Exploring Economic and Health Impacts of Local Food Procurement

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Suggested Citation:

Lynch, J., Meter, K., Robles-Schrader, G., Goldenberg, M.P., Bassler, E., Chusid, S., & Jansen Austin, C. (2015). Exploring Economic and Health Impacts of Local Food Procurement. Chicago, IL: Illinois Public Health Institute.

Link:
http://iphionline.org/Exploring_Economic_and_Health_Impacts_of_Local_Food_Procurement

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This project was supported by Cooperative Agreement Number 3U38HM000520-03 from Centers for Disease Control and Prevention to the National Network of Public Health Institutes. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of CDC or NNPHI.

Executive Summary

Local food initiatives across the US have launched determined efforts to encourage institutional purchasers to source locally grown foods. These have generated significant enthusiasm at the local level. Yet the evidence base for documenting positive impacts on health and local economies is still being developed.

This study seeks to draw insight from both scholarly studies and on-the-ground experience in order to distill practical strategies, recommend ways to conceptualize and measure economic and health impacts, and highlight effective methods for building the capacities of communities for this work.

The research focused on:

- **How are communities across the country structuring local food procurement activities?** What roles do collaboration and partnership play in this work? What are key successes, challenges, and factors for sustainability?
- **Does institutional procurement of locally sourced food improve health or create economic benefits?** How are impacts best measured?
- **What policies, systems, processes, and procedures maximize health and economic benefits?**

Methodologies included expert interviews, quantitative analysis of economic data, case studies based upon interviews with key leaders in five regions, and critical analysis of prevailing economic impact methodologies.

The case study process offered community-specific insights that highlight the unique qualities, community assets, and innovative partnerships that characterize each region. By viewing these in historical context, we were able to compare conditions in each community over time.

For analysis of the case study interviews, the research team used a social determinants of health lens to help facilitate understanding of the health and economic impacts that emerged from the case studies as mutually influenced and reinforcing impacts.

Core to the research approach was the high value placed on the lived experience of the communities we profiled and a desire that the research support and enhance existing community assets. The goal of this study is to serve as a resource to communities pursuing institutional procurement of local foods, to help them increase their health and economic impacts. We are deeply indebted to practitioners in the communities we studied, and our expert advisors, for the insights they offered that aided this research endeavor.

Key Assumptions that Guided this Research

Drawing upon the insights of our literature review as well as experts in the field of local food systems development, the study utilized several key concepts to frame the research:

- **The definition of "local" is inherently a local one.** Depending on specific local conditions such as population density, climate, transportation routes, and prevalent types of farming, the geographic scope of local procurement initiatives varies widely.

- **Local food purchasing encompasses a variety of concerns, some of which are not strictly geographic.** For instance, some buyers place a priority on organic foods, or prefer to purchase from a specific ethnic community, or type of business.

- **How "local" is defined has important implications for measuring impacts.** For example, it is easier to claim larger levels of local food purchasing when one defines "local" to mean a multi-state region or a wide radius in miles, but greater social connectivity and more visible impacts may be realized in a community that defines "local" more narrowly.

- **Local food is procured through a number of different market channels.** Local food projects may include direct farm-to-institution sales; sales through local intermediaries; or transactions made through broadline vendors. Market channels are often very specific to place.

- **Local food initiatives are operating in the context of a global food system.** The prevailing global food system exerts downward pressure on food prices and influences buyer expectations for the size, shape and color of food; public policy and established infrastructure for food distribution favor long-distance food trade.

Communities Tell Their Stories

One core component of the research project was interviewing and compiling stories from communities in five diverse regions that have implemented local food procurement initiatives, in order to understand and draw lessons from their experience. Their stories help shed light on the impacts, factors for success, and challenges faced in growing local food procurement efforts.

Southern Arizona
This case study highlights the work of a local food partnership that engages a food bank, an elementary school, and other community stakeholders. With the help of private and federal grants, these groups have built thriving farmers' markets accessible to low-income residents; more local food procurement by the food bank; a flourishing school garden that is helping students find more success in school and the community to eat healthier; and job training and business development opportunities to low-income residents.

