, Rhode Island, and Connecticut could fit into an area the size of California nine and a half times over. Thus, "California" local and "New England" local have vastly different quantifiable ranges, even while

people's perceptions of local in these regions may allow for more slippage and assumed similarity. In fact, if local food is to resist industrial cooptation its meaning needs to remain embedded in place-based social networks and physical context, rather than be standardized in some way that allows bureaucratic capture. Further problems can emerge from an attempt to standardize the meaning of local. Not only are there stark differences between how producers and consumers (and even retailers) understand and practice local, different local food actors may have different needs or employ different mobilizations of the term based on size or orientation of operation. For example, Dunn *et al* (2011) note that different types of food retail outlets incorporate different things in their practice of local: larger stores are concerned with quality and safety and are also mandated to source from their chain distribution centers, whereas smaller stores do not face such procurement mandates and tend to take into account things like methods of food production, farm size, and local ownership or operation of a food production site. Clearly, there is a difficult tension in navigating a clear definition of local without being overly restrictive.

Rather than create some sort of "standard" definition of local, my aim is to identify and articulate how participants in a local food system determine the reaches of local in practice and thereby shed some empirical light on the boundaries of local food in practice. This is in some ways in line with previous research on on-the-ground conceptualizations of local food. However, two things distinguish this study from previous attempts to identify what counts as local. First, while I do present qualitative data on local food participants' conception of local food, I also present measures of local food that exist independent of these personal conceptualizations. That is, I am able to

measure the actual distances between a point of origin and point of purchase for entities that self-identify as participating in a local food system. Second, I go a step further in helping to theorize the boundaries of local by examining the conditions and characteristics that influence the expansion or contraction of this range. This is something to which quantitative methods are especially well suited. In quantifying the range to which farms sell their food (or the range from which vendors purchase) I am able to then consider other elements which may influence this range.

The Influences on Local Food

There are several factors that could help determine the possible range of local in practice. These include the size and type of food operation, the number of entities to which a food operation is connected, the seasonality and general availability of particular food items, access to and participation in various markets, and even an operation's level of focus on or commitment to local food.

Size of Operation. Locally-oriented operations tend to be small-scale. As an example of this, consider Massachusetts: two-thirds of self-identified local farms in the state are smaller than the state's 67 acre average farm size and one-third are smaller than 10 acres. Though the forces around size and local-ness are complex, larger operations are likely to span wider ranges in what counts as local than are smaller operations (c.f., Dunn *et al* 2011). Larger farms produce more food that could otherwise glut too small of a market and larger vendors need more food intake than may be available within a short boundary line.

Type of Operation. Though related in some ways to size, type of operation deserves separate attention. Different types of both farms and vendors have different

needs in terms of space used, market orientation, and market access (see Dunn *et al* 2011). As a basic example, consider the difference between farms running a general produce operation and farms focusing on livestock operations (such as meat, dairy, or even egg production). Livestock operations require more land and often more specialized inputs and labor than growing produce. Therefore, different scopes of local-ness likely exist for each type. This principle holds for different vendor types as well: though similar in many ways, restaurants, grocery stores, and food processors have some needs that are fundamentally different from each other and which may also influence what range they must consider in determining the boundaries of local food for their operation. For example, a grocery store is likely to need a greater variety of food to meet customer demand than is a restaurant, which is likely instead to need a high volume of a few particular items (i.e., salad greens) but, because of its comparatively restricted menu, less overall variety.

Number of Ties. How many places an operation sells to or buys from may also influence what the operation considers to be local. An operation with only one or two local food connections likely has significantly shorter ranges of local than operations with numerous connections. Operations with very few local ties are likely not using local food as a primary market orientation, but are instead only dabbling in local. Instead, these operations' primary sales (purchases) are going to (coming from) the broader industrial/global food system, allowing them to make their few local ties especially close in proximity. I expect, then, that entities with fewer ties will have shorter ranges of sales or purchases than those with many ties.

Market Orientation. While perhaps closely related to number of ties, a farm's market orientation deserves separate consideration. While low number of ties may indicate that a farm sells primarily to the industrial system, it is still possible that these farms are heavily invested in the local food system yet maintain few ties to local vendors. Such farms may instead focus on direct-to-consumer (DTC) options, such as running a CSA operation or participating in various farmers' markets, either of which could take up a significant portion of their food production. If this is the case, their sales to locally-based vendors would understandably be limited in scope and amount, which would also allow them to be more selective (and closer) in who they sell to. I expect that participation in a CSA or farmers' market will therefore lower a farm's overall range of sales.

Urban Proximity and Access. Finally, a farm or vendor's relative proximity to urban settings may also impact the operation's boundaries of local. Urban settings typically have limited space available for farming meaning that urban-located farms will be especially few in number and small in size. Conversely, urban settings allow for a greater number of vendor outlets, especially restaurants and grocery stores. As such, farms in urban settings will likely have very short distances relative to farms in less urban or even rural settings; vendors will likely be the reverse, needing to source over longer distances when they are embedded in an urban setting.

Seasonality and Availability of Items. Closely tied to type of operation, different food items require different understandings and measures of local-ness. In late July in New England, tomatoes are prevalent enough that they can easily travel no further than down the street from production to consumption. By early fall acorn and butternut

squash is the same. Other items, such as flour, are less readily available any time of the year. To follow this example, New England currently has very few grain-producing operations and similarly few facilities to process grains. For this and other specialty items, local may by necessity mean a longer distance than more readily available items such as fresh produce. While this influence is difficult to measure, it is nonetheless important to bear in mind in a discussion of local food³.

Methods and Data

Social Network Analysis

To answer my research questions I draw primarily on social network data of locally-based farms and vendors in southern New England⁴. I use buyer/seller ties to measure the geographic distance between entities and consider this in terms of the entities' various attributes (e.g., size, type, and urban proximity). Note that network data differ from more traditional forms of data found in the social sciences. Classical social scientific data typically entail information collected on discrete entities, whether individual people, organizations, or nations/states (this is true for both qualitative and quantitative data). Network data most typically involve two interlocked components: 1) the classical individual-level attribute data, and 2) information about the *relations* (or more commonly, the "ties") between those individuals. These ties can come in many forms (friendship, trade, mentorship, sexual activity, etc.), but the point is that they are empirically measurable qualities. In this network, ties represent economic exchanges; that is, a tie from one entity (usually a farm) to another (usually a vendor, or buyer) indicates that the first

³ There are, of course, other factors which may influence the range of distances traveled by local food but which are difficult to measure or for which data are unavailable. Some examples include: physical isolation (e.g., distance from *any* possible client or partner) and length of time in business or even in partnership with a particular client.

⁴ Southern New England includes Massachusetts, Rhode Island, and Connecticut. A handful of entities from bordering states (Maine, New Hampshire, Vermont, and New York) are also included.

entity sells to the second^{5,6}. These data come from the website www.farmfresh.org, which presents information on a variety of locally-oriented farm and vendor participants in the region. This information was compiled by several sub-regional local-food advocacy organizations. Data were collected using an automated web-based data gathering program called scrapeR (Acton 2010).

The social network consists of 2,626 farms and 913 vendors; of these, 685 farms and 704 vendors are connected to at least one other entity (see Figure 4-1). Both farms and vendors	Table 4-1: Farm and Vendor Types (percentages indicate non-isolates of each type)	
	<u>Farm Types</u> General Produce (36.2%) Meat/Dairy/Eggs (24.7%) Mixed (1.2%) Orchard/Specialty (34.9%) Other Farm Type (4.5%)	<u>Vendor Types</u> Restaurant (49.4%) Grocer/Retail (25.7%) Processor/Producer (20.9%) Distributor (4.0%) Cafeteria (6.0%) Caterer (11.1%)

were coded according to what type of operation they run (see Table 4-1). Farms fell into one of six discrete coding types:

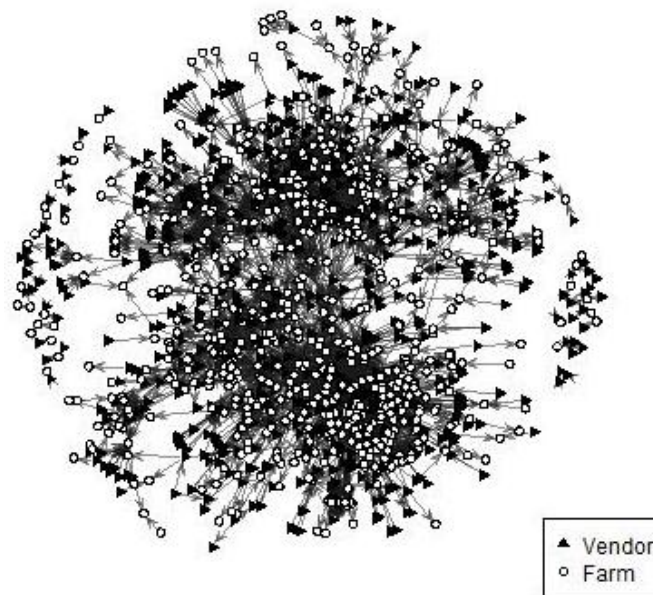
1. **General Produce:** farms that sell a general mix of fruits and/or vegetables; these farms sometimes raise animals as well, but not as a primary portion of their operation
2. **Meat/Dairy/Eggs:** farms focusing mostly on livestock operations
3. **Mixed:** farms that appear to focus equally on produce and livestock
4. **Orchards:** coded separately from General Produce because of specialized nature of orchards relative to annual crops; for the sake of analysis, they are treated together with Specialty Crop and Products because of the striking similarity of both types in terms of distances sold and market orientation

⁵ In this particular network I know which farms and vendors trade with each other, but I do not know the value (either relative or absolute) of these trades. I likewise do not have any information regarding how much of a farm's sales go to (or a vendor's food comes from) the industrial food supply.

⁶ Generally, farms sell to vendors, but occasionally farms may sell to other farms and vendors may sell to vendors (most commonly a processor selling to another vendor outlet). Though it is possible for vendors to sell to farms (usually CSA operations selling something from a food processor), this direction of tie is incredibly rare and is not seen in these data.

5. **Specialty Products:** honey, maple syrup, rare meats (such as rabbit, emu, or seafood), and select and specific crops (such as farms specializing in asparagus, garlic, or salad greens)
6. **Other:** a catch-all of places that don't fit the above schema, but generally including greenhouses, nurseries, B&B's, and producers specializing in on-site value-added products (such as wine, jam, and soap)

Figure 4-1: Sociogram of Farms, Vendors, and Their Ties



Farm types were coded by hand based on what the products the farmfresh website indicated they sold; when this information was unclear, I consulted farm websites in an attempt to categorize them. The farmfresh website indicated eight overlapping types for vendors: cafeteria, caterer, distributor, inn, chef, producer, restaurant, and retailer. I excluded inn as a type because of its few occurrences and because with three exceptions every inn was also listed as a restaurant (in all three exceptions the inn was part of a functioning farm); the chef marker was collapsed into caterer because it similarly had few occurrences and two-thirds of the chefs were also cross-listed as caterers, as well as because of the two terms' conceptual similarity. A close examination of

Table 1 reveals that the total number of vendor types is greater than the total number of vendors; this is because 114 vendors are listed under more than one type category.

Aside from what kind of farm or vendor an entity is, I also have information pertaining to its exact geographic location (measured as latitudinal and longitudinal coordinates). For farms, I also have an indication of which farms incorporate a direct-to-consumer (DTC) operation (such as whether they have a CSA or how many farmers' markets at which they sell) and, for 441 (64.5%) of the non-isolate farms⁷, a size measure, in terms of acreage⁸. I also used 2000 Census data to code for urban proximity according to the town or city in which an entity resided; this involved created a trinary variable consisting of 2 for Urban entities (50,000 people or more), 1 for Semi-Urban entities (20,000-49,999 people), and 0 for Non-Urban (fewer than 20,000 people)⁹.

Qualitative Data Collection

In a limited fashion, this project also draws on in-depth interviews and observations with key farm and vendor participants in the Pioneer Valley local food system. These participants were targeted by identifying the entities with the greatest number of ties to other farms and vendors *that are similarly interconnected within the food system*. In formal network language, this entailed identifying the highest level k-core (in this case a 6-core) and selecting the most central farms and vendors from that core. Interviews were conducted between the fall of 2010 and late spring of 2011. In total I interviewed 24 owners and/or operators of 6 farms, 4 restaurants, 5 grocery stores, and 2 value-added food processors.

⁷ For all the farms in my sample this number drops to 888 farms, or 33.8%.

⁸ Note that size of farm could be measured in a variety of ways: physical size (e.g., acreage), financial size (e.g., value of products sold annually), production size (e.g., pounds of food produced), or labor size (e.g., number of workers).

⁹ I initially intended to draw on the Metropolitan and Micropolitan Statistical Areas from the U.S. Census for this variable, but this measure includes every place in my region in some metropolitan area, rendering the divisions useless.

Regression Variables

My second research question asks what the forces and conditions are that influence the range of travel of local food. This is a question well-suited to be answered by straightforward regression analysis. Below I identify the variables I use to set up and answer this question.

Dependent Variable. Having exact geographic coordinates for all entities in the network allows for the calculation of distances between any two nodes (for details on the algorithm used to calculate distances, see Vincenty 1975). Since farms and vendors can trade with a theoretically unlimited number of other entities, I model their distance of sale or purchase as a range. That is, I subtract the shortest distance a given entity buys from or sells to from the longest distance it buys from or sells to; this gives the total range of sales or purchases for each connected entity in the network¹⁰. Because most farms only sell and most vendors only buy I model both general types of entities separately and therefore have a separate dependent variables for each.

Independent Variables. As mentioned above, several things may influence the distance local food travels, including size of operation, type of operation, number of ties, market orientation, urban proximity, and seasonality and availability of items. I am able to measure all of these except seasonality, however this is in some ways controlled for (at least spatially if not temporally) by focusing on the relatively small region of southern New England. The operationalization of type of operation and urban proximity is discussed above. I use the acreage measure to represent size of farms; unfortunately I do not have a similar measure for vendors. I operationalize number of ties using two

¹⁰ Approximately one third of the entities have only one network tie, so their "range" is simply the distance of that tie, since to subtract their minimum distance from their maximum distance would result in a distance of zero.

network-based measures: degree (indegree for vendors and outdegree for farms) and k-core (as a way to determine whether an entity's relative importance or "prestige" in the network influences the distance their food travels). Like size, I am only able to operationalize market orientation for farms, and in this case only for farms with DTC components; I have no measure of industrial food ties for farms or vendors. DTC components include whether or not a farm runs a CSA operation, whether or not they have a farmstand, and at how many farmers markets they sell.

A Note on Farm Size: Nationally, farms average over 400 acres while within southern New England the average farm size is between 55 and 80 acres (USDA 2009). The locally-oriented farms in this region have a size of just under 1 acre to 2000 acres, with a mean of 113 acres; half have a size of no more than 40 acres and over two-thirds are smaller than 100 acres. Compared to the national trend, the sample under study contains a lot of very small farms. Further, farms with a DTC component are generally slightly smaller than those without; as one measure of this, farms with a CSA have a mean acreage of 75.2 (median = 19.5 acres) while those without a CSA have a mean acreage of 124.2 (median = 50 acres).

Control Variables. Because my dependent variable is a range of distance local food travels, rather than some sort of average distance, it does not show where that range begins. The nearest local food trading partner could be just outside an entity's doorstep or clear across the state. I control for this by including the minimum distance bought or sold as a variable in both models.

How Farm Does Local Food Travel?

As has been found in previous research, my interview respondents defined local food in a variety of different ways. The most common definition was geographically based and typically included a two or three county zone, though these counties did not always line up with the entirety of the Pioneer Valley¹¹. Respondents noted that though state boundaries were the easiest for most people to understand, they are still artificial boundaries and therefore restrict what can or should be considered "local," even when that state is as small as Massachusetts. Some respondents gave distance-based definitions, though these distances were as variable as the definitions themselves: one vendor defined local as within 10-15 miles while another defined it as within 100-200 miles. Still other respondents defined local food relationally, such as food that is delivered directly or "something that has maximum one person in between me and them" (Charity Acorn, restaurant)¹². Many interviewees also recognize the flexible, overlapping, and contestable nature of "local," as expressed by the restaurant owner in the opening epigraph.

Though these all indicate explicit definitions of local, we can see implicit definitions at play as well in how these places (particularly grocery stores) advertise local food. Some do it through signs indicating a product's origin or by displaying a map of New England identifying a farm's location. One place had the words "local beef" permanently labeled on the glass of the meat counter display, an expression of the store's commitment to locally-sourced products. Though a more complete analysis is beyond

¹¹ The Pioneer Valley is roughly comprised of three counties; the southernmost county was the most often excluded in participants' geographically-based definitions of local food. See Chapter 5 for more on this.

¹² Along this line, one farmer defined local temporally: "I would say [local is] two hours around us" (Deep Roots Farm).

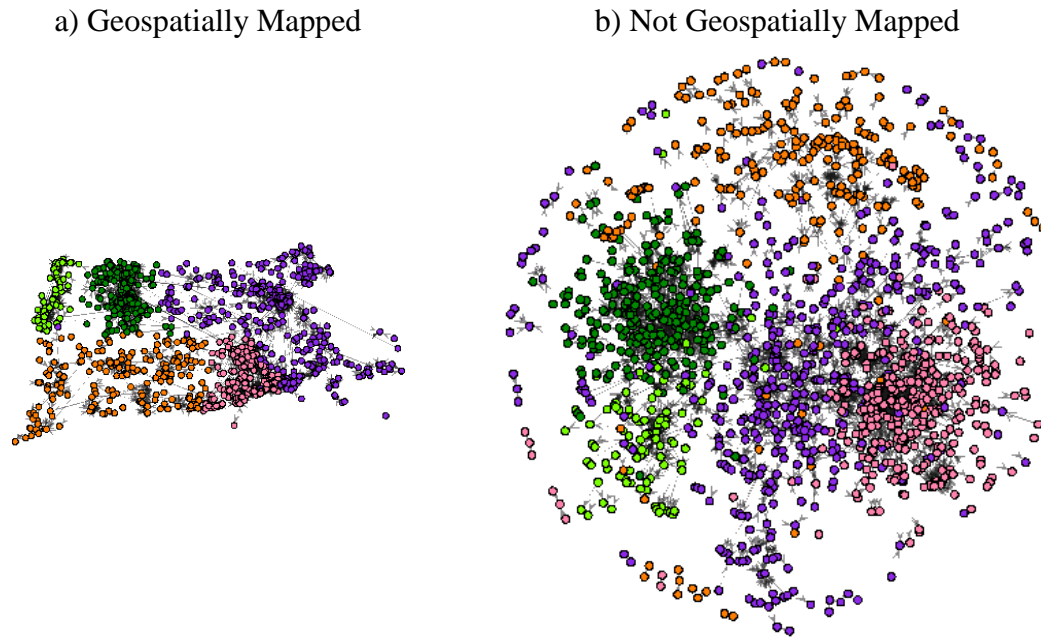
the scope of this project, what is striking is the difference with which these stores utilize the concept of local food: some places include the idea of local as a fundamental and core part of their identities while others use it as a marketing tool to draw in customers and still others list locality almost as an afterthought, as if it is simply another point of information customers may desire.

While these definitions and advertisements show how local food participants *conceptualize* the term local, they do not necessarily show us how local is *practiced*. To explain this and answer my first research question I turn first to visual inspection of the social network to examine what sub-regional (or political/geographic) boundaries may exist in the practice of local and then to the distance calculations between farms and vendors that trade with each other.

Visually Inspecting the Social Network

Visual inspection reveals distinct regional clustering in this network. Figure 4-2 shows the farm and vendor connections coded by region. It is important to note that in Figure 4-2b the positions of the nodes *are not geospatially mapped*; their positions have nothing to do with their location in physical reality. Rather, they are positioned using a force-based algorithm to determine the placement of nodes (Eades 1984; Fruchterman & Reingold 1991; Kamada & Kawai 1989). This is most easily understood by imaging the nodes and their ties as a physical system of springs; the algorithm pulls nodes together or pushes them apart iteratively based on to which other nodes they are or are not tied. In short, nodes are placed nearer to other nodes with which they share many ties than they are to nodes with which they share few or no ties.

Figure 4-2: Sociograms of Farm-Vendor Network, Coded by Region



In Figure 4-2b we can see some very striking clustering. Nodes from a given state (and even region of the state, in the case of Massachusetts) generally cluster with other nodes from the same state. This means that the bulk of an entity's ties are to in-state entities. Food from Rhode Island, for example, appears to stay mostly in Rhode Island, with some spillover into Massachusetts (mostly Boston and the surrounding area, though this is clear from visual inspection of figures not presented). Food from western Massachusetts appears to stay mostly in western Massachusetts; further, this region has two fairly distinct sub-regions: the Pioneer Valley and Berkshire County. The diffuse distribution of nodes in Connecticut suggests that this state is only making limited impact in the food economies of its northeastern neighbors and that many of these entities (at least the farms) are oriented more in the direction of New York City; however, without similar farm and vendor data for New York City, this is unverifiable.

What this suggests is that even within the already relatively small region of southern New England, local food stays very local. Not only is local food staying generally within its state of production, even in the largest of the three states (which, for reference is 45th in size among all the U.S. states) local food tends to keep to fairly bounded sub-regions within the state. While federal law may define local food as that which is consumed in the same state in which it is produced, simple visual inspection reveals clearer (and smaller) regions of local food in practice.

How Far Do Farms Sell Their Food?

The absolute range of distances of sales and purchases in this network spans from 29.25 feet to 354 miles¹³. To contextualize this range, the two longest distances measured (both over 200 miles) are from farms outside of the three-state region (specifically, one in Maine and one in New York), both of which produce rather specialized products (wheat and grains for flour and goat cheese). Within southern New England the maximum distance between two tied entities is 167.3 miles; the few very far farm sales provide for a considerable amount of distributional skew in the data.

As can be seen from Table 4-2, the range of travel for local food sold averages between 12 and 20 miles. On the purchasing side, this range averages between 17 and 29 miles. Further, whether buying or selling, the range of travel for up to 75% of all local food is on the order of about 30 miles (slightly less for farms, slightly more for vendors). While Table 4-2 presents the *ranges* of travel (meaning these numbers do not indicate how far an entity travels to reach its nearest sells or buyer), it still suggests an overall

¹³ Minus the far reaches of Cape Cod (which, due to it being a curved peninsula, is not as readily accessible as other parts of this region) and the coastal islands (which are *only* reachable by boat or plane), the diagonals across this region measure just over 200 miles. Of course, the layout of roads means there are in practice few straight lines between any two points, but I include this to give the reader some context of the region under study.

short distance for local food's travel. The range of distances for sales is relatively stable between farms and vendors; however, farms that purchase do so in a dramatically shorter range than do vendors. Considering how few farms act as buyers (86, compared to 638 vendors), this difference may not be surprising. Farms which purchase are rare and it stands to reason that those who do so would be able to restrict their purchases to a very short range.

Table 4-2: Range of Distance Local Food Travels (in miles)

	<u>Min.</u>	<u>1st Qu</u>	<u>Median</u>	<u>Mean</u>	<u>3rd Qu</u>	<u>Max</u>	<u>N</u>
Selling - All	0.001	4.413	12.71	20.94	27.42	167.3	805
Selling - Farms	0.006	4.884	13.07	20.21	26.54	150	663
Selling - Vendors	0.001	2.722	11.65	24.25	34.59	167.3	142
Buying - All	0.006	7.503	17.3	29.13	32.37	347.3	724
Buying - Farms	0.223	3.405	7.524	14.69	15.63	193.2	86
Buying - Vendors	0.008	9.575	19.52	31.03	35.82	347.3	638

Table 4-3: Maximum Distance Local Food Travels (in miles)

	<u>Min.</u>	<u>1st Qu</u>	<u>Median</u>	<u>Mean</u>	<u>3rd Qu</u>	<u>Max</u>	<u>N</u>
Selling - All	0.006	7.407	17.11	26.26	33.24	353.9	805
Selling - Farms	0.006	8.084	16.95	25.63	32.02	353.9	663
Selling - Vendors	0.019	3.515	17.93	29.17	40.65	167.3	142
Buying - All	0.216	12.15	23.1	34.17	40.46	353.9	724
Buying - Farms	0.223	3.837	8.787	15.46	16.35	195.3	86
Buying - Vendors	0.216	14.46	25.05	36.69	43.07	353.9	638

Returning to absolute values may give a better picture of the actual distance local food travels across southern New England. As can be seen in Table 4-3, 50% of all food produced in this region travels at most between 17 and 23 miles. While the maximum distance local food travels spans from across the street (0.006 miles, or 32 feet) to well outside the region (353.9 miles), even up to three-quarters of this food travels no more than 30-40 miles, which, for reference, marks the approximate dimensions of the state of Rhode Island. In short, local food in southern New England generally travels a very short

range indeed, even shorter than most common minimum range (50 miles) given by local food advocates.

To put this a bit more starkly (though not presented in the tables), 78% of vendors 86.7% of farms buying and selling local food do so within 50 miles (for a limit of 100 miles, those numbers go to 93.6% and 97.9%, respectively). Nearly all local food, then, travels no more than 100 miles and the vast majority of it travels no more than 50 miles. While this is not generalizable outside of the region of study, if such a trend were to hold in other regions, it would indicate that the 400 mile limit given in federal law encompasses a considerably wider range than what is actually practiced in local food. If this is so, it is a sign that the concept of local food is already in danger of being coopted institutionally in the same way as organic food has been.

What Influences Distance?

The forces that influence range of distance of local food are similar for both farms and vendors and sellers and buyers. For farms, Table 4-4 shows that the most important factors predicting how far they sell their food locally are how many vendors they tie to, how big they are, and how far they travel to reach their nearest vendor. More ties means greater range of distance for sales. This is also true for larger farms: they sell to wider ranges of distance, most likely because they have a greater volume of goods to sell and need a wider area in which to do so effectively. Type of farm came up as modestly significant; as expected, primarily livestock-based operations do sell to further ranges than other types of farms. What is especially striking is that a farm's DTC operations had *no* impact on how far they sold when it came to direct-to-vendor (DTV) ties. This is true regardless of whether I include CSAs, farmers' markets, farm stands, or some

combination of the three; none of these variables ever achieves significance. Contrary to expectation, then, a DTC component has no influence on how far a farm travels to sell its food to vendors¹⁴. Similarly, a farm's urban proximity had no influence on range of distances sold; though an urban location does increase the distance farms travel to sell their food in univariate models (not shown), this influence disappears in the multivariate models.

Table 4-4: Predicting Range for Selling Farms

	<u>Model 1</u>		<u>Model 2</u>		<u>Model 3</u>		<u>Model 4</u>	
Out Degree	1.77	***	1.79	***	1.73	***	1.75	***
	(0.22)		(0.22)		(0.22)		(0.22)	
kcore	0.89		0.81		0.93		0.90	
	(0.74)		(0.74)		(0.74)		(0.74)	
acres	0.01	*	0.01	*	0.01	*	0.01	**
	(0.0036)		(0.0036)		(0.0037)		(0.0037)	
Meat/Dairy/Eggs	3.36	+	3.61	*	3.29	+	3.18	+
	(1.80)		(1.83)		(1.80)		(1.85)	
Urban Proximity	1.24		1.15		1.33		1.10	
	(1.23)		(1.23)		(1.23)		(1.25)	
CSA	-----		1.57		-----		1.18	
			(2.02)				(2.03)	
Farmers' Market	-----		-----		0.34		0.32	
					(0.27)		(0.27)	
Farmstand	-----		-----		-----		-1.85	
							(1.64)	
min Dist	0.69	***	0.69	***	0.69	***	0.68	***
	(0.046)		(0.046)		(0.046)		(0.046)	
Intercept	-0.66		-0.96		-1.18		-0.44	
	(1.81)		(1.85)		(1.85)		(2.07)	
Adj. R ²	0.4822		0.4817		0.4829		0.4825	
Model p-value	2.2E-16		2.2E-16		2.2E-16		2.2E-16	
n	429		429		429		429	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '+' 0.1 '.' 1								

Similar trends appear on the vendor side of things (Table 4-5). The most important factors predicting from how far vendors will source their food are how many

¹⁴ It is worth noting, however, that farm out degree is mildly, positively, and significantly correlated with number of farmers' markets at which a farm sells; out degree is not correlated, however, with a farm having a CSA.

Table 4-5: Predicting Range for Buying Vendors

	<u>Model 1</u>		<u>Model 2</u>		<u>Model 3</u>		<u>Model 4</u>	
In Degree	2.41 ***		2.67 ***		2.60 ***		2.39 ***	
	(0.38)		(0.38)		(0.39)		(0.39)	
Kcore	1.17		0.74		0.82		1.19	
	(1.09)		(1.10)		(1.11)		(1.10)	
Urban Proximity	4.13 **		3.30 *		3.49 *		3.97 *	
	(1.53)		(1.54)		(1.55)		(1.54)	
Cafeteria	-----		-----		-3.84		8.05	
					(5.59)		(6.21)	
Caterer	-----		-----		1.06		4.75	
					(4.10)		(4.14)	
Processor/Producer	-----		-----		-4.41		2.75	
					(4.07)		(4.37)	
Distributor	-----		-----		-3.33		4.52	
					(6.99)		(7.15)	
Restaurant	-----		-5.04 +		-6.41 *		4.93	
			(2.60)		(2.92)		(3.96)	
Grocer/Retailer	13.22 ***		-----		-----		17.13 ***	
	(2.92)						(4.09)	
min Dist	0.69 ***		0.69		0.69 ***		0.68 ***	
	(0.069)		(0.070)		(0.070)		(0.069)	
Intercept	0.77		7.88 *		9.30 **		-4.38	
	(3.12)		(3.27)		(3.58)		(4.81)	
Adj. R ²	0.2465		0.2267		0.2239		0.2438	
Model p-value	2.2E-16		2.2E-16		2.2E-16		2.2E-16	
N	638		638		638		638	
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '+' 0.1 ' ' 1								

places they buy from, how far they travel to reach their nearest source farm, their urban proximity, and what type of operation they are. As with farms, more ties means a wider range of purchases. Being in or near an urban center also increases the range of purchases, though it is interesting that this variable is significant for vendors yet not for farms. This could be because of the greater concentration of vendors in urban and semi-urban areas while farms can be found relatively easily in any area of this region (even in urban zones). Because the supply and demand in urban areas are not even, urban vendors must source from a wider range of distances to meet their needs than non-urban vendors. Grocery stores also procure food from a significantly longer range of distances than do

other vendor types; being a restaurant appears to have a moderately significant and negative impact on sourcing range, but Model 4 shows this to disappear when grocery stores are included. It seems that the difference between range of distances grocery stores must reach and the range for all other vendors far outstrips the differences between restaurants and other vendor types, though it is perhaps still appropriate to say that grocery stores and restaurants are the most distinct vendor types in terms of range of purchases for local food. Additionally, while I do not have a size measure for vendors, I suspect that this (as with farms) would also be a significant predictor of local food's range and would further improve the model's overall fit.

Minimum distance shows up as a significant variable in all models, for both farms and vendors. Though this variable was included only as a control, it suggests that minimum distance traveled to sell or purchase local food is an important component in understanding the total range traveled for that food. The further a given entity travels to reach its first point of purchase or sale the longer overall range of distance they will have. This suggests that the further one initially travels to buy or sell food local, the easier it is to justify traveling yet further while still including those distances under the "local" rubric. Qualitative research into how farms and vendors make these sorts of decisions is needed to confirm this (or another) explanation. Additionally, number of ties has a significant influence on the range of sales and purchases for both farms and vendors: fewer ties means a shorter range traveled. Is this because these entities are only dabbling in local and have stronger connections with the industrial/global food system? Without a measure of either industrial/global connection or the relative volume or dollar value of each tie such a question remains unanswered.

In sum, number of ties *does* influence how far a place buys or sells local food, as does the type and size of operation. However, market orientation, at least in terms of DTC operations for farms, does not have an impact on the range of local food. While I have no measure of industrial food ties or a way to weight ties according to some value of sale, future research should develop ways to account for this, as this sort of market orientation information could still prove to be a significant predictor of local food distances. Further, the finding of significance on number of alters warrants some consideration. As I argue in Chapter 5, for local food to further establish itself, farms must enter the DTV arena more fully; additionally, to be stable, DTV farms must increase in sales outlets. What these models indicate is that such an increase pushes out how far local has to be bounded. While a modest increase in what counts as local may not be cause for concern, there is an inherent tension between the drive to bring local closer to home and the necessity of increasing that range as a way of further establishing locally-based food systems.

Conclusion: The Limits of Local

This tension returns us to the difficulty of determining what counts as local in the first place. If we understand local food as being a function of physical distance, then the material presented here gives us quite a vivid picture of local food. But it is important to remember that local food participants define local in many other ways as well, and distance may not even be the most prevalent method. Without undercutting my empirical and theoretical contributions, I want to close by considering some of the limits of local as seen in an important factor I alluded to above but was unable to quantify: seasonality and availability of certain items (especially produce).

One farm in the Pioneer Valley is championing the idea of the East Coast Food Shed (also called the East Coast Farm Share). This farm sends trucks from Massachusetts to Florida, Georgia, and the Carolinas to get crops that would otherwise be unavailable in New England, particularly in winter. As the produce buyer at Upper Valley Coop explains it, "To us that's a huge deal. We can't get greens from anywhere, why are they coming all the way from California?" Put another way, "If you can't get it from the Northeast, you might as well get it from the Carolinas or Florida rather than having to get it from Argentina or Chile or California" (owner of food processor Vertias). This practice is a large-range example of what Kate Clancy (2010) refers to as regional embeddedness, or a way of framing "local" as both a regional and dynamic process. When local food may be limited due to season, geography, climate, or some other factor, Clancy argues that it makes sense to expand the boundary to include what is necessary. Another produce buyer at Upper Valley Coop explained this concept on a smaller scale by referring to the lack of availability of quality potatoes late in the winter. After storing several thousand pounds of potatoes through the winter, the few that remained were beginning to sprout and customers wanted a more appealing product that was still locally grown. This buyer found a farm in Maine that had been cold storing their potatoes and was now releasing them. In considering whether this still counts as local, since it is the closest source available for the time of year, she says,

I spend a lot of time in Maine, so I feel it's local. And, yeah, it might take me 4 hours to drive this, so it's not local. So is it regional? Or is it New England?... I always say you can be sure if I can get it from right here, I'm going to. I'm just going to try and if I can't I'm going to do the next best thing....If [people] feel like they can really count on you getting the most local that you can get, then they understand that if you don't get it, it's not around....That's the only reason why I wouldn't have it.

Here we see a produce buyer willing to flex her definition of local in order to accommodate seasonal availability. When summer returns and potatoes are available as close as the store's neighboring towns, she will return to those nearer sources.

Further, there is an element of choice involved when farms and vendors engage in local food. The produce buyer at a student cafe explains that the cafe is not 100% local "...because we just can't afford to [be]. Well, that's not true....I'd like to believe it's only because we can't afford to. But at the same time we're serving summer fresh pasta [in March] because we really want to. There's an element of choice....Part of that choice is to serve out of season items." Clearly, participation in local food is not an all-or-nothing affair. Entities can be local in varying degrees, and even those that are the most local may not be entirely local. Perhaps more crucially, some interviewees noted the limits of participating in an extreme local-only food system. In the words of the produce buyer at the grocery store Many Acres, "Everything we have is not local. If we only carried local stuff, there'd be a pretty limited supply. And I'm not sure the store would really stay in business."

While the element of choice is not a focus of my analysis, it does form a salient backdrop to the next chapter. In Chapter 5 I more closely consider farms and vendors in the Pioneer Valley and the processes by which they make local food *work*. An economic rational choice model suggests that they (especially vendors) should engage with the cheapest option available, which generally means the industrial food supply. Yet as we shall see, over and over these local food participants choose instead to continue engaging with each other to support and maintain a local food system.

In this chapter I have shown how farms and vendors who participate in a local food system engage with the concept of local in practice. In southern New England, at least, local food stays within fairly small sub-regions, rarely traveling further than 100 miles and often no more than 50 miles. While it remains to be seen what ranges may exist in other parts of the U.S. (and even internationally), this approach to articulating the boundaries of local food provides one possible set of tools for more clearly identifying the contours of the practice of local food. On a more fundamental and generalizable level, I have also gone beyond simply articulating the boundaries of local by identifying some of the major elements that influence those boundaries and contours. Whatever the range of local in other regions, this study provides an important theoretical contribution to understanding the forces that influence the boundaries of local food.

CHAPTER 5

"INVOICES ON SCRAPS OF PAPER":

POWER, TRUST, AND RECIPROCITY IN

LOCALLY-BASED FARM AND VENDOR RELATIONSHIPS

Okay, so what do you guys think? What's our plan in terms of how do we make this actually happen?

– Student Farmer, in a Farm-Cafe planning meeting

In Chapter 2 I indicated that the establishment of local food systems is not without its challenges and argued that though local food has considerable sustainable promise, it is not a de facto sustainable solution, particularly in terms of economic vitality and social responsibility. The purpose of this chapter is to examine the structural, social, and economic impediments to local food and explain how farm and vendor¹ participants overcome them to establish and maintain a vibrant local food system. With all of the impediments to local food (especially the broader economic constraints of the industrial food system), how do locally based, direct-to-vendor (DTV) food systems work in practice? For clarity, I break this down into two specific research questions for this chapter. First, what are the constraints that farms and vendors face in local-food participation? Second, how do they overcome these sometimes contradictory interests to forge a functional locally-based food system?

In this chapter I argue that the major impediments to local food derive from the influence of the industrial food system, which pushes both farms and vendors to expand their size and markets and therefore further emulate and accommodate this dominant system thereby potentially undercutting their local focus and local-as-sustainable

¹ Vendors are food-related establishments, like restaurants, grocery stores, and value-added food processors.

potential. Implicit to this argument is the understanding that for locally-based food to truly realize its sustainable potential such systems must integrate with a variety of vendor food outlets. Local food (both in practice and scholarship) currently focuses very heavily on direct-to-consumer (DTC) arrangements. However, most consumers obtain their food through grocery stores or eating out in restaurants (Allen 2006). Locally-based farm-to-vendor arrangements must be the next phase of local food development, and this chapter contributes to understanding that development.

I begin this chapter by briefly discussing the methods that inform my findings. I then highlight some of the broad structural impediments to local food imposed by the dominant industrial food system. I continue to answer my first research question by examining the ways in which these impediments play out on the local level. Following this I answer my second research question with an explanation of the ways in which farms and vendors work together to establish trust and collectively work toward the establishment and maintenance of their local food economy.

Methods

This is a mixed-methods project built on two primary arms to hone in on the processes by which local food is played out. Though this chapter relies most heavily on traditional qualitative methods, including mostly in-depth interviews but also some ethnographic observations, it is heavily informed and contextualized by a social network database. The network data set covers locally-oriented farms and vendors across Southern New England (Massachusetts, Rhode Island, and Connecticut). The crux of network analysis lies in measuring the relationships between different entities, in this

case which farms and vendors sell to each other. Using this information I am able to identify the most central farm and vendor participants in a particular area.

My interview sample is based in the western part of Massachusetts, a region known as the Pioneer Valley and recognized nationally for its fertile farmland. Using the network dataset I was able to target an interview sample of entities with the greatest number of ties to other farms and vendors that are *similarly interconnected within the food system*. This means that my sample is much more than just a convenience sample of farms and vendors that seem to be very locally-oriented. Rather, this is a targeted sample of the most interconnected farms and vendors in the area ensuring that I'm speaking with people who are practicing local food in the most complete possible way currently.

In total I interviewed people at 6 farms (all of which run general produce operations), 4 restaurants, 5 grocery stores, and 2 food processors. This resulted in 24 interviews, most lasting around an hour, as well as fieldnote observations from farm locations, farm delivery runs, and vendor operations. Most interviews and fieldnotes were collected between February and May 2011, though some data were collected in the early fall of 2010. All names used are pseudonyms.

Impediments to Local Food

"Local and regional fruit and vegetable production will languish anywhere that the commodity program has influence."

– *New York Times* editorial by Jack Hedin (2008)

According to Hart and Saunders (1997), power between a producer and a vendor has two components: their dependence on the other party and the use of that dependence to influence change according to the intentions of the less-dependent side. On the aggregate, vendors have greater power than farms because of farms' overall dependence on vendors' willingness to purchase from them rather than the industrial supply chain.

Specifically, this dependence is a function of two things: the relative proportion of a farm's income that comes from a particular vendor and the size of the farmer pool that supplies a particular product.

It is important to recognize the broader context (and constraints) within which these locally-based systems operate. The modern industrial food system itself is the source behind the most significant impediments to the development of (sustainable) local food alternatives. The industrial food system has a lot going for it: federal policies and subsidies that favor large-scale agriculture, massive distribution networks and transportation systems, and an overall large scale of production, all of which helps to bring food costs down and undercut locally-based and small-scale producers (Norberg-Hodge 1998; Stephenson & Lev 2004: 210). In particular, the large produce growers of the U.S. South and West (especially California) are able to produce vastly greater quantities of food over a longer period of time than can be done in other areas, especially New England. In such a system, which generally helps keep the overall cost of food low, the only thing limiting the available food supply for consumers (whether individual and institutional) is a desire to source from local farms. In purely economic terms this decision is in some senses an artificial restriction of the overall food supply, considering they could return to the conventional system at any time (c.f. Hinrichs 2000; Guthman, Morris, & Allen 2006). Between farms and vendors, this gives vendors far greater power on the whole than small-scale food producers.