Jefferson County, Kentucky
The case study highlights the efforts and contributions of a farm-to-table initiative and a public school district, that has extensive support from a private food distribution firm. With local and federal support, these Louisville/Jefferson County initiatives have developed extensive physical infrastructure, and culitvated considerable skills and capacity among local growers. All told, the Farm to Table initiative brokered more than $1.5 million in local food sales in just four years.

Burlington, Vermont
Burlington is leveraging a long history of independent action in Vermont to build a thriving local food system. This includes buying direct from producers and working with a broadline distributor. Burlington School District has also built vibrant partnerships with a local co-op grocery that extend its volunteer reach. A local hospital system is serving local foods in its cafeterias and food service, and hosts three gardens, one of which is a community garden with educational programming. As told by the school district, distributors, farmers, and a hospital, Burlington efforts are fostered by a unique local culture that raises responsive leaders who realize they have much to gain by collaborating with each other and by building capacity among their constituents.

Southwest Wisconsin
Despite having limited soil quality and a short growing season, this region has transformed itself into one of the strongest centers of organic farming in the United States over the past forty years. Through partnerships between growers, food distributors, a local hospital system, the health department, a cooperative grocery store, and school districts, local leaders have created a nationally innovative distribution sytem that helped increase local food procurement by several institutions while paying farmers at rewarding price levels. Students now eat more healthy, fresh, local foods, and have learned more about diet and nutrition. The hospital has set a goal of sourcing 20% of its foods locally. New food processing capability has been built, fostering new products tailored for local use.

San Diego County, California
Farm to school efforts in San Diego County are putting a number of collaborative principles to work to support the long-term sustainability of efforts to bring farm-fresh foods to local children. Through application of these principles, San Diego Unified

School District, has grown its local food purchasing from 2.5% of its food budget in 2010/2011 ($60,000) to 15% of its budget in 2013/2014 ($540,000). San Diego's definition of local is somewhat broader than in the other communities studied.

Findings and Conclusions

The stories told in the case study communities showed that achieving both health and economic impacts through institutional procurement of local foods relied on building trusting relationships among stakeholders, identifying and mobilizing resources and assets already present within the communities, creating supportive policies, and building appropriate food-system infrastructure. The research team identified seven categories of mutually influenced and reinforcing impacts:

- **Building social capital and community connectivity.** This research suggests that building stronger economic impacts depends on building stronger social cohesion and social capital. The communities studied exhibited several common elements of successful social networks, including a shared sense of identity, place, and heritage; a common vision or mission across sectors; a diversity of engaged stakeholders; trust built over time; a systems perspective; clear organizational roles; willingness to defer individual short-term gain for long-term mutual gain; and efforts by larger organizations to nurture smaller ones.

- **Creating jobs and generating income.** In each locale studied, local food trade increased, resulting in greater sales for selected farmers, more widespread local food commerce, greater visibility for local foods and local farmers, and marginally higher employment, not only for growers but also within distribution systems. The process of local food procurement itself resulted in job creation. In certain cases, the collaboration among farmers, institutional food buyers, and intermediaries led to the creation of new products, such as processed produce (cut carrots) and premade foods (like soup) that had not previously been offered for sale.

- **Increasing economic activity and developing resources.** Each locale studied suffers from significant leakage of economic resources, as outlined in each case example. Each region has the ability to produce a greater proportion of its food locally. Several of the case study locales have set explicit objectives related to local economic development, and in all of the communities there was at least an implicit understanding that launching or increasing local procurement activities could have economic benefits for the community. The case studies demonstrated that the strength of local procurement networks, and the construction of new physical, social, economic, and knowledge infrastructure, helped create local efficiencies that made expansion of local food procurement more likely over time.

- **Improving diet and nutrition**. All of the case study communities had established improved nutrition as a core objective for their local food procurement activities. In particular, the institutional purchasers across sites were motivated by an intention to improve access to fresh, healthy food options. For all sites, this included fresh fruits and vegetables, and many communities also included other products, such as antibiotic-free meats or gluten-free pasta.

- **Increasing student academic achievement.** As in many farm to school programs, the programs included in these case studies integrated local food procurement into curricular and extracurricular activities. This included incorporating concepts of food production and preparation into math and science programs, culinary arts education and horticultural activities.

- **Improving mental health.** Several case study sites discussed leveraging farm to school and gardening activities to create opportunities for students to more fully reach their potential and contribute to the school community. One case study site–southern Arizona–reported an intentional approach to using school gardening activities to aid social/emotional learning and development.

- **Environmental stewardship**. In several case study sites, stakeholders also attended to environmental concerns, working to reduce food waste and diverting food waste from the traditional waste stream to composting, which enhanced the local capacity to grow food.

Practical strategies and approaches

The people interviewed for the case studies shared various practical strategies and approaches to successful and sustainable procurement of locally produced food. Common strategies across all types of institutional purchasers and sectors included:

<u>Networks</u>

- Building respectful, trusting relationships between food service directors/institutions and local farmers, producers, and businesses (however the institution or its supportive networks define "local").
- Establishing clear and reliable purchasing agreements that offer producers a fair price while still being sustainable for all members of the value network.

<u>Education</u>

- Offering professional development opportunities for foodservice staff on preparation of raw foods and reductions of waste food; conducting health education/conveying the links between nutrition and health for other staff (clinicians, food bank client-service staff); providing farmers education about food safety protocols).

Marketing

- Marketing local food programs to parents, constituents, customers, and community members to gain political and financial support and public relations benefits.
- Highlighting the local farmers/producers/businesses that are featured in meals served in the cafeteria, sold in retail stores through tie-in initiatives, and in food provided to clients.
- Marketing the availabiity and wisdom of buying local foods more generally.

In addition, each type of instititution (schools, hospitals, etc.) featured in the case studies had unique strategies that can provide practical guidance, which are detailed in the full report.

Key factors for success

Overall, the case study analysis demonstrated that leaders, systems, and programs that are flexible, innovative, and able to respond to opportunities are critical to success. Other key success factors that cut across the case study communities include:

- Linking institutional change with broad, long-term community support and engagement
- Inclusive partnerships and networks that enable open communication
- Collaborative and entrepreneurial leadership
- Development of local productive and processing capacity
- Dedicated funding to build sustainability

Challenges

Sources from the case study communities also reported facing challenges to sustainable local food procurement that produces economic and health impacts. These included:

- In most of the communities studied, institutional food purchasing records were incomplete or unavailable. Dedicated resources will be required to provide adequate documentation
- Accessing or acquiring capital equipment and basic infrastructure
- Stopping financial leakage/outflow of economic resources from purchase of products from distant sources
- Finding ways to sustainably fund long-term systems change is difficult because some funding is limited in scope
- Overcoming barriers related to regulation, record-keeping, and food safety requirements
- Competing priorities to local food procurement

- Developing and adopting institutional policies must be followed by strong policy implementation activities

Critical Analysis of Economic Impact Methodologies

The critical review of economic impact methodologies drew several key conclusions:

- Prevailing tools/software/methods for measuring economic impacts are often not appropriate for use in an emergent small context such as local food trade. Although the standard economic impact software programs are powerful tools, they rely upon data that model larger industries and commercial linkages. These reflect an export-based commodity industry, not the actual transactions that take place in local foods trade.

- Strong local economic multipliers rely on strong social and commercial networks. Any local businesses transaction requires some form of local connection. Often the limiting factor for farmers who wish to sell to local markets is whether a purchaser will continue buying from local farms for the sake of supporting local businesses, even when lower-cost items are available from far away.

- Measuring the strength of local social and commercial networks appears to be a promising alternative to standard economic impact analysis.