Not only is the supply side of industrial food important, the demand side is also. As our food system has industrialized over the last century, large grocery stores and other large food buyers have become the main purveyors of food to the public. This has helped

shift how consumers approach food, since now people are able to prepare the same meals month after month rather than adjusting to what is seasonally available. Further, these large food buyers have economic weight to demand lower prices, primarily through their ability to buy in bulk. Just as large food producers can set a minimum purchase order, large food outlets (especially chain grocers) can set both volume and price standards that local suppliers must meet in order to have their products sold in the store. Without some mechanism of contributing significantly to an institution's overall food needs, small farmers have a difficult time competing with the availability and convenience agribusiness provides. Similarly, when purchasing from the industrial food system institutional buyers often do not directly pay the full cost of transportation meaning that "without addressing the financial structure that upholds the industrial food system, cost of transportation remains a challenge" (Vogt & Kaiser 2008: 253).²

Conventional wisdom holds that locally-sourced food is more expensive than industrially produced food, and there is evidence to suggest this is true (c.f. IANR 2003; PFI 2002; Starr *et al* 2003; Thilmany 2004). As but one example, locally-marketed food tends to be organically grown (Izumi, Alaimo, & Hamm 2010; Kremen, Greene, & Hanson 2003; Union of Concerned Scientists 2004; Vogt & Kaiser 2008) and organic food often carries a price premium of anywhere from 25-75% more than its non-organic counterparts, regardless of source of origin. This is a significant barrier to institutions on tight budgets (especially schools, which face limited operating budgets and are forced to

² Though somewhat outside of the scope of this research, international free trade agreements like NAFTA and certification systems like HACCP (Hazard Analysis and Critical Control Points) and GAP (Good Agricultural Practices) also hurt (especially small-scale) agricultural producers. NAFTA does this by encouraging centralization of processing and a shift of that centralization to where labor is cheapest – leaving other producers out of work (McDonald 2002). Meanwhile HACCP and GAP are designed much like modern organic certification standards, with large production farms in mind. Locally-based (often smaller) farms that wish to sell to venues insisting on these certification systems may not have the resources to abide by the systems' requirements.

reduce what they can afford to spend on food) as well as to farms needing to earn a viable income for the food they produce. Both the tendency of local food to be organic food and the need for a viable income (for both farms and vendors) offer possible (if partial and incomplete) explanations for the higher price. Though there are even more profound cost implications, they do help us in a basic way to see cost as an impediment to local food.

The tension around establishing a fair price balanced against the higher cost of local and organic food can be seen in interviews with an area value-added food processor (Veritas) and one of this processor's produce suppliers (Crystal Brook Farm). The food processor feels this tension especially acutely, being both a food buyer (from the farms) and a food supplier (to the grocery stores, restaurants, food distributors, and even individual consumers).

Our products are already pretty expensive. In this cheap food system we're pretty expensive. So we're trying to keep our costs down and we're not making a ton of money by any stretch. And so just trying to negotiate those things and having a social consciousness of wanting to respect farmers and wanting to pay them a good price. Not really sure in the end of what a good price should be considered to be. So having to try to pay -- having to try to get prices down, you know, to keep prices down to some extent, to make our business model work. So that's an internal struggle that I have in my approach to who we're going to buy from and what kinds of conversations I have with them. (Veritas)

Here we see an all-organic value-added food processor struggling to balance making enough money for his business while paying his farm suppliers a fair price, all in the context of the industrial food system which is able to offer similar (if not always organic) products for much cheaper. In short, his problems are exacerbated by competition from the dominant food system. It is not a challenge he takes lightly, as other parts of our conversation indicated: he spoke repeatedly of his commitment to sourcing local and organic produce as a means of promoting both environmental and economic

sustainability while at the same time acknowledging these continual pressures to "sell out" in some way (typically by requests that he source or sell more broadly). His main way of balancing these constraints has been to focus on a small handful of larger local farms that can more easily meet his supply needs at relatively low wholesale prices.

These challenges are felt by the smaller of the farms that supply him, however.

One of the owners of Crystal Brook Farm shared with me her ambivalence about continuing to work with this food processor:

Veritas charges a premium for it. It's organic, it's sourced as locally as he possibly can. So that's always something that we deal with every single season with them is just bartering the price. And for us, it seems like the price always goes up, but he either wants it to stay the same or...and that's not something that we can do, so that's something that we notice that each season we might grow a little bit less on that end because he can find it cheaper somewhere else. Which is totally understandable. (Crystal Brook Farm)

Because this farm does not rely too heavily on this vendor, they are somewhat protected against the vendor's need for a lower price (Hart & Saunders 1997). I have already mentioned how the industrial food system gives greater power to vendors than to farms; here we can see one mechanism by which the farm can partially mitigate that power. Power between farms and vendors is a function of 1) the relative proportion of a farm's income that comes from a particular vendor and 2) the size of the farmer pool that supplies a particular product (Emerson 1962; Hart & Saunders 1997). In this example, Crystal Brook Farm's income from Veritas is small enough that the concern over supplying less to that account is minimal. The risk faced in these competing forces, though, is that the relationship between this farm and vendor could eventually fizzle and end. While each entity itself will likely continue to survive, it does suggest a somewhat fragile and tenuous connection which does not seem conducive to maintaining a strong

and dynamic local food system and points to the cost tensions inherent to local food systems.

The main constraints on locally-based farms and vendors are the interrelated forces of cost and sourcing, yet so far I have focused on cost. In short, sourcing is about the physical distribution and delivery of food. Small-scale producers often do not have the time or money to make their own deliveries to schools, restaurants, and other vendors, especially if they are not located near the farm. Further, vendors (especially restaurants) need an efficient ordering system as well as assurance that food is available when needed and delivery happens smoothly (IANR 2003; Thilmany 2004). Issues of sourcing are directly tied to cost in that someone must pay for the transportation of the food, however far it travels. This is another significant motivator behind the push for farms and vendors to expand in some way: a few larger deliveries are cheaper to move around than several small ones.

What we can see in this initial discussion of cost and sourcing are pressures for farms and vendors to get big in some way. This is the mentality of the dominant food system: its greater economy of scale provides a recipe for cheaper food coming from further away (Allen & Guthman 2006; Izumi *et al* 2006; Izumi, Wright, & Hamm 2010; Vogt & Kaiser 2008). I now turn to a more detailed examination of cost and sourcing impediments locally-based farms and vendors face and the ways in which these forces pressure both entities to expand.

Farm Impediments

The forces of cost and sourcing play out in three primary ways with farms. Though I address all three separately, it is important to bear in mind that, these three

mechanisms overlap in a variety of ways. These three mechanisms are a farm's scale of production (or size), delivery and transportation issues, and labor.

Scale of Production

While this is not always the case, locally-based farms tend to be small-scale farms. Even within this broad categorization it is possible to create further distinctions of small local and large(r) local, however, compared to the farms that supply the industrial system (and tend to neglect local markets), all of these farms can be considered small. As a reference to this, the farms I studied ranged from 1 to 35 acres and from 4 to 45 workers. While there were "local" farms in the broader network data set that were much larger (the biggest general produce farm being 300 acres), these farms tended to sell only a little of their food locally; most instead went to large distribution chains³. Compare this to farms that supply the broader national and global market: the "average" farm size in the U.S. is just over 400 acres and even in the state of Massachusetts the average size is 67 acres, about double the largest farm in my sample; further, of the 2.2 million farms in the country, approximately 15% of them are over 500 acres in size, yet these farms account for approximately two-thirds of all farmland (USDA 2009). In short, however we choose to classify them smaller farms face greater hurdles in terms of production costs than do larger farms.

The owner of Lane's Market highlights this constraint (and others) for farms especially clearly. His examples are especially powerful because they show not only the distinctions of production between industrial scale and locally-based agriculture, but also between locally and regionally based operations:

³ Since I do not have any sort of measure of "localness" it is impossible to tell what the largest locally-oriented farm is.

Probably just two weeks ago I had a customer who was so baffled about why [a local] milk was more expensive than the shipped in one, which comes out of New Hampshire. It should be cheaper, right? Because it's just right here. Well, it's cheaper for them to get it to us, less delivery cost, but the scale of production is so much less, and so it's costing them more to produce it, they can't buy the cartons in the quantity that someone else can. It's just the economies of scale....I run into the same thing where in the middle of August it is cheaper for me to buy lettuce from California than it is through [one town over]. And it's just because that's all they do. And they're also paying people much less to do it. (Lane's Market)

The issue of scale is one that significantly impacts the overall production (and therefore price) of food. Lane's Market is a small enough store that the owner is able to make at least some accommodations to these small producers, knowing that he can justify the slightly higher price to his customers. However, this difficulty becomes even more acute when such farms attempt to sell to larger food buyers, such as area chain grocery stores: because these larger buyers typically buy in bulk, they can set certain volume and price standards that local suppliers may not be able to meet. In many ways this also relates to costs associated with distribution and delivery of food (though, notably, not in the example of the milk), as well as labor.

Delivery and Transportation

Cost of transportation is an issue for most local farms, even the somewhat larger ones. How farmers will coordinate delivery of their food to a variety of vendors is a question that takes considerable coordination and planning and is largely a function of available material, human, and economic resources. Not only does it require having the proper vehicle (usually a small box truck, but sometimes a personal car), making delivery rounds takes a significant amount of time (i.e., labor cost; see below) to complete and farms must sometimes seriously evaluate whether or not they can afford to make a delivery. In the words of one farmer, "delivery logistics are one of our biggest challenges

running the business" (Green Tree Farm). As this farmer later explains, orders that are very small or significantly out of the way of an established delivery route often do not happen:

If it's a small order and it's just a matter of stopping and dropping it off somewhere that you're driving by already, that works. But if it's a smaller [order] and you gotta drive an extra twenty miles, then we say no, that's not worthwhile....They're welcome to come to us and we'll have their produce ready to pick up.

Here we see willingness for farms to accommodate and negotiate with their customers' needs to a point. This farmer is balancing delivery costs with goods delivered. If the order were a bit larger, that might justify adding another twenty miles to the trip⁴.

To make deliveries, farmers must set aside certain blocks of time (often entire days) and establish a consolidated and efficient delivery route. The strain of deliveries was, in fact, one significant reason one farmer I spoke with (Blooming Harmony) is leaving this market altogether. He left selling to farmers' markets initially because of how much time he spent in the truck (round trip) on market days. After ten years of selling primarily to area restaurants and grocery stores, he finds he still spends more time driving food around than he would like. The toll of all this driving has pushed him to rearrange his entire business model to do almost exclusively on-farm sales. In a similar vein, another farmer I spoke with shared how she and her husband "started out initially doing some restaurant wholesaling and it ended up not really working well in our system because of the smaller quantities" (Crystal Brook Farm). Interestingly, this turned out to be an issue with grocery stores as well as restaurants. She later discussed her

⁴ On a winter delivery run with this farm I witnessed this firsthand: the head farmer approved a small delivery to an only slightly out-of-the-way cafe largely as a gesture of good will because of the large orders placed in the summer; however, a similar last-minute order to a more out-of-the-way restaurant (for that day's route) was not approved.

ambivalence toward continuing to sell to one of the smaller grocery stores in the area because of both the small delivery each week and the difficulty of getting to them. While this farm still sells to a few vendors and even food distributors, their primary focus has remained with a CSA operation and the few vendors they sell to are mostly either large bulk orders (like food processors) or people willing to come to them to pick up the produce.

Labor Costs

Labor is also a significant constraint and ties directly to both of the above mechanisms. The farmers in my sample work to pay their employees a fair wage, which is often not the case in much of conventional agriculture. The student farm best underscores the limitation of needing to pay for labor: of \$9000 in expenditures for 2010, \$7000 went to paying student workers. "And if you think about it," says one student farmer, "ours is lower compared to other farmers because we only pay our students in the summer – because they're getting course credit through the spring and the fall." On the industrial scale, farms deal with the issues of labor in generally one of two ways: by hiring migrant labor (which they are often able to pay lower wages due to this marginalized group's lack of social or political power to demand otherwise) or by investing in lots of labor-cutting machinery. While the locally-based farmers in my sample do have some machinery, it is considerably less than is found on industrial farms, and none of them employ any migrant labor.

In addition to this, as the old adage goes, time is money. On a delivery run I did with Green Tree Farm, the driver (also the farm's harvest manager) "noted that normally it was just one person [driving the delivery] because [the owner] didn't want to pay two

people when really so much of it was just down-time sitting in the truck" (taken from fieldnotes). In other words, delivery costs are also tied to labor costs in that someone has to be paid to drive all of the food around. Add to that the cost of a fair wage and labor costs can quickly raise the overall costs of locally-based food.

Summary of Farm Impediments

All of these examples point back to a broader issue that I discussed briefly in the last section. Absent some other mechanism of dealing with these impediments, even locally-based, small-scale farms (and food processors, when they are selling their product) experience continual pressure to get big, whether in terms of increasing their size and production, increasing the number of outlets to which they sell, or selling to larger accounts. They feel pressure to diversity their sales outlets to avoid becoming too beholden to one purchaser (Hart & Saunders 1997; PFI 2002; Vogt & Kaiser 2008) and they feel pressure to increase their size and production in order to meet this demand. The balancing act, though, is ensuring that those outlets are large enough to warrant a delivery but not so large that the buyer controls the arrangement. If deliveries are difficult to do or simply have a minimal return on investment for the farms, farmers have a low likelihood of establishing or maintaining that sales outlet. Alternatively, if these forces run unchecked, they bring these farms (and vendors) right back into a problematic form similar to the industrial food system.

Vendor Impediments

Vendors face similar pressures related to size, but these pressures operate in slightly different ways. While vendors don't necessarily feel a need to increase their size, the convenience and consistency of the industrial food system encourages them to

demand similar qualities from local food supplies. Sometimes the cost differences between local and industrially-produced food, whether because of a limited scale of supply, difficulty in procuring the food, or vendor-related labor issues, are enough that buying some things locally may be impossible. In this section I will examine how each of these forces plays out in ways that can inhibit vendors from fully participating in a local food system. As seen with the farm impediments, all three of these forces are interrelated; however, on the vendor side this is especially true for the size (or scale) of the food supply and how that food arrives at the vendor.

Scale of Supply and Procurement Issues

Two themes that emerged from nearly all of the vendors I interviewed (including restaurants, grocery stores, and food processors) were a desire (and even need) for convenience and consistency. Vendors often have limited storage space and so want regular, somewhat frequent deliveries, something the conventional food system, with its fast distribution network, can easily provide and small-scale producers may have more difficulty doing⁵ (PFI 2002). Several vendors I spoke with said they tended to work with local farms whose "supplies are consistently dependable" (Lane's Market) and "that we can trust that they're going to follow through and be dependable" (Veritas). When things do not show up as or when anticipated, or if a farm simply does not have a regular delivery schedule, it can create great difficulty for these places and vendors generally have the power to demand something different or, if this demand cannot be met, to easily walk away either to another (often larger) farm or the industrial supply chain. As an

⁵ This issue is often compounded for farm-to-school (FTS) systems by the fact that many school food service facilities are outdated or lack the equipment or even space necessary to perform these tasks (Hassenein *et al* 2007; Izumi, Alaimo, & Hamm 2010; Izumi *et al* 2006; Izumi, Wright, & Hamm 2010; Kloppenburg *et al* 2008; Vogt & Kaiser 2008).

example of this, one grocery store manager told me, "Last year I bought from [a local 25-acre farm], which this year it's going to be [a local 80-acre farm] because they've got a more steady supply than [the smaller farm] had last year" (Many Acres). His need for a consistent supply of food throughout the season is the primary force behind his switch to a larger farm to provide his fresh produce⁶. Again we see that this vendor's ability to access a relatively large farm pool for food gives the vendor greater power than the farm to determine the details of the relationship (Hart & Saunders 1997). Because of this desire for convenience and consistency, vendors are encouraged to source food from ever larger farms that can more easily meet their supply needs.

Scale of supply becomes especially important for grocery stores. The produce manager at one grocery store cooperative told me, "[What a lot of small farmers] don't realize is that it's going to sell in an hour. Especially if it's gorgeous [and] local...We won't keep it on the shelf. We don't even have to do anything to it. We just put it out with a sign, so... – farmers don't quite realize that. So when they have that 10 pounds of beautiful green beans, you know, when we're selling 25 pounds a day. And, so those just get mushed into that" (Upper Valley Coop). Most people get the majority of their food from grocery stores, meaning that these food outlets need a rather large supply, a problem that becomes especially acute for local food supplies. In this example, the small farm is barely supplying a third of what the store needs – of a single product, for a single day. In all likelihood this farm is only making one or two deliveries a week. Clearly, then, grocery stores either need to be prepared to handle numerous regular deliveries from a

⁶ One of the purchasers at Upper Valley Coop nuanced this for me by pointing out that "we see a lot more inconsistency from the mid-sized farms." While these larger farms were more reliable in supply and availability throughout the season, the quality of their produce was generally less consistent than that coming from the smaller farms from which Upper Valley Coop purchased.

variety of different places or will feel pressure to turn to a large distributor to meet their food needs.

This pressure to source from larger farms is further exacerbated by the larger farms themselves, and is felt especially strongly by the grocery stores. On the level of the industrial supply chain, mainline distributors may require large minimum purchase orders which leave little spending room for food from other sources. Larger farms, which may be local in proximity to a vendor, but not local in their sales orientation, sometimes follow this practice. This is not necessarily a malicious thing; recall that transportation costs are a real concern for farms of all sizes, so sending small orders (especially when one's farm is set up for large quantity deliveries) may not be cost effective. One grocery store owner (Lane's Market) highlighted this difficulty when he told me of one large farm he wanted to work with. The farm told him that the amount they'd make in sales by delivering to him wasn't worth their time when compared with much larger sales they could make by shipping to Boston (approximately 100 miles away). Boston is also generally able to support higher prices than the less urban Valley can. Another grocery store produce buyer (Upper Valley Coop) told me he rarely worked with the larger (yet nearby) farms because their minimum order was often more than he could sell in a reasonable time frame. Instead, he would "get local stuff through [a distributor that farm sells to]...because some of the larger local farms...don't really do a lot of sale to smaller outlets like us. They all sell it in truckloads, in pallet quantities."⁷

⁷ Some vendors are also limited in how much they can or will purchase due to various regulations, rules, certifications, or contracts. This is most often an issue for FTS arrangements. Many school food service providers are governed by certain regulations and contracts that make it difficult for locally-based farms to enter the market as one of their food providers. Further, integrating small-scale producers in a system designed for corporate accounts can also create difficulties in coordinating deliveries and payments.

While smaller farms are more likely than larger farms to supply a vendor with whatever amount is needed (assuming the quantity exists), the problem with working with smaller farms means a need to source from more of them. This adds considerable time and effort on the part of the vendor. The owner of The Citizen's Cup highlighted how the one-stop-shopping convenience provided by large distributors makes some vendors reluctant to invest the time in sourcing from so many smaller farms:

And then measuring, what is that going to cost us in terms of trying to get it versus that phone call that we can make and have it all delivered to your back door? And that's a constant temptation. I mean, I understand why most restaurants are like, I'm just calling, and I'm going to go down the list, bring me this, this, this, this, and this.

Restaurants are not the only vendors that face this difficulty. According to the owner of Lane's Market, one of the biggest challenges for his grocery store in procuring local food is "the struggle of the time involved in having to piece together all these farmers. It's so much easier to have my produce person call one supplier and run down the list of forty items that we need. As opposed to call six different farms to get half of the lettuce." These various difficulties and constraints related to procurement and scale of supply are serious challenges vendors face in maintaining participation in locally-based food systems.

Labor Costs

Labor costs can also be a significant issue on the vendor side of things, at least for restaurants. Though some small farms do processing on some of their food, this tends to only occur for high volume items that can become nearly overproduced at peak points in the season, for example, using extra tomatoes to jar tomato sauce or freezing excess squash and zucchini. Other than this, local food tends to arrive in raw form or minimally

processed, while the conventional food system can often easily provide varying degrees of partially prepared foods as well as more uniform sizes (Thilmany 2004). This means that food service workers must take the time to peel, cut, and prepare the food, a task that takes time and skill and is often provided by industrial vendors (Starr *et al* 2003). Some food items take significant time (which means labor) to prepare from raw form, as these two examples illustrate:

Garlic was briefly on the table but quickly shot down because...it takes a decent amount of time to peel garlic. Which is an issue when the recipe you're making requires 10 cups of garlic....there just isn't the time.
(Student Cafe)

When we first opened Charity Acorn we did get chicken from [a nearby farm], whole chickens. But we were breaking them down whole and finding that we weren't really being efficient about using other parts and just having to do that much butchering was a little overwhelming, being a new restaurant. So now we're getting in a natural, free-range chicken, but it's not from as close by. (Charity Acorn)

Not only are these places often paying a premium for the food they buy, they must also factor in the cost associated with the time it will take to prepare that food. In the case of the student cafe, rather than buy local garlic that they would have to take the time and energy to peel themselves, it was cheaper for them to buy pre-peeled garlic shipped all the way from China. In this case they are relying not only on the industrial food system, but the global supply chain as well. Though the prices of the actual items were about the same, the ability to essentially outsource the labor made all the difference in helping to keep their budget balanced.

Similarly, Charity Acorn preferred the local chickens until they realized they were not adequately equipped to deal with processing whole chickens themselves. Not only was this a labor-related constraint, it was also an issue of waste. The restaurant did not

have the person-power to deal with chicken cleaning and butchering on top of the other labor needs of the restaurant and at the same time this process produced several left-over parts for which they had no immediate use. This pushed them to similarly outsource the labor of butchering the chicken and source from a farm further away (though not as far away as the student cafe's garlic).

Summary of Local Food's Impediments

The impediments discussed above may suggest to some that vibrant local food systems cannot function in a healthy way beyond mere lip service. The power differential between farms and vendors often allows vendors to dictate the terms of the arrangement to farms, especially for smaller farms with fewer sales outlets, often seeming to limit farm flexibility and autonomy. These constraints are such because of the ease with which vendors may source nearly any food they like from the broader (industrial) food supply as well as because of various cost and sourcing limitations that also exist on the farm end. Considering all of this, could local food be nothing more than a passing fad, a system that runs only until it capitulates to the dominant model and loses its sustainable potential?