Principles for Expanding and Enhancing Support of Local Food Procurement

Through the case studies and analysis of the literature, the research team identified several principles to guide further investment in local foods initiatives:

- Effective intervention from outside requires gaining adequate knowledge of unique local conditions and appreciating prevailing local assets.
- Financial support must address long-term needs and comprehensive strategies.
- It is important to invest in communities at all levels of network maturity; not simply those that are the most successful, or the most challenged.
- External funding has increased the ability of local institutions to procure food, and similar funding infusions could help sustain and deepen this work.
- Institutional food purchasing should be framed around the formation of strong and resilient local social, professional, and business networks.
- Institutional food purchasing should engender a long-term, inclusive educational process and capacity building among adults and children.
- Local food networks are well positioned to assume responsibility for planning and implementation based on unique local conditions.

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ACKNOWLEDGEMENTS

It is with our sincerest appreciation that we thank all of the individuals who contributed to the case studies in this report. In particular, we would like to thank the individuals interviewed in the case study communities:

Southern Arizona

- Tarenta Baldeschi, Avalon Organic Gardens & Eco Village
- Leona Davis, Education and Advocacy Coordinator, Community Food Resource Center (a program of the Community Food Bank of Southern Arizona)
- Matthew Fornoff, Food System and Policy Specialist, Mariposa Community Health Center
- Joyce Latura, Maternal and Child Health Manager, Mariposa Community Health Center
- Robert Ojeda, Vice President, Community Food Resource Center (a program of the Community Food Bank of Southern Arizona)
- Diana Teran, Owner and Founder, La Tauna Tortillas
- Moses Thompson, Counselor, Manzo Elementary School

Jefferson County, Kentucky

- Alicia Arnett, Supervisor, Fresh Fruit and Vegetable (FFV) Program, Jefferson County Public Schools
- Jose Cubero, Piazza Produce
- Sarah Fritschner, Coordinator, Louisville Farm to Table
- Tina Garland, Kentucky Farm to School Coordinator, Kentucky Department of Agriculture
- Laura Peot, Head of Operations, Grasshoppers Distribution[1]

Burlington, Vermont

- Doug Davis, Food Service Director, Burlington School District, & Coordinator, FSDA
- Daria Holcomb, Manager of Nutrition Services, Fletcher Allen Health Care
- Jenn McGowan, Development and Programs Manager, Burlington School Food Project, Burlington School District
- Allison Weinhagen, Director of Member Services, City Market/Onion River Co-op

Southwest Wisconsin

- Diane Chapeta, General Manager, Fifth Season Cooperative
- Mike Dvorak, Division President, Reinhart Foodservice – La Crosse; and Treasurer, Fifth Season Cooperative
- Mark Hutson, Administrative Director of Nutrition Services, Gundersen Lutheran Hospital; and Secretary, Fifth Season Cooperative
- Kerry Johnson, Nutrition Services Coordinator, School District of Onalaska
- Maggie Smith, Health Educator and Farm to School Coordinator, La Crosse County Health Department

San Diego County, California

- JuliAnna Arnett, Senior Manager of Operations and Food Systems, San Diego County Childhood Obesity Initiative
- Eric Schoeppler, Contract Specialist, San Diego County Unified School District

Deepest appreciation is also extended to advisors at CDC – including Scott Miller, John Francis, Diane Harris, Joel Kimmons, and Anne Haddix – and the National Network of Public Health Institutes, including Erin Marziale and Tiffanie Sherrer.

[1] Grasshoppers Distribution closed in December 2013 about six months after the interview for this case study.

INTRODUCTION

Introduction to this Research Project

In cooperation with the Centers for Disease Control and Prevention (CDC), the Illinois Public Health Institute (IPHI) partnered with Crossroads Resource Center (CRC) and the National Network of Public Health Institutes (NNPHI) to design and implement this research project. This represents an early effort to explore the following research questions:

- How are communities across the country structuring their local food procurement activities? What role does collaboration and partnership play in their work? What are key successes, challenges, and factors for sustainability?
- Does institutional procurement of locally sourced food improve health or create economic benefits? How are impacts best measured?
- What policies, systems, processes, and procedures maximize health and economic benefits?

Drawing upon case studies, this research project highlights efforts in five communities across the country that have developed initiatives supporting procurement of locally grown and produced foods by institutions such as schools and hospitals. Four of the case study communities received funding from CDC's Communities Putting Prevention to Work (CPPW) grant program during the years 2009–2011 for various obesity prevention initiatives, including aspects of the local food procurement activities featured here. This study sought in part to understand how this CPPW funding helped heighten the impacts of institutional procurement.

Purpose

This research project intends to:

1) Draw insight from real-life examples of local food procurement partnerships established in diverse settings across the country.
2) Distill from these cases the essential practical strategies and approaches to successful and sustainable institutional procurement of locally produced food.
3) Provide recommendations about how to conceptualize and measure economic and health impacts, based on literature review and case study analysis.
4) Identify ways to build the capacities of communities to implement local food procurement policies and activities that contribute to health and economic impacts.
5) Identify areas for further research related to health and economic impacts of local food procurement.

It is important to emphasize that this research project was conducted on a short timeframe. It does not provide final answers but instead provides initial insights gathered from ongoing community efforts that can guide further research and practice.

Key Concepts in the Economics of Local Food Procurement

Defining "Local"

The economic impact of local food procurement depends in part upon institutional purchasers' definition of the term "local." That definition is inherently community-specific. In the Southwestern deserts, where population is widely scattered, residents may consider a 350-mile radius to be local. In New England, or even in closely-knit Midwestern communities, residents may identify local as being within only a 30-mile radius. Each measure is correct from the perspective of the locale itself.

Moreover, the distance that food travels is not the only concern that food buyers have when they consider what constitutes "local" purchasing. The current transformation of the food economy in the United States is motivated by a strong interest in building relationships as a part of doing commerce; this means that institutional consumers may have a variety of preferences that are not strictly geographic. For instance, a purchaser may wish to place a priority on purchasing food that is sustainably or organically produced or on food from an ethnically identified supplier as a way of keeping money in a non-geographic community.

An additional dimension is that some institutional purchasers may consider food produced in a nearby state to be "locally" produced, even though it may come from 500 miles away, or may consider purchases from a local vendor to be a local purchase even if the product was produced outside the community. In these situations, "local" purchases may do very little to build the local economy as a rooted resident would define it.

To collect and report solid data about "local" food purchases, food service providers and researchers should identify these different definitions of "local" and the corresponding paths through which food is traded. The more that raw materials are sourced, and the resulting products are produced, processed, and distributed within a single geographic region, the larger will be the economic impacts for that area.

Market Channels

To more fully understand how local food procurement impacts the local economy, it is also important to identify the various market channels through which food is traded. There may be as many as three dozen such channels, but the primary channels for institutional purchasers are listed here.

Direct from farms. This is an important market channel, especially during the initial stages of local food procurement initiatives – when few growers and producers are serving institutional markets and when farmers are first establishing market connections.

Direct sales are interesting in multiple ways. Since the farmers and the food service negotiate directly, the terms of the purchase can often be flexible; farmers tend to receive the full value of what they sell and do not send a percentage to a middleman; purchases may also support personal relationships and connections between the purchaser and the farmer; and the food service may gain additional interest from its customers by offering customers knowledge of where their food was sourced.

Some of the drawbacks of the direct channel are that the farmer may hold little long-term bargaining power and may have to reduce prices to keep the account. Also, food service directors hold greater responsibility for assuring food safety because there is not a middleman who manages this function. Finally, few small farms can produce enough product to fully satisfy the demand of an institutional food service.