While such a danger is always present, the food system I have studied indicates that this is less likely than we might believe. In reality, many farms and vendors are at least intuitively (if not explicitly) aware of these possible pitfalls and so do things to mitigate them. Many local food participants *want* to see their local food system succeed. It is out of this desire that farms and vendors work together to establish trust and collectively work toward the establishment and maintenance of their local food economy. In the following section I show some of the main ways in which they do this.

Establishing and Maintaining Local Food Systems

Note that because nearly all of these problems inherent to local food systems ultimately stem from the larger political economy of food, the best solutions will come from outside the context of the farm or the vendor (Kloppenburger *et al* 2008). Ultimately, what budding local food systems need are policies at the state and national levels to provide incentives for institutional buyers to buy local food and to support small-scale farmers in establishing viable operations, as well as removing some of the (unnecessary) supports for industrial farming (PFI 2002). For locally-based food to establish itself as a sustainable alternative to the current dominant system, farms must tap into the DTV market more fully. Absent such a structural change in the broader food system and considering the constraints discussed in the last section, what can local food participants do to help establish and maintain a vibrant and sustainable local food supply?

There are multiple levels on which this question can be answered because the impediments to local food operate on material, structural, and interactional levels. On both a material and social structural level, local food systems need greater infrastructure and money to build such infrastructure. On an interactional level, it is important to consider the social arrangements inherent to local food systems. Regardless of the level considered, I argue that it is imperative to approach solutions to local food systems reflexively (DuPuis & Goodman 2005; DuPuis, Goodman, & Harrison 2006). With this caveat in mind, I begin this section of the chapter with a discussion of the interactional ways farms and vendors create a sustainable local food system, followed by a discussion of some possible small-scale structural solutions and their material and social implications.

Developing Trust between Farms and Vendors

We are growing these crops for you guys, planning on you guys buying these. (Student Farmer to members of the Student Cafe)

Within the context of the social and business relationships between locally-based farms and vendors, the most important thing that can be done to establish and maintain locally-based food systems is to develop trust. Based on my interviews, this happens most effectively through clear and open lines of communication and reciprocal accommodation of the others' needs. I begin this section with a discussion of the importance of trust and some of the general ways it can develop, followed by a brief articulation of the role of open communication and then the ways this impacts participants' engagement in cooperative reciprocal relationships with each other.

At its core, trust is "the optimistic anticipated behavior of another party" (Hart & Saunders 1997: 30). To the extent that one side conforms to such expectations, the other party is encouraged to do likewise and therefore continue the association. Scholars have noted how trust is a common solution to provide social order in otherwise uncertain markets, especially when there exists a great need for cooperation among market actors (Beckert 2009; Cook 2001; Gambetta 1988; Luhmann 1979). The need for trust comes from recognition of vulnerability between farms and vendors. Both sides have something meaningful at stake and are aware of the potential for betrayal or harm from the other (Bigley & Pearce 1998). Though this is true of both farms and vendors, farms are the ones that need to develop greater trust since they are at a power disadvantage relative to vendors; therefore it is especially important for vendors to demonstrate good will to farms. Essentially, farmers need to know that they will have a market for their goods. This is especially true for smaller farms which may not have the access to a variety of

markets more common with large growers. The student farmers were especially cognizant of this barrier, as one member of the student cafe described when he signed up to work on the farm. The previous year the farm grew a large quantity of broccoli that the cafe was unable to purchase, leaving the farm with an unexpected excess and (at first) no clear market.

They were a little unsure about the relationship with the cafe at the time....So I had to reassure her that the collective was really supportive of the farm and so excited to be working with the farm. And I couldn't speak to the broccoli because I wasn't directly involved on either side. But we talked about it and decided that really we just needed more planning and more transparency than anything else. So it's clear what the prices are going to be, it's clear what the cafe can and cannot purchase, so that neither side has expectations [that can't be met].

This reassurance on the part of the cafe demonstrated *caring*, one of the four qualities that Hart & Saunders (1997) identify as an important component of demonstrating good will and establishing trust. *Caring* is the knowledge that vendors will not take advantage of farms. Vendors can show caring through an interest in the farm's welfare and recognition that both entities have similar (and not conflicting) goals. Another important quality is *openness*, or a willingness to listen to new ideas and share rather than withhold information; it is the basis of a vendor's ability to effect change in a farm supplier (and vice versa). When vendors are open to changes that improve efficiency they reinforce mutual interest in the relationship. Caring and openness are related in that they are demonstrated through partner-proposed changes to improve operational efficiencies.

Leading into the 2010 growing season, members of the student farm and cafe met to plan and discuss their arrangement for the coming year. In a follow-up interview with the student farm-cafe liaison, he told me that

even though a lot of that planning ended up being modified as we went or abandoned as we went, that was okay because it was understood because of those meetings that we were sort of on the same page and we were both trying to do the same thing. So even when things changed and the cafe said, well, listen, you know, we can't buy your onions; they're too small. Even when things like that happened, I don't think there was animosity because it was understood that we were sort of in the same place.

That "understanding that they were in the same place" can be understood as an implicit acknowledgement of the openness and caring between the two groups, which were major components that helped strengthen the level of trust between them. At least two other vendors were aware of this need to display openness and caring to farmers. One produce buyer at Upper Valley Coop tells farmers:

Like, oh, don't worry about it, when your crop comes in, when it's really coming in – because they'll come to me offseason, like, you don't know how that crop's going to go, but as soon as you have it, come in. Even just give me a call and just come in with the stuff or bring one in and we'll eat it. Just let me know what's coming in and then we'll help you.

This display of flexibility on the part of the vendor signals that the vendor is open to working on the farmer's schedule and is a reminder that locally-oriented vendors have a vested interest in not only their own success, but in that of the (local) farmer as well. This allows a farmer to trust a vendor that a market opportunity will exist when produce starts coming in.

Farmers are not the only ones who need to develop trust, however, though it is perhaps more important that they do than vendors. Vendors relying on a local food supply need to be able to trust farmers as well. In particular they need to be able to trust the quality of the food and the reliability of its delivery, what Hart & Saunders (1997) refer to as *competence* and *reliability*. *Competence* builds credibility and therefore willingness to trust the other actor and value the relationship while *reliability*

demonstrates consistency in word and deed. Vendors and farms that are reliable are dependable to follow through on promises made, which helps develop, reinforce, and strengthen a basis of cooperation and trust over time.

When farmers demonstrate competence they are helping vendors to trust the quality and integrity of their product. For example, one farmer I spoke with practices organic farming without being certified organic. "It requires a little bit more knowledge on the part of the individual purchaser," he says. "They sort of need to get what we're about in order to feel that it's worthwhile to make the extra effort to promote our stuff....And I think that there are a lot of people out there that do get it" (Cook's Plot). Because of this farm's proximity to a non-organic farm, they are unable to qualify for organic certification, even though they are otherwise running a completely organic farm in practice. Without this certification, this farm often has difficulty obtaining the usual organic price premium at various outlets and therefore must work harder to demonstrate to potential vendors their competency and reliability in the practice of organic farming.

When I joined Green Tree Farm's delivery run one week, the trust various vendors have in the farm's reliability (and honesty) became apparent. At two different stops, no one checked the delivery to ensure accuracy or quality, though they did notice our arrival. The indication I took was that they trusted the farm's reliability. This reliability on product becomes even more pronounced for food processors. The owner of Veritas told me of his business' reliance on only a few farms to deliver 70-80% of their annual produce needs (on the order of several tens of thousands of pounds of produce. Yet nearly all of these arrangements are coordinated with only a few brief phone calls shortly before the advent of the growing season. He says:

And I have to trust them, and I do -- you know, we've been doing this for a while, and they're good farmers and they're conscientious. But that part does get me a little nervous, you know, but I don't -- there's not really much more that we can reasonably do. *If we were to write a real contract, I don't think it would help either of us. It would just be sort of a pain in the ass for all involved.* So it's just the way it works out, it's this very simple, quick interaction, for an enormous thing for our business.
(emphasis added)

While many may think of a legal contract as some sort of security, this person indicates that a contract would instead get in the way. The connection he has with his suppliers is enough for him to be confident that what he needs will be available when he needs it – and for his suppliers to be assured that at least a certain portion of their farm's produce will be purchased. This is a clear example of the trust building that goes on between farms and vendors in local food systems.

Communication

One of two significant components related to establishing trust is establishing clear and open communication. It should come as no surprise that a significant component of establishing and maintaining locally-based food systems rests on farms and vendors being able to regularly and honestly communicate with each other. In many cases this means being able to do some advance planning so farmers know what and how much to plant and vendors can be reasonably sure certain items will be available. While I address this in more detail in the context of negotiation and reciprocal relationships in the next section, a few general remarks about communication are in order.

One part of establishing regular, open lines of communication is having some consistence with ordering, something both farms and vendors value. Consistency could mean that vendors have a standing order with certain farms, as was the case with several people I spoke with. Consistency could also mean a regular pattern of communicating

both what was available (and when it will be delivered) each week as well as vendors simply "[being] consistent about placing their order" (Green Tree Farm). It's important to recognize how this is a two-way street. Says one farmer, "most of the markets don't really appreciate when you're like 'I've got so much of this.' On that same day, what can you take? Because they've already made orders at that time" (Crystal Brook Farm). Likewise, when vendors call late or change orders at the last minute, "that makes it really hard for us to get our harvesting process organized" (Green Tree Farm). Rush orders often mean greater chance of mistakes, as happened with the student farm and cafe. The cafe called last-minute one week for an order of onions, which the farmers attempted to fill (before running off to classes). This meant quality control wasn't very good and they included many more small onions than the cafe preferred, making the cooks that day upset at the extra prep work required. After a conversation about this, they agreed that "The student cafe will be buying student farm onions again this fall with the understanding that orders be placed sufficiently ahead of time so that the farmers aren't rushed. And if orders are placed ahead of time the farm will make sure that the cafe gets what it needs" (Student Farm-Cafe Liaison).

One thing that has helped tremendously in terms of issues related to consistent ordering is the increasing ubiquity of email. Several farms and vendors I spoke with discussed the ways in which email has streamlined and simplified ordering and other communication needs, and even how they wished more people would communicate this way. One vendor described the time-saving benefits this way: "To be able to just...block out an hour and sit down and look at everyone's list and decide what to get, that has certainly been a recent development that has been game changing in terms of...how much

local ordering you can do because it's so much less time consuming than it used to be" (Charity Acorn). Some vendors spoke of the challenge of increased communication with a variety of locally-based farms (rather than the single, centralized distributor), namely in terms of "remembering to make more phone calls" (Abbott's). Though email is not the only tool available to assist in such streamlining and consistency in ordering, it is certainly among the more useful, especially when compared to the time-investment of multiple phone calls.

Clear lines of communication are also important to have within an organization. This was an especially salient issue for the student groups, though others I spoke with also indicated its importance. This need for intra-organizational communication seems most important when different workers have a great deal of autonomy. Within restaurants, for example, not only do organizational values need to be clearly agreed to, more practically, those doing the food ordering and those planning the menu need to be on the same page. Without this clarity between employees, not only can the flow of operations within the organization be disrupted, but it can also cause an organization (especially a vendor) to drift away from its involvement and connection with parts of the local food system.

Building Reciprocity

The farms are just unpredictable. They can't say, okay, we're going to have tomatoes for you between this month and this month and we're going to have this many and this is how much we're going to charge. That's not how it happens. It goes like this: [She makes a wave motion with her hand]. Depending upon the season and the weather and quality and there's so many variables. And so really, we all have to be very flexible. (Upper Valley Coop)

If you're the kind of business owner...who needs very strict, rigid, predictable scheduled things to happen, you're gonna have a hard time

with the farms. Meaning you're going to have a hard time with Mother Nature. (Mountain Jars)

I think we have that understanding with the farms where they know that because we support them,...when they know we have other options, then they also will support us by giving us sometimes a little bit better deal than they might otherwise. To keep our restaurant with their produce. (The Citizen's Cup)

The main way farms and vendors work to build trust and mitigate some of local food's confinements is through engaging in reciprocal behaviors with each other. This, of course, must build on a solid foundation of clear and open communication. In a variety of ways they look out for each other's interest. On a general level, one student cafe worker referred to it as "mutualistic benefit: using what they have...we're going to serve good food to our customers to make money and they're selling to us and making money as well." But this reciprocity between farms and vendors goes deeper than simply economic benefit for both. In a variety of ways, both sides (especially vendors) do things to help the other function well which in turn only serves to strengthen the region's food system. They do this through negotiation, staying flexible, and accommodating each other's needs. These behaviors encourage continued interactions between farms and vendors, even a sort of loyalty.

That doesn't mean that reciprocity always comes easily. To truly engage in this give-and-take kind of process, vendors in particular must recognize the potential power they hold over farms and be willing to work around it (and show that willingness to farms). An intuitive recognition of the power that vendors hold may prevent some vendors from initially acknowledging ways in which they could make minor adjustments to accommodate farm needs. As one example, during a meeting between the student farm and cafe I observed, one farmer suggested the cafe create a list of ingredients they

normally use, so the farmers could generate possible substitutes to help them purchase more from the farm. Though the cafe members agreed to this, the initial (long) hesitation indicated to me that they had not seen the farm-cafe relationship as a two-way street before; rather, they likely conceptualized the farm as simply providing a service to the cafe.⁸

Negotiating the Relationship

Farms and vendors generally negotiate around two things: price and food selection. Several people I interviewed discussed a need to be open and honest when it comes to money, as expressed by the Deep Roots farmer: "I mean, it's definitely about developing those relationships so that they understand why you're charging something, they can feel comfortable saying we want to keep going with this but we can't pay that, we can only pay such and such. And then us talking about whether that works or not." In a similar vein, the owner of the food processor Mountain Jars said, "The farms need to be businesses first. And I understand that they're farming, but they need to be a business. They need to – we need to talk price, we need to negotiate. There needs to be some level of the same professionalism I'm giving." Both of these quotes directly confront an issue that is often considered taboo in polite relationships: money. This comfort with discussing price limitations is important for all local food participants and must be coupled with an ability to also talk fair price: "If we force them [the student farm] to charge us prices that put them out of business then we're without this local food and we really like having that" (Student Cafe worker). In some cases this may mean that farms

⁸ Two of the (largest) grocery store produce managers I interviewed similarly seemed oblivious to the prospect of such engagement with their farm suppliers. The conversations with both of these managers suggested a sort of "party line" wherein they expressed great pride in their local sourcing of food but showed no critical reflexivity around these relationships. These stores were the *only* entities that demonstrated this "party line" mentality.

adjust their price. In other cases it may mean that vendors adjust what they are willing to pay. One story that exemplifies how this can happen in a non-coercive way comes from the student farm. The student cafe had decided not to purchase broccoli in the 2010 season because of the price of organic broccoli. However, late in the season,

we had a bit of a problem with our broccoli on the farm where the stems had a strange sort of rot, and we weren't really sure if it was okay or not. It was sort of right on the borderline between not okay and -- so we harvested a lot at once to keep that from spreading. And we gave as much of it as we could to the CSA and then we had all this broccoli left and it was sitting. So we said, well, let's come way down on price and sell it to the cafe. So the cafe ended up buying something like maybe 150 pounds of student farm broccoli over the course of a few weeks for really cheap. So the student farm didn't make nearly as much as we would have, but...we made money on something that would have been waste and the cafe was able to serve student farm broccoli. So those unexpected things can work out. (Student farmer)

In this way both the farm and the cafe were able to benefit by being open to adjusting to new developments and honestly consider issues of price.

While negotiating price, farms and vendors are also negotiating (or at least discussing) food selection. This means not only an opportunity for farmers to ask what vendors may want or need and then plan for it; it also means vendors recognizing the variance (or nonstandardization) of food from the field. As the chef at Abbott's put it:

You know, local purveyors, they're growing what they grow, they're raising what they raise. And you have to sort of accept that your apples aren't always going to be perfectly uniform or your chickens aren't going to be the same size or some cows have more fat in them than others. The standardization is not always there. And...it's something that I think people are slowly learning more about.

Here this chef is showing openness to the variations that typically occur in smaller-scale food production; as discussed above, this openness is an important component in developing trust between farms and vendors.

Vendor Flexibility and Accommodation

Since farming is an inherently unpredictable venture, it makes sense that at least some of this unpredictability will get passed on to area vendors. This unpredictability is something the industrial food system has worked very hard to minimize, but when working on a smaller scale that's often difficult to do. The vendors who are most successful at maintaining relatively large supplies of local food are the ones that are most flexible to respond when opportunity knocks. "You really have to be flexible. And you really just have to take it one day at a time and hope that that asparagus is going to come in....If somebody else snatches it before you you're kind of in trouble" (Upper Valley Coop). This level of flexibility means not only keeping watch for new crops as they are ready for harvest, but also being willing to adapt (or even ignore) more traditional systems of procuring food. Though most vendors want some degree of predictability and consistency, occasionally farmers will call up (or even stop in) with a one-time offer: "There's a few people I can think of who are writing invoices on scraps of paper and handing them to us. And if the produce is there and it looks great and we have a use for it, then a lot of times that's how it happens and Accounting just sort of has to deal with it" (Abbott's). While some vendors (even a few I spoke with) may not be willing to do this, there are several who appreciate the quality and freshness such openness can provide. It is this very quality and freshness that motivates such vendors to let go of their need for advance planning and simply live in the moment. One of the buyers at Upper Valley Coop tells a similar story about the unpredictable yet much anticipated arrival of asparagus in the spring:

He just brings it in when he has it. We don't talk on the phone. We're just waiting for the asparagus because there's no way we can't sell it. And we

know that. And that's a relationships that has developed over the years....This farmer can sell his asparagus anywhere else. There's no reason [he should come to us] except for right relationship. There's no reason for him to come to us first. So we had to develop that and then we have to preserve it and nourish it.

This willingness to be flexible to the unpredictability of farming is a specific and important way in which vendors can demonstrate their accommodation to area farmers.

It is this ability to accommodate the farms that forms a crucial component to establishing trust between farms and vendors. While staying flexible to the conditions of agriculture is perhaps the clearest example of this, there are numerous other (often little) ways in which vendors can show a reflexive engagement as participants in local food systems. In response to their inability to supply enough produce to an interested vendor, one farmer spoke of how an area grocery store "create[d] something unusual for us:...a display that's just our stuff. It's almost like a farmers' market booth for us." At Upper Valley Coop, which specializes in only organic food, one of the buyers will often help local non-organic farmers who call up with produce to sell find a possible outlet. One of the food processors I spoke with told me the story of taking 400, rather than 200, pounds of cilantro because "it got really excited and grew really well" and she knew she couldn't just leave the farmer with so much excess he likely couldn't sell – especially when she knew she could eventually use it. The student cafe showed its willingness to accommodate the student farm by offering to adapt its recipes to substitute things the farm was growing: "I mean, if you had suggestions for instead of broccoli, this that we're growing would be good, these spices, these other vegetables, that would be awesome."⁹

⁹ In truth, this had been suggested earlier by members of the farm and only hesitantly accepted. With time, however, cafe members began to see the value – and even importance – of the idea. See also Hassenein *et al* (2007) and Vogt & Kaiser (2008) for more on food service vendors accommodating local food availability, both in terms of seasonality and in terms of what is grown in the region.

Another way for vendors (especially restaurants) to support farms is through mutual advertising, in particular calling attention to which products come from local sources (Hassenein *et al* 2007; Vogt & Kaiser 2008). The chef at Abbott's said, "It's fantastic...and it's a shared promotion." This sense of shared promotion may be a bit one-sided, however. Though some farms do list (on their website, for example) at what establishment one can find their produce, this kind of promotion is much more common to the restaurants¹⁰ (and to a degree the grocery stores, though I found the most evidence of this from the restaurant interviews). While it is, as the owner of The Citizen's Cup put it, "more than about just money," this promotion of another has the greatest impact of promoting trust between farms and vendors when it is done by the more economically powerful vendors.

On the flip side, vendor inability or unwillingness to accommodate area farms can often create strain in the relationship. During my delivery run fieldwork with Green Tree Farm, we made a delivery of butternut squash to a small coop grocer. While purchasing a snack, the produce manager called us back and told us rather brusquely that he couldn't sell the squash. It was not that the produce was poor quality; rather, half the bin was comprised of three very large squashes that would have been difficult to sell. We took the rejected squash back with a promise to make an adjustment on the store's account, but the farmer I was with commented as we left that this kind of thing "causes strain between us and our wholesale people...they know it's good, we know it's good" so according to her they are in some ways abusing the relationship. Her worry was that the store might take a small issue like this as reason to stop orders from the farm altogether, even though other

¹⁰ While I don't have evidence to explain why restaurants are more likely to promote their localness than other vendors, one possible explanation is this: since they advertise themselves as farm-to-table dining, also advertising the farms from which they source lends considerable credibility to their presentation of self.

deliveries appear to have been positive experiences. What this suggests is that both farm and vendor need better communication with each other either from the grocer specifying a size preference in the future or the farm better differentiating what is sent to different types of vendors¹¹.

This kind of openness on the part of vendors encourages similar kinds of accommodation on the part of farmers, accommodation borne out of a spirit of good intention and not simply acquiescence to vendors' economic mandates. The farmers at Cook's Plot, for example, especially like working with smaller venues because it allows them to more easily customize orders:

Mason: What you can do with a smaller order is, you know, if it's a small quantity of potatoes it's really easy just to fish out three pounds of ones that are the same size out of a bin as you're packing it up. So I feel like the smaller the order the more sort of attention to detail we can have. And if we're on the phone with them and they mention, I really liked these baby zucchini, you know, so like when that person orders again we'll make sure to give the honkers to someone else, who hasn't made that comment.

Lily: But, yeah, in that sense, if I know that it's going to a retail store where someone's going to be selecting it based on the visual versus I happen to know that Charity Acorn is planning to make zucchini soup, they can get something that has a minor blemish that won't sell retail that, if they're just gonna cook it. So we actually take the time to think about these things.

This willingness to work with the needs and desires of the vendors may in some sense simply be about good business practice. But the sense that comes out of these conversations is that this willingness to accommodate is also linked to the desire for strong, close relationships with their customers. Whatever the reason, such accommodation on the part of both the farm *and* the vendor helps to further maintain a vibrant local food system.

¹¹ As noted in my fieldnotes, while individual customers may not have purchased the squash, they would be perfect for a restaurant kitchen.

Loyalty and Goodness of Fit

Vendor willingness to accommodate farms in light of the vagaries of farming that do happen has an impact of promoting a certain sense of loyalty to these vendors. When crops come up short, farmers remember their better (or "favored" according to the owner of Veritas) customers and often supply them first over other markets. "Better" doesn't necessarily mean large volume accounts (though it can); most often it means customers who order faithfully, deal with farm problems alongside the farmer, and generally are willing to be flexible. This has the potential to become a positive feedback loop, as the owner of Mountain Jars describes with one farm she works with regularly:

I ordered 700 pounds of Seconds tomatoes, because I'm making salsa, I'm cooking it, it doesn't have to look pretty. They've made a decision some years where they've promised me 700 pounds, it's the day I'm coming to pick up, they only had 600, they threw in 100 extra Firsts tomatoes and they took the loss on that. But they got the business, meaning, I'm going to keep ordering from them all season long.

Again we see how these reciprocal relationships establish not only trust but continued positive regard and help to establish and maintain these locally based exchanges.

Additionally, what we also see in these negotiations and accommodations is a way of determining whether or not the farm and vendor are a good match for each other. Can the farm reasonably supply what the vendor needs? Will the vendor be able to work with what the farm provides? These are not just questions of intention, they also have material implications. The process of working out these issues with each other in a non-coercive way helps to determine how well given farms and vendors fit with each other in their ability to meet each other's needs and help the other to be successful. Though how this goodness of fit is precisely determined is beyond the scope of this research, it is in many ways just as important as the ability of farms and vendors to establish trust with

each other through open communication and a willingness to engage in reciprocal relationships.

Establishing Infrastructure for Locally-Based Farms and Vendors

There are a variety of ways in which local infrastructure could be built up to further support locally-based food systems. Some of these are physical forms of infrastructure, such as increased use of hoop houses, green houses, and similar season extenders for farms. Developing better and larger storage capacity to maintain crops off-season would also help, something Starr *et al* (2003: 317) discuss as one possible area of infrastructural development. Even one of the largest local farms I studied faces this challenge, as seen in this fieldnote excerpt from a delivery run with Green Tree Farm, whose main cold storage is in a nearby city:

They sent 66 pallets to storage this year, each with 25 bushels of vegetable matter on them....About 80% of it survives the process back to them and then to market during the winter....The main problem is that this is very expensive, both in terms of storage and in terms of labor. It takes a lot to properly package them so they stay humid enough and don't dry out (the place is like a big refrigerator, sucking out moisture to keep it cold – so they have to pack some food with cups of water in them and sealed up tight). It also means that it takes a whole day for one person about once a week to go out there and get a supply of it brought back to the farm. To deal with this, [they] want to build a bunker on site to do more of the storage at the farm.

Whether privately built by each farm or developed as some sort of cooperative storage option, clearly the physical infrastructure of the region could be significantly improved so as to further increase the availability of local foods, especially during the non-growing season.

Aside from such physical developments, though, there are some developments of social infrastructure that have potential to further support local food systems. Two of

these options include a cooperative delivery and distribution system and a farm-vendor liaison¹². I discuss each below as well as the implications of each on the relationships and power differentials between farms and vendors that might use such infrastructural developments.

Cooperative Distribution and Delivery Systems

Several vendors suggested that a consolidated delivery system of area farms would help them more easily purchase local foods. Indeed, one larger farm in the area has started to do this, and was mentioned several times (by both farms and vendors). This farm acts as a distributor for not only its own produce, but that of smaller nearby farms, too. At least one farmer really like this idea: "Everyone got into this sort of like, oh, I'm going to grow everything. And then it's like, I don't really want to grow everything. Will you grow it for me? So it's cool, it's really cool" (Cook's Plot). This farmer likes the idea of being able to use his already small plot of land to focus on doing certain crops really well and still being able to supply area vendors. As a farm making all its own delivery arrangements, he feels pressure to grow as many things as possible to keep his vendors well-supplied; with a cooperative distribution system involving other farms in the area, that pressure would lessen considerably¹³.

Indeed, the academic literature suggests that a regionally-based distribution system may be an effective resolution to this problem of the cost of distribution and delivery as well as dealing with matters of small scale (Hassenein *et al* 2007; Izumi *et al*

¹² Note that these arrangements are not mutually exclusive.

¹³ One of the buyers at Upper Valley Coop also liked the idea of a cooperative distribution for the region, though not in the way this 80-acre farm does it: "The downfall with their system is they're stocking stuff like a distributor does, where they're buying it and then selling it as opposed to what I'd like to see is a system where there's a distribution vehicle that goes and picks up from the farms and then immediately delivers it....Even if that delivery service took a dollar, two dollars per case, it would still be more advantageous than the farmer paying an employee and paying for fuel to be driving around."

2006; Izumi, Wright, & Hamm 2010; Vogt & Kaiser 2008). One way to increase the availability of locally-grown foods, both in terms of volume and efficient delivery, is to establish cooperative or brokering arrangements (see also Tropp & Olowolayemo 2000). Much of the rhetoric of local food (including the labeling I have chosen: *direct-to-vendor*) at least implicitly cuts out the middleman; but "market intermediaries provide a valuable and needed service" (Allen & Guthman 2006: 408). Intermediaries like food distributors or larger farms with greater distributional capacities can play a role in developing locally-based systems and in sustainable food, especially when they share a commitment to such systems beyond simply "using territoriality as a marketing tool" (Izumi, Wright, & Hamm 2010: 346). Such cooperative structures could be mutually beneficial by allowing an efficient pool of labor and other resources (PFI 2002).

However, other farmers (and even vendors) I spoke with were more ambivalent. To centralize the distribution system in this way limits the personal connection that many farmers find valuable in selling to a locally-based market, as well as some vendors (PFI 2002). When asked what she liked least about selling to her wholesale accounts, one farmer said, "I guess there's so many accounts that we don't have the connection, we don't know at all. And that feels a little like, a little loss to me. That's why we write notes and put them in the box....We want to know you! Do you want to know us?" (Deep Roots Farm) But an even more crucial consideration is the way in which such consolidation of delivery would likely also consolidate economic power into these larger farms that coordinate the group deliveries. While market intermediaries themselves are not a problem, they can become a problem if they begin to employ predatory practices (Allen

& Guthman 2006: 408). One buyer at Upper Valley Coop hinted at this possibility with the large farm described above:

They think we should buy all of our zucchini and kale from them because – well, it's not worth it for them to send up their truck if they don't have a \$300 or \$500 order. So they think that we're doing a disservice to the farms by supporting so many farms. Because they think we should pick less farms and give them each more money....Whose interests are we most concerned about? Obviously we don't want to be doing a disservice to the farms, but it's really the largest ones that seem to have that problem and want more business. Because they want to ship the pallets.

While this larger farm is providing a useful service to several smaller farms in the area (as well as simplifying deliveries for several vendors), their desire to take a lion's share of a given vendor's sales does run the risk of cutting out smaller producers who don't distribute through them.

While some degree of distributional centralization may be helpful and even necessary to ensure the continued vibrancy of this region's locally-based food system, they also require a "willingness and ability to work together" (PFI 2002: 11) and local-food advocates and participants must be mindful that consolidation doesn't go so far that it becomes a hindrance for the farms (especially the smaller ones) or even the vendors (in their quest to obtain a variety of continually fresh food). When the options for distribution and delivery of goods lessen smaller farms may find themselves more beholden to the dictates of the larger entities, even while the economics of distribution for these smaller farms push them to go this route in order to maintain a viable operation. This process of consolidation was a major factor in bringing us the unsustainable industrial food chain we have today. While some consolidation may be necessary to ensure the continuation and vibrancy of local food economies, we must be reflexive about

this process so as to not perpetuate many of the problems a locally-based system is supposed to avoid (DuPuis & Goodman 2005; DuPuis, Goodman, & Harrison 2006).

A Farm-Vendor Liaison

In my interviews, I found an unexpected means of strengthening communication (and reciprocity) in the form of a farm-vendor liaison. Having someone who both works as a produce buyer for a vendor organization and operates or helps operate a farm can be valuable in several ways¹⁴. Someone in such a position is able to look out for the interests of both vendors *and* farmers. Such a person could communicate to other farmers what a vendor is looking for and could help vendors to understand and account for some of the unpredictable components of farming, such as price fluxuations, variability of produce size, and regional problems that may be impacting most farmers' supply of a particular crop. I interviewed two people who occupied such a position, one a student worker at both the farm and cafe and one a produce buyer at a grocery store who also operated his own nine acre farm (and occasionally sold to the store). While such a position may seem to have potential for great conflict of interest, in truth this difficulty can be easily resolved by having another person sign off on deliveries from the farms at which these people work. Instead, both of these interviewees spoke of greater transparency all around indicating that, if properly implemented, such as position at many vendor establishments (even in an advisory role) may be beneficial to the furtherance of local food systems. If local farms and vendors were to form some sort of collaborative (as happened in Colorado; see Thilmany 2004), having a central coordinator and manager of the operation is one way to fill this liaison role. Such a position could be a partial

¹⁴ This is what Strohbehn & Gregoire (2005) refer to as having an advocate in a key position.

solution to the potential problem inherent to a consolidated and centralized regional distribution system (see also IANR 2003).

Conclusion: Summary and Implications

In some sense, this desire for a locally-oriented food system may simply be a longing for some pastoral *Gemeinschaft* (Toennies 1887). Recognizing the destructive patterns of the modern industrial food system, those looking for alternative arrangements idealize a system of food provisioning built on personal relationships and face-to-face exchanges, the hallmarks of Toennies' *Gemeinschaft* ideal type, and in direct contrast to the *Gesellschaft* they see in the industrial system.

In truth, these locally-based exchanges embody a mix of both types. As Polanyi (1957) argues, self-interest is not the only motivation for human social behavior. Engaging in local food arrangements does require some level of face-to-face, or at least personal, connection. Such participation requires both farms and vendors to continually bear in mind that they are not involved in a highly rationalized system (though they could be if they were to so choose). That said, economic considerations do not disappear altogether, nor does the need for some level of a rationalized, efficient system. Even the most local participants are not able to opt out completely, simply because the wider food system which they may desire to abandon holds such sway: it is the structure within which all such food exchanges currently operate.

It is this tension that creates the space and even the need for the reciprocal relationships I have described. This reciprocity is about both a recognition of non-economic values in participating in local food (Polanyi 1957) as well as managing the constraints of the *Gesellschaft*, or the broader industrialized and highly rational and

impersonal food system (Toennies 1887). When negotiating price, when finding ways to accommodate each other, when returning to trusted trading partners, these farm and vendor participants are doing the reciprocity work that allows them to navigate a system of food provisioning that operates as alternative to, yet still in the context of, an industrial food system that demands uniformity, predictability, and control (see also Ritzer 1993). However, unlike the romanticized notion of *Gemeinschaft*, such reciprocity does not simply occur as a "natural" property of these alternative relationships. Instead, it requires continual recommitment and engagement, a reflexive participation in this local scene that allows room for adaptation and change.

Foucault (1978) reminds us that power operates all the time and it is impossible to exist outside of it. In other words, these potential power relationships between farms and vendors exist "even though no immediate outcome is evident, or no obvious power attempt has been made" (Provan *et al* 1980: 207). It is important to remember that the major impediments to local food are largely functions of power derived from the influence of the industrial food system. The power of this dominant system pushes both farms and vendors to continually expand in a variety of ways and therefore further emulate and accommodate to this system. But to see locally-based food systems truly function well, their accommodation must be to other local participants, not the industrial trend. What such shift in focus requires is a continual recommitment to the alternative potential of local food and continual engagement in understanding the needs farms and vendors participating in such a system.

To truly see locally-based food systems established as a sustainable food supply requires the integration of farm-to-vendor connections and that all participants engage in

such a local food system reflexively. They must consider their relationships with other local food participants, seeing each other as more than simply a source or an outlet for food. Farms and vendors must intentionally work to develop trust between each other and a shared commitment to see each other succeed, as well as take honest inventory of how and where they best fit in such a system. As this research indicates, size, on both the farm and vendor sides, is a crucial component and must be carefully understood and navigated. If local food participants are able to engage with these issues effectively, they will be considerably closer to realizing the potential that local food has to offer as a sustainable food source.

CHAPTER 6

CONCLUSION:

WHITHER LOCAL?

Is it working?...Every year my answer kind of changes, I think it might work....I hope it does. But I definitely question that every year. And I think some of the other producers if they're not saying that, they're lying to you. And even the stores, carrying all the local stuff.

-- owner of the food processor Mountain Jars

The term "local food" can be understood in a variety of ways. When I use the term I mean a system of food provisioning in which the food production is intended for consumption in the same area. In this sense, local food is both a physical and a social proximity, a method by which the producer and consumer are connected to the same place (Fonte 2008). But even such a particular definition leaves considerable room for interpretation. Just what is "local"? What are its contours, socially and physically? In short, the question I have worked to answer throughout this dissertation is: how is local food practiced?

In the first section of this concluding chapter I review the various pieces of this puzzle. After this synopsis of my findings and arguments I return to some of the questions with which I opened the dissertation and reflect on some of the future directions of local food as a movement and system. I end by considering some of the lessons this research teaches us, some of its limitations, and some possible future directions of both academic and practical inquiry.

The Road So Far: What We Have Learned

The policies and practices that undergird the dominant food system create some of the greatest barriers to establishing effective locally-oriented food supplies. This dominant system influences both individual and institutional food consumers through

cheap pricing and convenient and consistent sourcing. Such options typically allow vendors to dictate terms (even implicitly) to farms, especially farms with few sales outlets. The creation of this power differential is a major force pushing both farms and vendors to expand in some way. Farms feel pressure to increase their size and production and the number of outlets to which they sell while vendors face the choice of either purchasing from more farms or trading with fewer farms in larger accounts. While some expansion may be necessary to ensure the vibrancy of local food systems, if left unchecked local food participants may find themselves in a set of arrangements very similar to the dominant system many of them seek to escape (or at least mitigate). How, then, do they deal with these pressures and constraints in a way that allows local food arrangements to be prosperous for both farms and vendors?

In Chapter 5 I showed how many local food participants *want* to see their local food system succeed and some of the measures they take to help ensure that success. In its most basic form, farms and vendors do so by engaging in trust-building and reciprocal relationships. Because of the dynamics generated by the dominant food system, it is especially important for farms to develop trust and vendors to demonstrate reciprocity, though in reality both sides must engage in both sets of behaviors and this must be built on a solid foundation of clear, regular, and honest communication. The most successful locally-sourcing vendors are the ones who are most flexible in their dealings with the farms. This willingness to accommodate farm uncertainty encourages farms to trust vendors not to abandon them during difficult moments. It also encourages farms to reciprocate that willingness to accommodate by being more responsive to the needs of the vendor.

As I discussed in Chapter 2, though local food has considerable sustainable potential, it is not an inherently sustainable system for a society's food supply. One reason for this is the indeterminacy of the boundary of local. What counts in how the proximity of local food is drawn? This is the question I sought to answer in Chapter 4; I found empirically – and at least for southern New England – most local food travels within 50 miles and nearly all of it travels no more than 100 miles. Though these numbers say little about other areas of the nation (and world), the approach I use provides a useful method for articulating these boundaries that could be applied to other areas.

But what is more interesting than how far local food travels is what factors influence this range of travel. Chapter 4 shows quantitatively some of the tensions discussed qualitatively in Chapter 5: size matters. For both farms and vendors, more local trading partners means greater distance of where the boundary of local gets drawn, as does the minimum distance they travel to reach their nearest trading partner and the overall size of the operation. These findings carry profound implications for the meaning and practice of local's physical proximity. Farms and vendors that are larger or have more ties to other local actors may be more reliable partners, but the trade-off is that they are less local in their selling. As I show in Chapter 5, such expansions can come in the form of increased market outlets (seen in Chapter 4 as an increase in ties of exchange) or in expanded operational size (such as larger farm acreage or comparing operations of inherently different sizes; for example, livestock-based farms and grocery stores, respectively, tend to be larger than most other farm or vendor types). Even while the meaning of local food must maintain some level of flexibility, it is still always a set of arrangements that exist within the context of the broader industrial food system. Being

embedded within that system, local systems are always subject to these industrial forces that promote a process of emulation rather than remaining alternative.

Even if we assume that local food means something static (if also less clearly articulated), there are other challenges in seeing local as a sustainable food option. Part of being sustainable is meeting people's needs. Yet as I show in Chapter 3, some barriers exist inhibiting some people from accessing local food. As other scholars have indicated, access to traditional (DTC) local food outlets is often stratified along lines of class and race: many local food participants tend to be white and have high incomes and levels of education. Taking a systemic approach to the question of who has access to local food, I find that the inequalities these other scholars document hold (at least across southern New England), but do so in complex and nuanced ways. CSAs, for example, are clearly classed phenomena, being much nearer (and by extension more accessible) to areas with higher income and education than the region as a whole. Education in particular is a striking predictor of CSA proximity, indicating that access to such local food outlets is not just a measure of economic capital, but cultural capital as well, and showing how access to this good is classed in more than just material ways. However, the results also show that CSAs are relatively egalitarian when it comes to race, at least when access is measured in terms of physical proximity. These connections practically reverse when we consider farm stands as an outlet of local food; here race is a strong predictor of their location (they are much nearer to White-populated areas than racially diverse zones) while the connections between farm stand location and class is less clear. Though the measures reveal that unequal access to local food occurs in uneven ways, they do show

that locally-oriented food systems may actually help to re-inscribe privilege, rather than broaden access (as they are touted by many advocates to be able to do).

Is Local Food in Danger of Being Coopted?

I was initially drawn into this project by the claim that local food was the next wave in sustainability. It seems appropriate to help close out the dissertation by considering a question on the flip-side of the same coin. Whether local food offers a sustainable solution or not, is the idea in danger of being coopted by the very forces to which it is supposed to be in opposition? The question seems especially pertinent in light of some arguments that local is the new organic (see Pollan 2001, 2006; Selfa & Qazi 2005). If organic food was coopted by the dominant interests to which it was supposed to remain oppositional, could local food go the same route?

The process of organic food's cooptation is often referred to as the conventionalization thesis. Conventionalization theorists (see Guthman 2004 for an excellent review) argue that organic agricultural practices have become more similar to mainstream food production in terms of both structure and ideology. Such changes have occurred primarily through things like concentration of ownership and control, institutionalization of organic definitions and standards, and the erosion of those very standards. Organic can also be said to have been conventionalized in terms of consumer interests. Many consumers interested in organic now miss the broader social good of organic as a process is favor of the personal benefit of such products. As an example, consider that in OECD countries, 70% of households ranked health as more important than environment as a reason for consuming organic food (Hughner *et al.* 2007).

So how could local food be coopted, and by whom? I discussed one answer to this question in some detail in Chapter 4, though it is helpful to review it here. While some may argue that the idea of local is inherently impervious to globalization and therefore cooptation (Halweil 2002; O'Hara & Stagl 2001; Pollan 2006), I showed in my discussion of the boundaries of local that the contestation and interpretation of the very meaning of the term "local" is one clear avenue by which different interests may lay claim to the concept. Adding to the complexity is that this process is a double-edged sword. It is not as if local food advocates (the supposed "heroes" in this story) can simply determine a set definition that will then ward off all outside efforts to make use of the local food ideal. In this way local food – as a concept – suffers from a bit of a contradiction. Too relaxed a definition leaves it open to interpretation by conventional interests and renders it as nothing more than yet-one-more value-added attribute (like organic, fair trade, all natural, etc.). Yet this relaxed approach is necessary to account for any number of differing needs when it comes to food and agriculture; too rigid a definition, in other words, would similarly render the term useless. Local food, then, needs a clear definition, but one that allows for appropriate and reasonable variance across food systems. A federal law defining local as 400 miles or within the same state does not meet this need.

Reflexive Localism: Avoiding the Local Trap

Every chapter in this dissertation has touched in some way upon the need for a reflexive approach to local food. It is when we become unreflexive and uncritical that we fall into the local trap (Born & Purcell 2006). I have demonstrated multiple ways in which local food is not inherently socially just or equally beneficial to all parties

involved. While many (academic and lay) local food advocates want to treat local food as the ultimate solution to so many of our society's (and food system's) problems, my findings show the need for prudence. Left uninterrogated, local food systems can promote inequalities among consumers, challenges between producers and food vendors, and even contestation around who is able to give meaning to the term.