Prime vendor or single broadline vendor. Institutions may prefer to (or be required to) source foods through a single prime or broadline vendor, which offers a complete set of food service items, including food, utensils, and other food supplies. If a prime vendor sources local foods, the purchaser can conveniently place a single order to obtain delivery of multiple items. Additionally, prime vendors tend to be experienced in handling food safely and typically require farmers who supply them to follow food safety protocols. Also, prime vendors can usually source sufficient food to suit institutional needs. Finally, in some cases, prime vendors have been willing to train emerging farmers on how to properly package the foods they sell to institutions.

On the other hand, because these distributors have many options for sourcing foods, this strategy can dilute the goals of local food initiatives unless the prime vendor is deeply committed to purchasing from local farms and processors. A broadline distributor may purchase from select local farms but supplement these local purchases heavily with food imported from more distant sources. Moreover, small farmers typically have little market power when selling to a broadline vendor and may not receive adequate prices for what they supply. In addition, the quantity of food that a prime vendor wishes to order may be too large for a local farm to supply. Finally, a prime vendor's definition of "local" may be so broad that few economic benefits accrue to the local economy. Broadline vendors who commit themselves to engaging in community networks are most likely to avoid these potential pitfalls.

Local intermediary. As illustrated in three of the case studies that follow, local intermediaries can provide new options for food services and farmers alike. Often these local intermediaries work in collaboration with broadline food distributors and/or established prime vendors, but each carves out a unique niche that is essential to promoting local commerce. The main benefits of purchasing through a local intermediary may include that farmers' interests may be held central to the mission of the local intermediary, which may encourage more collaborative behavior on the part of broadline firms; that working in concert with them will help create a local vision for the food economy; and that new market structures are created that foster collaboration among diverse stakeholders in the food system. This inclusiveness helps

create marketing systems that are fair to all players, and this may encourage greater long-term resilience for the entire local food system.

However, as they are being developed, local intermediaries present some challenges. Emerging local firms may find it difficult to establish market presence or to efficiently transport foods to local buyers, especially in the face of competition from existing broadline firms. Emerging local intermediaries may face difficulty in capitalizing business expansion, and new businesses may find it challenging to pay farmers a fair price. In many cases, local farmers and processors do not produce enough to keep a local intermediary in a sustainable business, and supportive infrastructure, including favorable tax incentives, are often missing.

Global Food System Context

Institutions carry out local food procurement, preparation, and advocacy in the context of prevailing global food systems. Current conditions include, but are not limited to, the following:

- Competition from large, established, outside entities limits opportunities for local entrepreneurs. This also applies downward pressure on prices farmers and producers can charge for their products.
- Wholesale buyers and market infrastructure both place constraints on product features (i.e., size, quality, quantity, processing) that may favor larger farms.
- Public policy priorities and funding opportunities, while they often have a positive impact, are highly uncertain.
- Even farms that sell to global commodity markets obtain unpredictable financial returns, because they hold little market power as sellers.
- Prevailing food-handling infrastructure supports long-distance shipment of food rather than promoting efficient and sustainable local food trade; creating localized infrastructure will be required if local food firms are to be profitable.
- Regulatory and food-safety regimes often are tailored to larger farms and may not suit the realities small producers face.

Despite these conditions, producers in communities across the country are partnering with schools, hospitals, food banks, and determined local food entrepreneurs to innovate and form successful new ventures, businesses, and coalitions focused on developing strong local and regional food systems.

Summary of Our Approach

The research project included four components designed to shed light on the research questions from a variety of perspectives.

First, the team reviewed the literature on economic impact of local food procurement, health impact of local food procurement, and the role of social networks in producing economic and health impacts. This literature review was enhanced and supplemented with guidance from various national and regional experts in local food procurement. The project team then conducted screening interviews in a number of sites, selected final sites for inclusion in the study, and recorded interviews with 23 individuals in the selected case study sites. The team then coded and analyzed the interview responses to elicit themes and cross-cutting issues.