So what does it mean to take a reflexive approach to localism? Reflexive localism means taking on a nuanced approach to local food. It means recognizing that participation in local food can occur in graduated, partial, and incomplete ways. Sometimes this is because of the seasonality of particular food items, or some other characteristic that may limit something's availability. Sometimes this may be because of the choices that local food participants make regarding their level of involvement in local food weighted against other factors.

Related to the variable levels of participation one may engage in, this nuanced approach also means accounting for how local food arrangements do and do not work for particular participants. One important component to this is consumer access. Locally-based food does not provide food security to everyone if ability to access it (whether in terms of physical availability or economic accessibility) is restricted to certain groups. If this is the case, local food is not working for everyone and whether or not one sees that as a point it need of remediation, it is still an important point to recognize and not ignore in the pursuit of locally-based systems.

Another way in which local food might not work for all involved participants is in the economic exchanges between farms and vendors. As local food systems expand further into the DTV arena, participants must be mindful that the power dynamics

embedded in the dominant food system do not simply get translated into these alternative arrangements. Part of this process lies in participants' active engagement in understanding their best place (and the most appropriate trading partners) in that system.

The Future of Local Food

What comes next for local food? While it is impossible to predict what the future may hold, it is possible to prescribe some directions for local food's development. If local food is to be a component of a sustainable food supply, it does face a need to expand in certain ways, though perhaps not in the ways the dominant system may push it to do so. Local food needs to expand in three fundamental and interconnected ways: availability, accessibility, and profitability. Developing DTV infrastructure, for example, is one significant way of increasing local food's availability. Such outlets are ways to reach more consumers as well as providing more outlets for farms. However, simply expanding where local food is sold does nothing to remediate the power dynamics between buyer and supplier, nor does it necessarily deal with expanding access to local food across varying social strata.

Perhaps the lynchpin to all of these methods of expansion (especially profitability) is found in the caution given by Crews *et al.* (1991): "We should work toward structuring society in such a way that sustainable agricultural practices are profitable..., rather than including profitability within the definition itself" (149). Understanding and then changing the power differentials in food systems, the ability of people to access certain kinds of food, and even the very economic viability of a food-related enterprise *requires* accounting for the economic policies that undergird the very production of food. If these policies are not designed in such a way so as to promote

things like economic equality, social justice, or environmental sustainability, then achieving these goals (whether through local food or otherwise) will remain forever out of reach. Individual choices and preferences only go so far without broader structural change.

The Paradox of Limited Supply and Market Saturation

As an example of this, let us consider further the suggestion to expand DTV arrangements by forming stronger farm-vendor connections and establishing a local food system that includes more than just individual consumers. The Pioneer Valley area has one of the most vibrant and developed local food systems in the U.S., making it an ideal place to study the development of DTV arrangements. Nonetheless, the region faces a (seeming) paradox: at the same time that it has a vibrant and active local food economy (what some farmers referred to as a saturated market), they are still unable to provide everything the vendor market needs (what I call the limited supply syndrome). While not a paradox in its truest form, it is a bit of a contradiction, and one that needs to be unraveled to help further the development of such food systems.

Most of the vendors I interviewed readily identified that a major problem they faced in participating in the local food system was that there's not enough farms (especially organic ones) in the area to supply everything they need¹. The literature also indicates that the needs of food service providers are often greater than the availability of local food in a given region (Hassenein *et al* 2007; Izumi *et al* 2006; Kloppenburg *et al* 2008). Some farmers also recognized this limitation, at least around their own inability to provide everything their potential markets might desire. A farmer at Deep Roots Farm

¹ Restaurateurs note that this is especially true for local meat production. Though produce is more the focus of this study than meat, it's still worth noting that this is a component of the local food system in need of development.

even noted that "if we wanted to produce more...we could sell it... [but] we just can't do it all." Even if we do not consider food items that simply can't be grown here (such as citrus fruits), the perception of both farms and vendors is that there is currently not enough food supply in this region to support the population².

At the same time, all of the professional farmers I interviewed also indicated that the local food market was already saturated. Several spoke of stiff competition between farms and a near overabundance of DTC opportunities (especially in the form of CSAs). A farmer at Deep Roots Farm even commented that "...customers are getting a little oversaturated with local and maybe it's just so available they're like, well, I just expect it now." How, then do we explain this apparent paradox of the local food supply?

There are two interrelated components to this answer. The first has to do with farmers' decisions about markets to which they sell. DTC sales (particularly CSAs and selling at farmers' markets) make up a significant portion of the income for most of these farms relative to DTV sales: in all but one case it was more than half of the farm's income and in most cases it was two-thirds of the income or greater. In fact, of all of the farms in the network database (including isolates), approximately 60% of them sell *only* to DTC outlets (30% sell at farmers' markets and CSAs only) and three-quarters of the ones with DTV ties maintain some sort of DTC sales (most of which include some combination of farm stands, farmers' markets, or a CSA); just under 10% of all farms in the database show only DTV ties. It is possible that this focus on DTC sales (whether CSA or farmers' markets) could be one of the ways these farms live up to the relational idea that seems integral to most philosophies of local food. However, I believe a more convincing

² I have been unable to find any studies that confirm or refute this perception. The only such studies I have found discuss local food availability in Iowa (Pirog *et al* 2001) and New York (Peters *et al* 2002).

explanation has to do with the economic power differential between farms and vendors: locally-oriented farms cannot easily survive off of (locally-oriented) wholesale accounts alone.

This point is best underscored in the story of the student farm. They started out specifically to sell to the student cafe, but the cafe could only buy so much from them (due to price constraints). In their third year of operation they decided to start a CSA in addition to selling to the cafe. Says one student farmer, "With those shares, for the first time we [made] a profit." To quote from Deep Roots Farm again, whether for CSAs or farmers' markets, "In direct retail you get double the amount of price." So farmers privilege their supply first to this market³. Since power is in part a function of the relative proportion of a farm's income that comes from a particular vendor, if the bulk of a farm's income is not through vendors, it limits the farm's power-constraints; this is a key way that many locally-based farms diversify their market options and farmers recognize this, at least intuitively. Says one student farmer about supplying to the student cafe, "I guess I'm worried about their general understanding of produce; they're used to buying from a small company which gets what they ask for....So now they're dealing with one local farm: us. And they're dealing with our losses as we deal with them; it's a shared relationship. So I guess my biggest concern would be how they're going to take that, if they're going to be understanding and not take as high quality produce."

Whether this focus on DTC arrangements is ideological (a means of establishing rich interpersonal connections) or instrumental (a means of securing greater financial

³ Though this is potentially a causal relationship, it is unclear whether this must be so. The student farmers commented that "CSA customers tend to be more forgiving of the produce they receive" than the restaurant was; on the other hand, when it comes to farmers' markets, farmers typically provide the better quality produce (referred to as their Firsts).

stability), we can now partly explain why DTC markets are somewhat saturated as well as why vendors do not see enough local food available: if CSAs and farmers' markets take the first cut of product, it is possible there will not be enough left over for the vendors.

Future Research Directions

While this study has answered several questions, it still raises or leaves open at least as many more. Perhaps the most salient question is how these findings compare to other regions. While some of my findings are likely generalizable to other parts of the U.S., particularly those on the influences of local food's boundaries and the power dynamics between farms and vendors, there are still factors that may exist beyond southern New England for which I cannot hope to account. While commodity agriculture does take place here, it exists in a considerably more limited capacity than would be found in other regions. How might the influence of industrial farming come to bear on local food systems in areas such as Iowa or California or even the U.S. Southeast, where industrial farming is more prevalent? Further, southern New England, particularly around the Pioneer Valley, has a vibrant locavore culture and a highly developed locally- and regionally-oriented food scene to support that culture. There are other areas in the U.S. with similar local-activity, but they are limited. How might these findings compare to places with a less developed local food scene, perhaps one where interest in local food has only recently emerged and the infrastructure and outlets to support it are nascent?

Future avenues of research also need to interrogate the links between local food and a variety of factors. We still have only a limited picture of how farm size and local orientation relate to each other. Similarly, access to local food outlets has mostly treated

class as an economic measure, but his research shows that education may be an equally (if not more) important angle to consider. And beyond class measures, in what ways are race and local food access associated with each other, and how might the processes I have documented differ in areas that are less White? This is an area that both qualitative case study and quantitative systemic approaches should consider in more detail. What are the mechanisms that encourage or hinder different racial groups in their local food participation? Further, do these inequalities of access extend from the DTC level to the DTV level? If so, this is yet another aspect of local food in need of critical reflection.

So What? Takeaway Lessons

Sociological Implications: Addressing Broad Disciplinary Themes

While this research may seem on the surface to be about a niche area of sociology, it actually speaks to two very broad themes that span the discipline. One very old question in sociology interrogates the relationship between structure and agency. To what degree are people's actions products of individual choice versus how much they are constrained by social forces beyond their control? My research paints a mixed picture here. Take, for example, the material on farm-vendor relationships. If this case were a story of structure, the forces that undergird the industrial food system should be enough to push all participants to engage almost exclusively in that system, rather than with each other in these alternative arrangements. Clearly this is not the case. But neither does complete agency run free; if it did we would not see the many constraints and difficulties I have documented. Instead, the story seems to be that locally-oriented farm and vendor participants exercise considerable agency in their choices to be so involved in these

systems, but also face significant hurdles because of the broader conventional system of which they are a part.

My findings also speak to another central question within the field of sociology: how do power dynamics between social actors promote or mitigate inequalities between said actors? Chapter 3 shows one of the clearest examples of this. The places in which local food outlets are located have a profound impact on who has physical access to them. While proximity is not the only factor influencing access to local food, it is an important precursor; those without nearby access are already at a disadvantage relative to those more immediately located, and this before any other exclusionary practices may be realized. This question of power and social inequality also pervades Chapter 5. I showed how farms are at a relative disadvantage to vendors in terms of their ability to shape the relationship between them. This difference stems directly from conditions in the wider system of food provisioning, but it still points to interesting processes by which both parties navigate these currents and the ways vendors especially can either exacerbate or minimize the challenges farms face. Even Chapter 4 speaks to this topic of power and inequality in the ways different interests have the ability to define and control a term. As contestations over the meaning and applicability of "local food" play out, the impact on alternative food systems is profound. Does the ability to define its meaning rest with the practitioners of local, and if so, how and how much? How might this meaning-in-practice shift as the policies that govern the wider food system shift or as other (more conventional) players come on the scene?

Public Implications: Local Food as Sustainable Food

My research also speaks to less disciplinary/academic and more public debates. In what ways can local food be said to be a sustainable solution to the industrial food system and in what ways can it not? This is the question that in many senses launched this project. The public debates on this question suggest that local food is better (for you, for the environment) than non-local food (though usually this object of comparison is left vague and unidentified). In what ways is this general claim true and in what ways is it at best a useful rhetorical device and at worst simply wrong? By itself, sourcing food locally is simply not enough to promote a sustainable food supply. Those who see local food as the pinnacle of food sourcing – and especially as immune to cooptation by other interests – are incredibly myopic in their understanding of sustainability. I do not mean this to suggest that sourcing and producing food locally is not a good idea. Far from it; I believe food produced, distributed, and consumed all within the same area – inasmuch as it is reasonably possible to do so – is a very good practice. But we live in a world today that makes complete local sourcing nearly (or effectively) impossible for most people. Achieving a sustainable food supply involves addressing a host of moving parts – summed up simply in the three legs of environmental soundness, economic vitality, and social responsibility, but covering a much more nuanced and complex picture than those six words may suggest – and local food is an important component but is simply incapable of doing it all. And in some cases, "local" may actually be an impediment to sustainability.

Rather than trying to pin all our hopes for a sustainable food supply on some single silver bullet, perhaps a better approach is to encourage greater systems-oriented

thinking. If we want to see true sustainability (whether in food or elsewhere) we must seriously consider *all* the moving parts that connect to the system. When it comes to food this means taking stock of the locations of production, processing, distribution, and consumption; the means of production and processing; the condition of the land; the condition of the workers; the energy expenditures all along the food chain; the methods of distribution; the ability of people to access the food; the impact of production on the surrounding land, water, air, and populations; the health of the system, and the healthiness of the food being produced. Local, organic, fair trade – these labels connect to some of these components, but even together they are not enough for a complete picture. Only when we can find ways to more fully account for this complete picture will we truly be on the way to developing sustainable systems of provisioning our food.

APPENDIX A

COMPILING THE FARM-VENDOR DATABASE

Formally speaking, the farm-vendor database is not a sample, but a population. It was compiled taking the entirety of the information available at www.farmfresh.org. Clearly farmfresh.org does not contain data on *all* farms or *all* vendors in the region, only those which self-identify as locally-oriented and self-select into one of the region's local food advocacy organizations. However, given this caveat, the Farm-Vendor Database contains every farm and vendor listed on farmfresh.org's website.

Since Farm Fresh Rhode Island (one member group of the local food consortium) hosts the website, this state is the default setting on first arriving. This page first displays a map, zoomed in on Providence, which shows the locations of farm stands, farmers' markets, CSAs, and other local food outlets. Below the map is a list of these local food outlets by name, followed by a list of the restaurants, schools, artisan producers, and retailers that buy from these local farms. Two options exist to see local food available in other parts of the region. First, one could enter a zip code or town by clicking on the "change town or resort" link at the top left corner of the page. Alternatively, there is also a map of the region in the top right corner, which divides the three states into eight zones: Rhode Island, Connecticut, and six sections of Massachusetts; clicking on any of these regions takes the viewer to a new list of farms and food buyers in that zone, and notes the specific organization responsible for maintaining that zone's data (if any).

If one clicks on the link for a particular farm, the page that appears shows all of the data that could be collected on each entity in the database. Each page typically included a name, a town, basic contact information (such as an address, phone number,

email, and/or website, though not every entity had all of these things), and a short description of the operation. Some farm pages also included the year the farm was founded, the size of the farm, and any farm characteristics, such as being an organic or chemical-free farm or employing an integrated pest management system. Below the farm description is a list of all the things the farm produces, sorted by category (such as Fruit, Vegetable, Herb, Meat, or Nursery/Flowers) but also displaying specific crops and food (and sometimes even non-food) items. On the left side of the page is a box labeled "Where You'll Find Us" which then lists all of the outlets at which one may find that farm's products. These could include a CSA outlet, whether or not the farm ran a farm stand or pick-your-own operation, the farmers' markets at which they sold, and any vendors that bought from the farm. When farmers' markets or vendors were displayed, the name was shown as a link, which one can follow to then see information about that particular market or vendor.

The vendor pages were similarly arranged, including name, location, basic contact information, and a description. Instead of a list of what the vendor produced, these pages included a short list (or more commonly a single item) of how the vendor was categorized, such as Restaurant, Retail/Grocery, Artisan Producer, or Distributor. Occasionally these pages did also include a short list of "We make our own...", including things like pickles, cakes, and granola. On the left side of the page, rather than seeing where one could find their products, the vendor pages showed a list titled "We Buy Local" and then listing all of the farms (and the farm locations) from which they purchased. Each of the farms listed was displayed as a link back to that farm's page.

All of this information was compiled into the Farm-Vendor database using the ScrapeR software. Attribute variables collected on farms and vendors included:

- Entity name
- Entity URL (the exact page of the entity on the farmfresh website)
- An entity's address, town, and state, if listed on the web page.
- The latitude and longitude coordinates, as well as a listing of where the coordinates came from (in most cases this was the farmfresh website; secondary geocoding services, such as Yahoo PlaceFinder and Google Earth, were consulted when farmfresh did not have this information)
- A set of binary Vendor indicators for each vendor category (indicators included cafeteria, caterer, distributor, farm, inn, personal chef, producer, restaurant, and retailer)
- The farm acres (coded as NA for vendors and farms with no acreage listed)
- What products a farm produces
- A set of binary direct-to-consumer indicators for farms (including whether the farm had a farm stand, CSA, pick-your-own operation, or fun-on-the-farm activities, as well as how many farmers' markets the farm sold at).

Sociomatrices were created from the "Where You'll Find Us" and "We Buy Local" listings. In some cases one entity indicated a tie with another entity that the second entity did not indicate. For example, Farm A indicates they sell to Vendor X, but Vendor X does not indicate buying from Farm A. In creating the final database to use for analysis, such discrepancies were resolved using a union rule: the presence of a tie was coded if

either entity indicated such a tie existed. Other attribute variables were calculated or coded (using network measures, attribute variables, or a combination of both), including:

- The number of other entities with which a given entities is connected
- A set of distance variables (all in miles) between a given entity and its alters; these included the minimum, mean, median, maximum, and first and third quartile distance to its alters (see Vincenty 1975)
- A farm's farm type, based on the products it sold.

APPENDIX B

PROFILES OF INTERVIEWED FARMS AND VENDORS

Below I have summarized the key components of each entity selected for interviews; in some cases more than one person from a given farm or vendor was interviewed. Quotes are taken either from fieldnotes collected at particular sites or from interview transcripts. See Table A-1 for a comparison of farm and vendor details.

Table A-1. Farm and Vendor Comparisons

<u>Entity</u>	<u>Type</u>	<u>Size</u>	<u>Workers</u>	<u>Age</u>
Student Farm	Farm	1 acre	10	3 years
Blooming Harmony	Farm	3 acres	4	10 years
Cook's Plot	Farm	7 acres	6	5 years
Deep Roots Farm	Farm	12 acres	7	8 years
Crystal Brook Farm	Farm	25 acres	7	4 years
Green Tree Farm	Farm	35 acres	45	10 years
Student Restaurant	Restaurant	85 seats	23	35 years
Charity Acorn	Restaurant	100 seats	30	3 years
The Citizen's Cup	Restaurant	85 seats	32	13 years
Abbott's	Restaurant	150 seats	20-25	2 years *
Large Chain Grocer	Grocer		200	28 years
Lower Valley Coop	Grocer		85	3 years
Upper Valley Coop	Grocer		72 †	30 years
Lane's Market	Grocer		45	36 years *
Many Acres	Grocer		23	30 years
Veritas	Processor	>10k cases/yr	11	10 years
Mountain Jars	Processor	3k cases/yr	5	5 years

* Length of time under current ownership/management

† This includes two stores; many workers overlap between both

The Farms

Student Farm. The student farm began largely as an effort to teach university students about sustainable agriculture. It is housed on a small plot of farmland owned by UMass-Amherst. In their first year of operation they sold the bulk of their produce to the Student Cafe, a relationship that has continued to this day. In their third year of operation

they also began a small (25 share) fall/winter CSA for university students, faculty, and staff. It is a certified organic operation.

Blooming Harmony. When I interviewed the owner of Blooming Harmony he said that the coming season would see a complete shift in focus. Having run this farm for a decade, following about as much time running a farm in New York and selling at farmers' markets in NYC, he was ready for a change. No longer would he sell to the restaurants and grocery stores that had made up over 60% of his sales. Now all sales would be done on-site. He would, however, continue to sponsor a fall harvest festival (which accounted for most of the rest of his farm's revenue) as well as education and outreach work with area schools.

Cook's Plot. The husband-wife team at Cook's Plot "specialize in specialty vegetables [such as] multi-colored carrots, multi-colored beets." Though they practice organic principles, they are not organic certified because of their proximity to a conventional farm. A quarter of their sales come from their 70-member home-delivery CSA, which they send out in reusable durable boxes. Sales in farmers' markets make up the next 36% of their operation with the remaining 39% coming from DTV sales (about half restaurants and half grocery stores).

Deep Roots Farm. Two long-time friends run Deep Roots Farm, an organic farm that gets about half of its income from farmers' markets and the other half from DTV sales. The sales (both DTC and DTV) are fairly evenly distributed between the Pioneer Valley and the Boston area. Aside from their diverse produce operation they also grow flowers for florists, weddings, and other events.

Crystal Brook Farm. The husband-wife team of Crystal Brook Farm bought the operation off of a couple who had been farming organically for many years prior. This allowed them to easily pick up many of the former farmers' customers, especially some area value added food processors like Veritas and Mountain Jars. Even with this, though, about three-quarters of their sales go to their 390-member CSA.

Green Tree Farm. The largest farm in my study is Green Tree Farm, which was expanding its operation into a second site (due to questions of land security) at the time of my interview. They run an entire organic and year-round operation. Approximately 70% of their sales come from their 1250-member CSA with another near-quarter from farmers' markets. Though their DTV sales make up only a small portion of their overall operation, they are large enough that they still sell to a size-able number of restaurants, grocery stores, and food processors (enough that they have their own box truck for weekly deliveries).

The Restaurants

Student Cafe. The student cafe is a student-run cooperative housed at UMass-Amherst. It has been in operation since the mid-1970s, but (as is the case with students) has seen considerable turnover in membership and management. They specialize in fixed-plate vegetarian fare, usually serving an entrée made that day, one made the previous day, a similar dual-option for a dessert, some vegetable of the day (often kale), and rice and beans. Because of the mismatch of the school year and the growing season, they tend to only have local options in the fall semester.

Charity Acorn. Charity Acorn runs "a pretty eclectic menu" with "a real emphasis on...comfort food type stuff." They are a sit-down restaurant that often caters

to young professionals and seniors for lunch and a wide demographic of families and locals for dinner. The owners also recently opened a small pizza parlor around the corner. During the peak of the year, approximately 80% of their food supply comes from local sources.

The Citizen's Cup. The Citizen's Cup is the oldest restaurant in my study and the owner has been working the local food angle since well before local food was in vogue, as part of his commitment to both environmental and economic sustainability. It is a combined restaurant, pub, and brewery operation. Throughout the year approximately 65% of the restaurant's food is sourced locally, and this number stays high even in the winter through careful cultivation.

Abbott's. Though Abbott's is technically older than the Citizen's Cup, the current head chefs have only been running things there for two years. Still, this husband-wife team has worked hard to keep the local food sourcing averaged at a yearly 50%. They have a few different areas of focus, including a tavern, and upscale dining area, and a function/catering operation.

The Grocery Stores

Large Chain Grocer. I interviewed at one store that was a local branch of a large national chain specializing in high-quality produce, often marketed as organic or all-natural. Though its percentage of local (15% for the year; 40% at peak season) and organic food was actually lower than at several of the other grocery stores in my study, they are a large enough operation (purchasing from a large enough number of local farms) that they are a significant vendor player in the region.

Lower Valley Co-op. The Lower Valley Co-op is a grocery store cooperative similar in style and layout to the Large Chain Grocer (though smaller in size). Though they are by far the youngest store in my study, they are the second largest and are well-known throughout the area. Half of their produce annually comes from local sources (70% in peak season), and they divide all produce in the store according to whether it is organic or conventional.

Upper Valley Co-op. Located in the heart of one of the region's larger cities, Upper Valley Co-op is also a grocery store consumer cooperative, but tucked into a rather small space. They are part of an umbrella organization that includes a smaller market in a town some 20 miles west. They run a completely organic produce area and in the peak of the season source well over half of their produce locally.

Lane's Market. Like the Upper Valley Co-op, the owner of Lane's Market also owns a smaller store in a neighboring town. Lane's Market is located in the downtown area of a small city in the center of the Pioneer Valley. The store first opened in the 1930s as purely a produce store, but the owner added a deli and wine store since his purchase of the place in the mid-70s. As he describes it, the store is somewhere between a convenience store and a grocery store. In the peak of the season they get about 25% of their produce locally.

Many Acres. Many Acres is easily the smallest of all the grocery stores in my sample, yet still very successful. It is "a small, natural food store...unique because of its downtown location." They are located a few blocks away from Lane's Market and their location has helped them to survive even when larger places like Large Chain Grocer,

Lower Valley Co-op, and other stores opened up in the area. All of their produce is organic and they get nearly 100% of it locally in the peak of the season.

The Food Processors

Veritas. Veritas is "one of the largest businesses in the country making organic, raw, fermented, pickled vegetables." Despite this, the owner has a strong commitment to both sourcing and marketing only in the Northeastern U.S. All of his ingredients except for salt and seasonings come from six New England farms and 95% of his product is sold wholesale.

Mountain Jars. The mission of Mountain Jars' owners is to "bridge the gap between...the grocery aisle and the local produce in the area." They use everything from tomatoes to buttermilk to honey in order to produce salsas, salad dressings, and other food products, sourcing over half of all of their ingredients from the broader Northeast region. About 90% of their product is sold through small, regional distributors.

BIBLIOGRAPHY

- Abaidoo, Samuel & Harley Dickinson. 2002. "Alternative and Conventional Agricultural Paradigms: Evidence from Farming in Southwest Saskatchewan." *Rural Sociology* 67(1):114-31.
- Acton, Ryan M. 2010. "scrapeR: Tools for Scraping Data from HTML and XML Documents." Published Feb. 3, 2010. Available at <http://cran.r-project.org/web/packages/scrapeR/>.
- Albrecht, Don E., & Steve H. Murdock. 1990. *The Sociology of U.S. Agriculture*. Ames: Iowa State University Press.
- , 2002. "Rural Environments and Agriculture." Pp. 192-221 in Dunlap, Riley E., & W. Michelson, eds., *Handbook of Environmental Sociology*. Westport, CT: Greenwood Press.
- Allen, Patricia, ed. 1993. *Food for the Future: Conditions and Contradictions of Sustainability*. New York: John Wiley and Sons.
- , 2004. *Together at the Table: Sustainability and Sustenance in the American Agrifood System*. University Park, PA: The Pennsylvania State University System.
- , 2006. *Assessing the Market Dynamics of 'Value-Added' Agriculture and Food Business in Oregon: Challenges and Opportunities*. Portland State University: Center for Sustainable Processes and Practices.
- , 2008. "Mining for Justice in the Food System: Perceptions, Practices, and Possibilities." *Agriculture and Human Values* 25(2): 157-161.
- Allen, Patricia, & Julie Guthman. 2006. "From 'old-school' to 'farm-to-school': Neoliberalism from the ground up." *Agriculture and Human Values* 23(4): 401-415.
- Allen, Patricia, & Alice Brooke Wilson. 2008. "Agrifood Inequalities: Globalization and Localization." *Development* 51(4): 534-540.
- Altekruse, S.F., M.L. Cohen, and D.L. Swerdlow. 1997. "Emerging foodborne diseases." *Emerging Infectious Diseases* 3(3): 285-293.
- Altieri, Miguel A. 1995. *Agroecology: The Science of Sustainable Agriculture*. Boulder: Westview Press.

- Andrews, Richard N.L. 2006. *Managing the Environment, Managing Ourselves*. 2nd ed. New Haven: Yale University Press.
- Bagdonis, Jessica M., C. Claire Hinrichs, & Kai A. Schafft. 2009. "The emergence and framing of farm-to-school initiatives: civic engagement, health, and local agriculture." *Agriculture and Human Values* 26(1-2): 107-119.
- Beckert, Jens. 2009. "The social order of markets." *Theory and Society* 38(3): 245-269.
- Belasco, Warren. 2007[1989]. *Appetite for Change: How the Counterculture Took on the Food Industry*. Ithaca, NY: Cornell Paperbacks.
- Bell, Michael Mayerfeld. 2004. *Farming for Us All: Practical Agriculture and the Cultivation of Sustainability*. University Park, PA: The Pennsylvania State University Press.
- Bernard, H. Russell, & Gery W. Ryan. 2010. *Analyzing Qualitative Data: Systematic Approaches*. Los Angeles: Sage.
- Bigley, Gregory A., & Jone L. Pearce. 1998. "Straining for Shared Meaning in Organization Science: Problems of Trust and Distrust." *The Academy of Management Review* 23(3): 405-421.
- Blay-Palmer, Alison. 2008. *Food Fears: From Industrial to Sustainable Food Systems*. Burlington, VT: Ashgate.
- BLS (Bureau of Labor Statistics). 2010. "Occupational Employment and Wage Estimates." May. U.S. Department of Labor. Available at: http://www.bls.gov/oes/oes_dl.htm.
- Bonanno, Alessandro, Lawrence Busch, William H. Friedland, Lourdes Gouveia, & Enzo Mingione. 1994. *From Columbus to ConAgra: The Globalization of Agriculture and Food*. Lawrence, KS: University Press of Kansas.
- Bonanno, Alessandro & Douglas H. Constance. 2006. "Corporations and the State in the Global Era: The Case of Seaboard Farms and Texas." *Rural Sociology* 71(1):59-84.
- Bond, Jennifer Keeling, Dawn Thilmany, & Craig A. Bond. 2006. "Direct Marketing of Fresh Produce: Understanding Consumer Purchasing Decisions." *Choices: The magazine of food, farm, and resource issues* 21(4): 229-235.

- Born, Branden, & Mark Purcell. 2006. "Avoiding the Local Trap." *Journal of Planning and Research* 26(2): 195-207.
- Brodt, Sonja, Gail Feenstra, Robin Kozloff, Karen Klonsky, & Laura Tourte. 2006. "Farmer-community connections and the future of ecological agriculture in California." *Agriculture and Human Values* 23(1):75-88.
- Brown, Allison. 2002. "Farmers' Market Research, 1940-2000: An Inventory and Review." *American Journal of Alternative Agriculture* 17(4): 167-76.
- Brown, C. 2003. "Consumers' Preferences for Locally Produced Food: A Study in Southeast Missouri." *American Journal of Alternative Agriculture* 18(4): 213-224.
- Buck, Daniel, Clifford Getz, & Julie Guthman. 1997. "From Farm to Table: The Organic Vegetable Commodity Chain of Northern California." *Sociologia Ruralis* 37(1): 3-20.
- Buttel, Frederick H. 1987. "New Directions in Environmental Sociology." *Annual Review of Sociology* 13: 465-488.
- Buttel, Frederick H., O.F. Larson, & G.W. Gillespie. 1990. *The Sociology of Agriculture*. New York: Greenwood Press.
- Campbell, David. 2001. "Conviction Seeking Efficacy: Sustainable Agriculture and the Politics of Co-optation." *Agriculture and Human Values* 18(4):353-63.
- Carolan, Michael S. 2005. "Barriers to the Adoption of Sustainable Agriculture on Rented Land: An Examination of Contesting Social Fields." *Rural Sociology* 70(3):387-413.
- , 2006a. "Do You See What I See? Examining the Epistemic Barriers to Sustainable Agriculture." *Rural Sociology* 71(2):232-260.
- , 2006b. "Social Change and the Adoption and Adaptation of Knowledge Claims: Whose Truth do You Trust in Regard to Sustainable Agriculture?" *Agriculture and Human Values* 23(3):325-39.
- Charmaz, Kathy. 1995. "Grounded Theory." Originally published in Smith, Harre, & Van Langenhove (eds), *Rethinking Methods in Psychology*, pp. 27-40. Sage Publications. Found in Emerson, Robert M. 2001. *Contemporary Field Research: Perspectives and Formulations* 2nd ed. Long Grove, IL: Waveland Press.

- Clancy, Kate. 2010. "Why Regional?" Presented at the AFHVS Annual Meeting on June 4.
- Cochrane, Willard W. 2003. *The Curse of American Agricultural Abundance: A Sustainable Solution*. Lincoln, NE: University of Nebraska Press.
- Cone, Cynthia Abbott, & Andrea Myhre. 2000. "Community Supported Agriculture: A Sustainable Alternative to Industrial Agriculture?" *Human Organization* 59(2):187-97.
- Connelly, Sean, Sean Markey, & Mark Roseland. 2011. "Bridging Sustainability and the Social Economy: Achieving Community Transformation through Local Food Initiatives." *Critical Social Policy* 31(2): 308-324.
- Connolly, John, & Andrea Prothero. 2008. "Green Consumption: Life-politics, risk, and contradictions." *Journal of Consumer Culture* 8(1): 117-145.
- Cook, Karen S, ed. 2001. *Trust in Society*. New York: Russell Sage.
- Corbin, Juliet, & Anselm Strauss. 2008. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 3rd ed. Los Angeles: Sage.
- Crews, Timothy E., Charles L. Mohler, and Alison G. Power. 1991. "Energetics and Ecosystem Integrity: The Defining Principles of Sustainable Agriculture." *American Journal of Alternative Agriculture* 6(3): 146-149.
- Cuddeford, Vijay. 2003. "When Organics Go Mainstream." *Alternatives Journal* 29(4): 14-19.
- Darby, Kim, Marvin T. Batte, Stan Ernst, & Brian Roe. 2008. "Decomposing local: a conjoint analysis of locally produced foods." *American Journal of Agricultural Economics* 90(2):476–486.
- Deaton, B. James, & John P. Hoehn. 2005. "The social construction of production externalities in contemporary agriculture: process versus product standards as the basis for defining 'organic.'" *Agriculture and Human Values* 22(1):31-38.
- DeCarlo, Thomas E., Veronica J. Franck, & Richard Pirog. 2005. *Consumer Perceptions of Place-Based Foods, Food Chain Profit Distribution, and Family Farms*. Ames IA: Leopold Center for Sustainable Agriculture.

- DeLind, Laura B. 1999. "Close Encounters with a CSA: The Reflections of a Bruised and Somewhat Wiser Anthropologist." *Agriculture and Human Values* 16(1): 3-9.
- , 2002. "Place, Work, and Civic Agriculture: Common Fields for Cultivation." *Agriculture and Human Values* 19(3): 217-224.
- , 2011. "Are Local Food and the Local Food Movement Taking Us Where We Want to Go? Or Are We Hitching Our Wagons to the Wrong Stars?." *Agriculture and Human Values* 28(2): 273-283.
- DeLind, Laura B. & Anne E. Ferguson. 1999. "Is This a Women's Movement? The Relationship of Gender to CSA in Michigan." *Human Organization* 58(2):190-200.
- DeLind, Laura B. and Philip H. Howard. 2008. "Safe at any scale? Food scares, food regulation, and scaled alternatives." *Agriculture and Human Values* 25(3): 301-317.
- de Nooy, Wouter, Andrej Mrvar, & Vladimir Batagelj. 2005. *Exploratory Social Network Analysis with Pajek*. New York: Cambridge University Press.
- Dunlap, Riley E. & William R. Catton, Jr. 1994. "Toward an Ecological Society: The Development, Current Status, and Probably Future of Environmental Sociology." In *Ecology, Society, and the Quality of Social Life*, W.V. D'Antonio, M. Sasaki, and Y. Yonebayashi (eds), 11-31, New Brunswick: Transaction Publishers.
- Dunlap, Riley E. & Kenneth E. Martin. 1983. "Bringing Environment into the Study of Agriculture: Observations and Suggestions Regarding the Sociology of Agriculture." *Rural Sociology* 48: 201-218.
- Dunne, Jonnie B., Kimberlee J. Chambers, Katlyn J. Giombolini, & Sheridan A. Schlegel. 2011. "What does 'local' mean in the grocery store? Multiplicity in food retailers' perspectives on sourcing and marketing local food." *Renewable Agriculture and Food Systems* 26(1): 46-59.
- DuPuis, E. Melanie. 2002. *Nature's Perfect Food: How Milk Became America's Drink*. New York: New York University Press.
- DuPuis, E. Melanie, & David Goodman. 2005. "Should We Go "Home" to Eat?: Toward a Reflexive Politics of Localism." *Journal of Rural Studies* 21(3):359-371.

- DuPuis, E. Melanie, David Goodman, & Jill Harrison. 2006. "Just Values or Just Value? Remaking the Local in Agro-Food Studies." Pp. 241-268 in Marsen, Terry and Jonathan Murdoch, eds., *Between the Local and the Global: Confronting Complexity in the Contemporary Agri-Food Sector*. Research in Rural Sociology and Development, Vol. 12. San Diego, CA: JAI Press.
- Duram, Leslie. 2005. *Good Growing: Why Organic Farming Works*. Lincoln: University of Nebraska Press.
- Duram, Leslie, and Ludia Oberholtzer. 2010. "A geographic approach to place and natural resource use in local food systems." *Renewable Agriculture and Food Systems* 25(2): 99-108.
- Eades, Peter. 1984. "Graph Drawing by Force-Directed Placement." *Congressus Numerantium* 42(11): 149-160.
- Economist. 2006. "Voting with your trolley." (December 9). *Economist* 381(8507): 73-75.
- Edwards-Jones, Gareth, Llorenç Milà i Canals, Natalia Hounsome, Monica Truninger, Georgia Koerber, Barry Hounsome, Paul Cross, Elizabeth H. York, Almudena Hospido, Katharina Plassmann, Ian M. Harris, Rhiannon T. Edwards, Graham A.S. Day, A. Deri Tomos, Sarah J. Cowell, & David L. Jones. 2008. "Testing the assertion that 'local food' is best: the challenges of an evidence-based approach." *Trends in Food Science and Technology* 19(5): 265-274.
- Emerson, Richard M. 1962. "Power-Dependence Relations." *American Sociological Review* 27(1): 31-41.
- Emerson, Robert M, Rachel I. Fretz, and Linda Shaw. 1995. *Writing Ethnographic Fieldnotes*. Chicago: The University of Chicago Press.
- Enshayan, K. 2004. "Local Food, Local Security." *Renewable Agriculture and Food Systems* 19(1): 2.
- Feenstra, Gail. 1997. "Local Food Systems and Sustainable Communities." *American Journal of Alternative Agriculture* 12(1): 28-36.
- Feenstra, Gail, Chuck Ingels, & David Campbell. n.d. "What is Sustainable Agriculture?" University of California Sustainable Agriculture Research and Education Program. Available at <http://www.sarep.ucdavis.edu/concept.htm>.

- Food, Conservation, and Energy Act. 2008. Pub.L. 110-234, H.R. 2419, 122 Stat. 923. Also known as the 2008 U.S. Farm Bill.
- Fonte, Maria. 2008. "Knowledge, Food, and Place. A Way of Producing, a Way of Knowing." *Sociologia Ruralis* 48(3): 200-222.
- Foucault, Michel. 1978. *The History of Sexuality: Volume 1: An Introduction*. New York: Random House.
- Friedmann, Harriet. 2002. "The International Political Economy of Food: A Global Crisis." Pp. 325-346 in Counihan, Carole M., ed., *Food in the USA: a reader*. New York: Routledge.
- Fromartz, Samuel. 2006. *Organic, Inc.: Natural Foods and How They Grew*. Orlando: Harcourt.
- Fruchterman, Thomas M. J., & Edward M. Reingold. 1991. "Graph Drawing by Force-Directed Placement." *Software: Practice and Experience* 21(11): 1129-1164.
- Futamura, Taro. 2007. "Made in Kentucky: the meaning of 'local' food products in Kentucky's farmers' markets." *Japanese Journal of American Studies* 18:209-228.
- Gallons, James, U.C. Toensmeyer, J. Richard Bacon, & Carl L. German. 1997. "An Analysis of Consumer Characteristics Concerning Direct Marketing of Fresh Produce in Delaware: A Case Study." *Journal of Food Distribution Research* 28(1): 98-106.
- Gambetta, Diego. 1988. "Can We Trust Trust?" In Diego Gambetta, ed, *Trust: Making and Breaking Cooperative Relations*. New York: Basil Blackwell.
- Gatrell, Jay D., Neil Reid, & Paula Ross. 2011. "Local Food Systems, Deserts, and Maps: The Spatial Dynamics and Policy Implications of Food Geography." *Applied Geography* 31(4): 1195-1196.
- Gellerman, Bruce, & Steve Curwood. 2007. "Diet for a Dying Planet." From the radio broadcast *Living on Earth*, a program sponsored by National Public Radio. Air date: November 3, 2007. Transcript at <http://www.loe.org/shows/segments.htm?programID=07-P13-00044&segmentID=6>.
- Getz, Arthur. 1991. "Urban foodsheds." *The Permaculture Activist* 24(October): 26-27.

- Gibson-Graham, J.K. 2010. "Post-Development Possibilities for Local and Regional Development." Pp. 226-236 in Andy Pike, Andres Rodriguez-Pose, & John Tomaney, Eds., *Handbook of Local and Regional Development*. London: Routledge.
- Giovannucci, Danielle, Elizabeth Barham, & Richard Pirog. 2010. "Defining and Marketing 'Local' Foods: Geographical Indications for US Products." *The Journal of World Intellectual Property* 13(2): 94-120.
- Glaeser, Bernhard. 1997. "Environment and Developing Countries." Pp. 101-118 in Redclift, Michael, and Graham Woodgate, eds. *The International Handbook of Environmental Sociology*. Northampton, MA: Edward Elgar Press.
- Goldschmidt, Walter. 1946. *Small Business and the Community*. Report of the Smaller War Plants Corporation to the Special Committee to Study Problems of American Small Business. Washington, DC: US Government Printing Office.
- Guthman, Julie. 2004a. *Agrarian Dreams: The Paradox of Organic Farming in California*. Berkeley/Los Angeles: University of California Press.
- , 2004b. "The Trouble with 'Organic Lite' in California: a Rejoinder to the 'Conventionalisation' Debate." *Sociologia Ruralis* 44(3): 301-316.
- Guthman, Julie, Amy W. Morris, & Patricia Allen. 2006. "Squaring Farm Security and Food Security in Two Types of Alternative Food Institutions." *Rural Sociology* 71(4):662-684.
- Hall, Alan & Veronika Mogyorod. 2007. "Organic Farming, Gender, and the Labor Process." *Rural Sociology* 72(2):289-316.
- Halweil, Brian. 2002. *Home Grown: The Case for Local Food in a Global Market*. Washington, DC: Worldwatch Institute.
- Hart, Paul, & Carol Saunders. 1997. "Power and Trust: Critical Factors in the Adoption and Use of Electronic Data Interchange." *Organization Science* 8(1): 23-42.
- The Hartman Group. 2008. *Consumer Understanding of Buying Local*. Bellevue, WA.
- Hassanein, Neva. 1999. *Changing the Way America Farms: Knowledge and Community in the Sustainable Agriculture Movement*. Lincoln, NE: University of Nebraska Press.