Literature Review and Analysis

In order to inform both the overarching research questions and specific questions for interviews, the research team conducted a review of peer-reviewed and gray literature, including policy briefs, impact assessments, and independent economic analyses. The literature review initially included two focal topics related to local food procurement and distribution, "economic impacts" and "health impacts"; a third topic– "social networks"–was added to the literature review based on its emergence as a key concept in expert and screening interviews.

The literature review on economic impacts formed the starting point for an in-depth consideration of the challenges of conducting economic impact analysis on local food systems; please see "Critical Analysis of Economic Impact Methodologies" on p. 111 of this report.

Expert Interview Participants

Expert interview participants were identified by the research team, including CDC and NNPHI staff. Interviewees also recommended colleagues or peers who were added as additional expert interview participants. Experts were defined as individuals who had either academic or practical knowledge that was relevant to our overarching research questions. Expert interviewees were asked to share information and feedback related to site selection criteria; potential communities to approach; sample interview questions; and key themes impacting local food procurement and distribution efforts. A total of 13 experts were interviewed between March and May of 2013. See the Acknowledgements on p. 1 for a list of expert interview participants and Appendix D for the interview questions.

Case Study Site Selection

Team members developed a list of Communities Putting Prevention to Work (CPPW) grantees that were involved in local food procurement activities. Expert interviewees also recommended potential case study communities that included both CPPW and

non-CPPW locations. The research team followed up with contacts identified by both CDC and expert interviewees to identify communities actively engaged in local food procurement initiatives.

The research team developed an initial screener tool to document and collect the contact information of key stakeholders. Researchers conducted initial 10–15 minute screening interviews over the telephone between March and May 2013. A total of 20 respondents working in 20 communities across 17 states were contacted during the initial screening process. In communities that affirmed they had ongoing local food procurement activities, the respondents provided referrals to other key stakeholders that represented diverse sectors within the food system.

Next, researchers conducted a second screening process (in-depth screener) with a few of the identified stakeholders in each community to determine which communities had institutional procurement and/or distribution of locally produced foods. Researchers selected one to two stakeholders in each community to contact, based on recommendations from the initial screener and/or stakeholders' apparent relevance to the research study. The primary aim of the in-depth screener was to collect information that could help the team determine which community stories across the country to highlight. Information collected through the in-depth screener provided data related to site selection factors.

Site selection factors included:

- availability of economic or health data
- desire/intention to collect data in the absence of financial/economic data
- stakeholders working together to sustain local food procurement efforts
- efforts for local food procurement had explicit economic development and/or community health benefits as part of their rationale
- interest and availability for phone interviews during the project timeframe

In addition, the project sought to ensure that the group of sites selected represented:

- geographic diversity (rural, suburban, urban) and regional diversity
- diversity of climate and seasonality
- diversity of populations served by institutions interviewed in the study (age, race/ethnicity, socioeconomic status, etc.)
- diversity of institutional policies, programs, and practices implemented to support local food procurement

Other factors that the project also considered relative to the overall cohort of sites were:

- diversity of funding streams
- definitions of local
- types and variety of market channels and vendors used for local food procurement

- diversity of foods procured
- institution size
- population density and community size
- levels of maturity of the local food procurement efforts

Of the approximately 40 individuals contacted at this stage, a total of 18 individuals across 14 communities in 14 states completed the in-depth screener. The others were unable to complete an in-depth screener interview for various reasons, such as scheduling conflicts, job transitions, and lack of interest.

Information compiled through the in-depth screener was entered into a case study selection matrix that included the site selection criteria listed above. Using this matrix, the research team selected five case study communities that represented a diverse range of contexts and achievements: Burlington, Vermont; Jefferson County, Kentucky; Southern Arizona; San Diego County, California; and Southwest Wisconsin.

Case Study Interview Methodology

Stakeholders from the five selected case study communities were invited to participate in an hour-long phone interview with the research team. Interview questions were tailored based on the role and work of the interviewee and their organization. In general, interview questions focused on the following topics:

- roles and responsibilities;
- motivations for becoming involved in local procurement or distribution;
- availability of economic and health impact data;
- system changes to support the adoption of healthier behaviors and/or local economic development;
- key partnerships (see Appendix C Partnership Matrix); and
- barriers and facilitators to sustaining local food procurement and/or distribution.