- Hassanein, Neva, Scott Kennedy, Beth Neely, & Paul Hubbard. 2007. *Tracing the Chain: An In-Depth Look at the University of Montana's Farm to College Program*. Missoula, MT: University of Montana Environmental Studies Program.
- Hedden, Walter P. 1929. *How Great Cities are Fed*. New York: D.C. Heath & Co.
- Hedin, Jack. 2008. "My Forbidden Fruits (and Vegetables)." *New York Times* March 1, p. A17.
- Heller, Martin C., & Gregory A. Keoeian. 2003. "Assessing the Sustainability of the U.S. Food System: A Life Cycle Perspective." *Agricultural Systems* 76(3): 1007-1041.
- Henderson, Elizabeth, with Robyn Van En. 2007. *Sharing the Harvest: A Citizen's Guide to Community Supported Agriculture*. Revised and Expanded. White River Junction, VT: Chelsea Green Publishing Co.
- Hess, David J. 2009. *Localist Movements in a Global Economy: Sustainability, Justice, and Urban Development in the United States*. Cambridge, MA: MIT Press.
- Hines, Colin. 2000. *Localization: A Global Manifesto*. London: Earthscan Publications.
- Hines, Colin, Caroline Lucas, and Vandana Shiva. 2002. "Local Food, Global Solution." *The Ecologist* 32(5) June: 38-40.
- Hinrichs, C. Clare. 2000. "Embeddedness and Local Food Systems: Notes on Two Types of Direct Agricultural Market." *Journal of Rural Studies* 16(3):295-303.
- , 2003. "The Practice and Politics of Food System Localization." *Journal of Rural Studies* 19(1): 33-45.
- Hinrichs, Clare, & Kathy S. Kremer. 2008. "Social Inclusion in a Midwest Local Food System Project." *Journal of Poverty* 6(1): 65-90.
- Holt, Georgina, & Virginie Amilien. 2007. "Introduction: From Local Food to Localised Food." *Anthropology of Food*, S2 (March). Available online at <http://aof.revues.org/>. Accessed December 15, 2011.
- Howard, Philip. 2009. "Consolidation in the North American Organic Food Processing Sector, 1997 to 2007." *International Journal of Sociology of Agriculture and Food* 16(1): 13-30.

- Hughner, Renee Shaw, Pierre McDonagh, Andrea Prothero, Clifford J. Shultz II, & Julie Stanton. 2007. "Who are organic food consumers? A compilation and review of why people purchase organic food." *Journal of Consumer Behavior* 6(2): 94-110.
- IANR (Institute of Agriculture and Natural Resources). 2003. *Approaching Foodservice Establishments with Locally Grown Products*. Lincoln, NE: Food Processing Center, University of Nebraska.
- Ikerd, John. 2007. "On Defining Sustainable Agriculture." *North Carolina Sustainable Agriculture Research and Education Program*. Retrieved March 23, 2010. (<http://www.sustainable-ag.ncsu.edu/onsustainableag.htm>).
- Iles, Alastair. 2005. "Learning in Sustainable Agriculture: Food Miles and Missing Objects." *Environmental Values* 14(2): 163-83.
- Izumi, Betty T., Katherine Alaimo, & Michael W. Hamm. 2010. "Farm-to-School Programs: Perspectives of School Food Service Professionals." *Journal of Nutrition Education and Behavior* 42(2): 83-91.
- Izumi, Betty T., Ola S. Rostant, Marla J. Moss, & Michael W. Hamm. 2006. "Results from the 2004 Michigan Farm-to-School Survey." *Journal of School Health* 76(5): 169-174.
- Izumi, Betty T., D. Wynne Wright, & Michael W. Hamm. 2010. "Farm to school programs: exploring the role of regionally-based food distributors in alternative agrifood networks." *Agriculture and Human Values* 27(3): 335-350.
- Jekanowski, Mark D., Daniel R. Williams II, & William A. Schiek. 2000. "Consumers' Willingness to Purchase Locally Produced Agricultural Products: An Analysis of an Indiana Survey." *Agricultural and Resource Economics Review* 29(1): 43-54.
- Jennings, Peter. 2003. "How to Get Fat without Really Trying." ABC New Special Report. Aired Dec. 8, 2003.
- Johnston, Josée. 2008. "The citizen-consumer hybrid: ideological tensions and the case of Whole Foods Market." *Theory and Society* 37(3): 229-270.
- Kamada, Tomihisa, & Satoru Kawai. 1989. "An algorithm for drawing general undirected graphs." *Information Processing Letters* 31(1): 7-15.
- Kaup, Brent Z. 2008. "The Reflexive Producer: The Influence of Farmer Knowledge Upon the Use of Bt Corn." *Rural Sociology* 73(1):62-81.

- Kezis, Alan, Thula Gwebu, Stephanie Peavey, & Hsiang-Tai Cheng. 1998. "A Study of Consumers at a Small Farmers' Market in Maine: Results from a 1995 Survey." *Journal of Food Distribution Research* 29(1): 91-99.
- Kingsolver, Barbara. 2007. *Animal, Vegetable, Miracle: A Year of Food Life*. New York: Harper Collins Publishers.
- Kloppenburger, Jack, Jr., John Hendrickson, & G.W. Stevenson. 1996. "Coming into the Foodshed." *Agriculture and Human Values* 13(3):33-44.
- Kloppenburger, Jack, Jr. & Sharon Lezberg. 1996. "Getting it Straight Before We Eat Ourselves to Death: From Food System to Foodshed in the 21st Century." *Society and Natural Resources* 9:93-96.
- Kloppenburger, Jack, Doug Wubben, & Miriam Grunes. 2008. "Linking the land and the lunchroom: Lessons from the Wisconsin Homegrown Lunch Project." *Journal of Hunger & Environmental Nutrition* 3(4): 440-455.
- Knight, Andrew J. & Rex Warland. 2005. "Determinants of Food Safety Risks: A Multi-disciplinary Approach." *Rural Sociology* 70(2):253-275.
- Kremen, Amy, Catherine Greene, & Jim Hanson. 2003. *Organic Produce, Price Premiums, and Eco-Labeling in U.S. Farmers' Markets*. USDA VGS 301-01. Washington DC: USDA Economic Research Service.
- Lang, Tim. 1996. "Food Security: does it conflict with globalization?" *Development* 4: 45-50.
- Lawless, Greg, G. W. Stevenson, John Hendrickson, & Robert Cropp. 1999. *The Farmer-Food Buyer Dialogue Project: Toward a More Regional Food System*. Madison, WI: University of Wisconsin-Madison Center for Cooperatives. Available at: <http://www.uwcc.wisc.edu/info/ffbuyer/toc.html>.
- Lea, Emma. 2005. "Food, Health, the Environment, and Consumers' Dietary Choices," *Nutrition and Dietetics* 62(1): 21-25.
- Lezberg, Sharon, & Jack Kloppenburger. 1996. "That We All Might Eat: regionally-reliant food systems for the 21st century." *Development* 4: 28-33.
- Lobao, Linda & Katherine Meyer. 2001. "The Great Agricultural Transition: Crisis, Change, and Social Consequences of Twentieth Century U.S. Farming." *Annual Review of Sociology* 27:103-24.

- Lobao, Linda M., Michael D. Schulman, and Louis E. Swanson. 1993. "Still Going: Recent Debates on the Goldschmidt Hypothesis." *Rural Sociology* 58(2):277-288.
- Lockie, Stewart, & Simon Kitto. 2000. "Beyond the Farm Gate: Production-Consumption Networks and Agri-Food Research." *Sociologia Ruralis* 40(1): 3-19.
- Luhmann, Niklas. 1979. *Trust and Power: Two Works by Niklas Luhmann*. Chichester: John Wiley.
- Lyson, Thomas. 2004. *Civic Agriculture: Reconnecting Farm, Food, and Community*. Medford, MA/Hanover: Tufts University Press/University Press of New England.
- Lyson, Thomas A. & Amy Guptill. 2004. "Commodity Agriculture, Civic Agriculture, and the Future of U.S. Farming." *Rural Sociology* 69(3):370-385.
- Lyson, Thomas A., G. Gillespie, & D. Hilchey. 1995. "Farmers' Markets and the Local Community: Bridging the Formal and Informal Economy." *American Journal of Alternative Agriculture* 10(3): 108-13.
- MacCannell, Dean. 1988. "Industrial Agriculture and Rural Community Degradation." Pp. 15-75 in Louis E. Swanson, ed., *Agriculture and Community Change in the U.S.* Boulder, CO: Westview Press.
- MacCannell, Deand, & Jerry White. 1984. "The Social Costs of Large-Scale Agriculture: The Prospects of Land Reform in California." Pp. 35-54 in Charles C. Geisler & Frank J. Popper, eds., *Land Reform, American Style*. Totowa, NJ: Rowman & Allenheld.
- Macias, Thomas. 2008. "Working toward a just, equitable, and local food system: the social impact of community-based agriculture." *Social Science Quarterly* 89(5): 1086-1101.
- Mancus, Philip. 2007. "Nitrogen Fertilizer Dependency and Its Contradictions: A Theoretical Exploration of Social-Ecological Metabolism." *Rural Sociology* 72(2):269-288.
- Marshall, Catherine, & Gretchen B. Rossman. 1999. *Designing Qualitative Research* 3rd ed. Thousand Oaks: Sage.
- McDonald, James H. 2002. "NAFTA and Basic Food Production: Dependency and Marginalization on Both Sides of the US/Mexico Border." Pp. 359-372 in Counihan, Carole M., ed., *Food in the USA: a reader*. New York: Routledge.

- McIntyre, Lynn, & Krista Rondeau. 2011. "Individual Consumer Food Localism: A Review Anchored in Canadian Farmwomen's Reflections." *Journal of Rural Studies* 27(2): 116-124.
- Meares, Alison C. 1997. "Making the Transition from Conventional to Sustainable Agriculture: Gender, Social Movement Participation, and Quality of Life on the Family Farm." *Rural Sociology* 62(1):21-47.
- Meyer, John W., & Rowen, Brian. 1977. "Institutionalized Organizations: Formal Structure as Myth and Ceremony." *American Journal of Sociology* 83(2): 340–363.
- Murray, Sarah. 2007. *Moveable Feasts: From Ancient Rome to the 21st Century, the Incredible Journeys of the Food We Eat*. New York: St. Martin's Press.
- Nestle, Marion. 2002. "Hunger in the United States: Policy Implications." Pp. 386-399 in Counihan, Carole M., ed., *Food in the USA: a reader*. New York: Routledge.
- , 2007. *Food Politics: How the Food Industry Influences Nutrition and Health*. Revised ed. Berkley: University of California Press.
- Nierenberg, Danielle. 2003. "Factory Farming in the Developing World." *World Watch* 16(3): 10-19.
- Norberg-Hodge, Helena. 1998. "Think global – eat local! Delicious ways to counter globalization." *The Ecologist* 28(4): 208-214.
- Obach, Brian. 2007. "Theoretical Interpretations of the Growth in Organic Agriculture: Agricultural Modernization or an Organic Treadmill?" *Society and Natural Resources* 20(3): 229-44.
- Oglethorpe, David. 2010. "Food Miles – the economic, environmental, and social significance of the focus on local food." *CAB International: Perspectives in Agriculture, Veterinary Science, Nutrition, and Natural Resources* 4: 72.
- O'Hara, Sabine U., & Sigrid Stagl. 2001. "Global Food Markets and Their Local Alternatives: A Socio-Ecological Economic Perspective." *Population and Environment* 22(6): 533-554.
- Organic Trade Association (OTA). 2010. *Organic Industry Survey*. Summary available at <http://www.ota.com/pics/documents/2010OrganicIndustrySurveySummary.pdf>.

- Paxton, Angela. 1994. *The Food Miles Report: The Dangers of Long Distance Food Transport*. London: SAFE.
- Peter, Gregory, Michael Mayerfeld Bell, Susan Jarnagin, & Donna Bauer. 2000. "Coming Back Across the Fence: Masculinity and the Transition to Sustainable Agriculture." *Rural Sociology* 65(2):215-33.
- Peters, Christian J., Nelson L. Bills, Jennifer L. Wilkins, & Gary W. Fick. 2008. "Foodshed analysis and its relevance to sustainability." *Renewable Agriculture and Food Systems* 24(1):1-7.
- Peters, Christian, Nelson Bills, Jennifer Wilkins, & R. David Smith. 2002. *Vegetable Consumption, Dietary Guidelines, and Agricultural Production in New York State: Implications for Local Food Economies*. Ithaca, NY: Cornell University Department of Applied Economics and Management.
- PFI (Practical Farmers of Iowa). 2002. *Expanding Local Food Systems by Marketing to Iowa Institutions*. Ames, IA: Practical Farmers of Iowa.
- Pirog, Richard. 2003. *Ecolabel Value Assessment: Consumer and Food Business Perceptions of Local Foods*. Ames IA: Leopold Center for Sustainable Agriculture.
- Pirog, Richard. & Rebecca Rasmussen. 2008. *Food, Fuel, and the Future: Consumer Perceptions of Local Food, Food Safety and Climate Change in the Context of Rising Prices*. Ames IA: Leopold Center for Sustainable Agriculture.
- Pirog, Rich, Timothy van Pelt, Kamyar Enshayan, & Ellen Cook. 2001. *Food, Fuel, and Freeways: An Iowa Perspective on How Far Food Travels*. Ames, IA: Leopold Center for Sustainable Agriculture.
- Polanyi, Karl. 1957. *The Great Transformation: The Political and Economic Origins of Our Time*. Boston: Beacon Press.
- Pollan, Michael. 2001. "Naturally: How Organic Became a Marketing Niche and a Multibillion Dollar Industry." *New York Times Magazine* May 13: 630-41.
Found at:
<http://www.nytimes.com/2001/05/13/magazine/naturally.html?scp=2&sq=michael+pollan&st=nyt>.
- , 2006. *The Omnivore's Dilemma: A Natural History of Four Meals*. New York: The Penguin Press.

- Provan, Keith G., Janice M. Beyer, & Carlos Kruytbosch. 1980. "Environmental Linkages and Power in Resource-Dependence Relations between Organizations." *Administrative Science Quarterly* 25(2): 200-225.
- Rasmussen, Wayne D., Gladys L. Baker, & James S. Ward. 1976. *A Short History of Agricultural Adjustment, 1933-75*. Agriculture Information Bulletin No. 391. Washington, D.C.: U.S. Department of Agriculture. Economic Research Service.
- Raynolds, Laura T. 2000. "Re-embedding global agriculture: the international organic and fair trade movements." *Agriculture and Human Values* 17(3):297-309.
- , 2004. "The Globalization of Organic Agro-Food Networks." *World Development* 32(5): 725-743.
- Rittel, Horst W.J., & Melvin M. Webber. 1973. "Dilemmas in a General Theory of Planning." *Policy Sciences* 4(2): 155-169.
- Ritzer, George. 1993. *The McDonaldization of Society*. Thousand Oaks: SAGE Publications.
- Rosset, Peter M. 2005. "Cuba: A Successful Case Study of Sustainable Agriculture." Pp. 430-438 in King, Leslie, and Deborah McCarthy, eds., *Environmental Sociology: From Analysis to Action*. Lanham, MD: Rowman and Littlefield Publ., Inc.
- Rubin, Herbert J., & Irene S. Rubin. 2005. *Qualitative Interviewing: The Art of Hearing Data* 2nd ed. Thousand Oaks: Sage.
- Schlosser, Eric. 2002. *Fast Food Nation: The Dark Side of the All-American Meal*. Boston: Houghton Mifflin.
- Schnaiberg, Allan. 1980. *The Environment: From Surplus to Scarcity*. New York: Oxford University Press.
- Schnaiberg, Allan, & Kenneth Gould. 1994. *Environment and Society: The Enduring Conflict*. New York: St. Martin's Press.
- Schneider, Mindi L., & Charles A. Francis. 2005. "Marketing locally produced foods: Consumer and farmer opinions in Washington County, Nebraska." *Renewable Agriculture and Food Systems* 20(4): 252-260.

- Selfa, Theresa, & Joan Qazi. 2005. "Place, taste, or face-to-face? Understanding producer-consumer networks in "local" food systems in Washington State." *Agriculture and Human Values* 22(4):451-464.
- Singer, Peter, & Jim Mason. 2006. *The Way We Eat: Why Our Food Choices Matter*. Emmaus, PA: Rodale, Inc.
- Smith, Alisa, & J.B. MacKinnon. 2007. *The 100-Mile Diet: A Year of Local Eating*. Toronto: Random House.
- Smithers, John, Jeremy Lamarche, & Alun E. Joseph. 2008. "Unpacking the terms of engagement with local food at the farmers' market: Insights from Ontario." *Journal of Rural Studies* 24(3):337-350.
- Sonnino, Roberta. 2010. "Escaping the Local Trap: Insights on Re-localization from School Food Reform." *Journal of Environmental Policy and Planning* 12(1): 23-40.
- Starr, Amory, Adrian Card, Carolyn Benepe, Gary Auld, Dennis Lamm, Ken Smith, & Karen Wilken. 2003. "Sustaining Local Agriculture: Barriers and Opportunities to Direct Marketing between Farms and Restaurants in Colorado." *Agriculture and Human Values* 20(3): 301-321.
- Stephenson, Garry, & Larry Lev. 2004. "Common support for local agriculture in two contrasting Oregon communities." *Renewable Agriculture and Food Systems* 19(4): 210-217.
- Strohbehn, Catherine H., & Mary B. Gregoire. 2005. "Local Foods: From farm to college and university foodservice." In *Foodservice Systems Management Education Council I*. Available at: http://www.fsme.org/pdf/manuscript2004003final_version.pdf.
- Szasz, Andrew. 2007. *Shopping Our Way to Safety: How We Changed from Protecting the Environment to Protecting Ourselves*. Minneapolis: University of Minnesota Press.
- Tauxe, R. V. 1997. "Emerging foodborne diseases: an evolving public health challenge." *Emerging Infectious Diseases* 3(4): 425-434.
- Thilmany, Dawn D. 2004. "Colorado Crop to Cuisine." *Review of Agricultural Economics* 26(3): 404-416.

- Thilmany, Dawn, & Phil Watson. 2004. "The Increasing Role of Direct Marketing and Farmers Markets for Western US Producers." *Western Economics Forum* April: 19-25.
- Thompson, Edward, Jr., Alethea M. Harper, and Sibella Kraus. 2008. "Think Globally—Eat Locally: San Francisco Foodshed Assessment." *American Farmland Trust*. Available at: <http://www.farmland.org/programs/states/ca/Feature%20Stories/San-Francisco-Foodshed-Report.asp>. Last accessed April 2, 2012.
- Toennies, Ferdinand. 1887. *Gemeinschaft und Gesellschaft*. Leipzig: Fues's Verlag.
- Tovey, Hilary. 2009. "'Local Food' as a Contested Concept: Networks, Knowledges, and Power in Food-based Strategies for Rural Development." *International Journal of Sociology of Agriculture and Food* 16(2): 21-35.
- Trauger, Amy. 2004. "Because They Can Do the Work: Women Farmers in Sustainable Agriculture in Pennsylvania, USA." *Gender, Place, and Culture* 11(2):289-307.
- Tropp, Debra, & Surajadeen Olowolayemo. 2000. *How Local Farmers and School Food Service Buyers are Building Alliances: Lessons Learned from the USDA Small Farm/School Meals Workshop*. Washington, DC: USDA Agricultural Marketing Service.
- Union of Concerned Scientists. 2004. "Close to Home: Support Your Local Farmer." *Earthwise* 6(4): 1.
- USDA. 2009. *The 2007 Census of Agriculture*. National Agriculture Statistics Service. Available at: <http://www.agcensus.usda.gov/>
- Vallianatos, Mark, Robert Gottlieb, & Margaret Ann Haase. 2004. "Farm-to-School: Strategies for Urban Health, Combating Sprawl, and Establishing a Community Food Systems Approach." *Journal of Planning Education and Research* 23(4): 414-423.
- Vincenty, T. 1975. "Direct and Inverse Solutions of Geodesics on the Ellipsoid with Application of Nested Equations." *Survey Review* 23(176): 88-93.
- Vogt, Rainbow A., & Lucia L. Kaiser. 2008. "Still a time to act: A review of institutional marketing of regionally-grown food." *Agriculture and Human Values* 25(2): 241-255.

- Walker, Richard. 2004. *The Conquest of Bread: 150 Years of Agribusiness in California*. New York: The New Press.
- Waltner-Toews, David. 1996. "An Agroecosystem Perspective on Foodborne Illnesses." *Ecosystem Health* 2(3): 177-185.
- Warman, Arturo. 2003. *Corn and Capitalism: How a Botanical Bastard Grew to Global Dominance*. Chapel Hill: University of North Carolina Press. Translated by Nancy L. Westrate.
- Wasserman, Stanley, & Katherine Faust. 1994. *Social Network Analysis: Methods and Applications*. New York: Cambridge University Press.
- Weber, Christopher L, & H. Scott Matthews. 2008. "Food-Miles and the Relative Climate Impacts of Food Choices in the United States." *Environmental Science and Technology* 42(10): 3508-3513.
- Wells, Betty L., Shelly Gradwell, & Rhonda Yoder. 1998. "Growing Food, Growing Community: Community Supported Agriculture in Rural Iowa." Pp. 401-408 in Counihan, Carole M., ed. 2002. *Food in the USA: a reader*. New York: Routledge.
- Wilkins, Jennifer L. 2005. "Eating Right Here: Moving from consumer to food citizen." *Agriculture and Human Values* 22: 269-273.
- Winter, Michael. 2003. "Embeddedness, the New Food Economy, and Defensive Localism." *Journal of Rural Studies* 19(1): 23-32.
- Youngberg, Garth, Neill Schaller, & Kathleen Merrigan. 1993. "Chapter 12: The Sustainable Agriculture Policy Agenda in the United States: Politics and Prospects." In Allen, Patricia, ed. *Food for the Future: Conditions and Contradictions of Sustainability*. New York: John Wiley and Sons, Inc.