Because the screening questions provided important data, respondents from the institutions procuring local foods (as opposed to suppliers and others) who had not participated in an in-depth screening interview were also asked to complete some of the in-depth screener questions via an online survey.

Between June and August of 2013, researchers interviewed four to five individuals in four of the case study communities representing diverse roles in each local food system. (Due to the team's inability to reach additional respondents, San Diego had only two respondents. That site is therefore presented as a high level profile in this report.) A total of 23 individuals were interviewed. Participants included school district staff, food bank staff, healthcare facility staff, health department staff, Farm to School and Farm to Table coordinators, food distributors, distribution cooperative staff, entrepreneurs, and a food service director association member. For a detailed list of interview participants by community, see each individual case study or the acknowledgements on page 3. Each interview was recorded and transcribed.

Qualitative Data Analysis

The research team devised a qualitative data analysis approach that was comprehensive but abbreviated to meet the condensed research timeframe. The research team's first step was to read all interview transcripts to deepen familiarity with the information contained within the interviews. The team then formally reviewed each transcript to identify words, phrases, or statements that exemplified concepts relevant to the research foci. To develop an initial set of codes for the interviews, the team chose four interviews from across three case study sites. Four members of the research team each coded interviews individually and then met together to create a combined code book with a clear definition for each code. The research team members met weekly to review, discuss, and develop consensus on codes. Some codes were amended or added along the way. Codes emerged across six broad topic areas: health and environmental outcomes; economic impacts; policy impacts and implementation; partnerships and networks; organizational capacity and infrastructure; and challenges and success factors. The transcripts were re-evaluated and recoded where necessary to ensure inter-rater reliability. For some of the interviews, *QDA Miner 4 Lite* software was used to compile the coded text segments into a spreadsheet; for other interviews, the coded information was put directly into a Microsoft Excel spreadsheet, which the team then used to summarize site-specific data for each case study and identify themes, ideas, and takeaways from the five-site dataset.

Economic Analysis and Methodology

Due to the exploratory nature of this research project, the exact economic analysis methodology was not predetermined. This allowed adjustments to be made as the research team learned which data would be available at each stage of the work. Researchers anticipated that data availability would be quite variable, and this turned out to be true.

Early on, the literature review led the research team to conclude that input/output modeling would not be advisable under Impact analysis for Planning (IMPLAN) (an input-output model developed at the University of Minnesota and provided by MIG, Inc.) or related software, both because the amounts of food traded locally would be so small relative to the broader commodity flows modeled in IMPLAN and also because those commodity flows were of only marginal relevance to local food purchases made by institutions. A second model was considered, the "Local Multiplier 3" (LM3) methodology developed by the New Economics Foundation in England[2], which is designed for use in a community context. However, this model requires compilation of primary data from the community that traces financial flows through the local networks in which institutions actually trade. LM3 measures one cycle of direct impact (the amount of local food purchased by the institution of interest), and two cycles of indirect

[2] Sacks, J. (2002). *The Money Trail: Measuring your impact on the local economy using LM3.* London: New Economics Foundation. Available at http://www.neweconomics.org

impacts (local purchases made by those firms that supplied the institutions with local foods and local spending by the employees of those supplier firms). The overall economic multiplier is a calculated combination of all three cycles of economic activity.

From the outset, the research team determined that the data needed for the second and third cycles of impact could not be collected from five sites without significantly more time and financial resources. Thus, the team focused on collecting any available institutional purchasing data in order to describe the direct impacts of local food procurement.

The research team compiled purchasing data from the main institutional purchaser and local partners that would have relevant data. These case study respondents were asked to respond to a brief online survey questionnaire prior to the phone interview. The questionnaire asked the respondents to define the geography that constituted "local" for their own purposes and to share relevant purchasing or sales data. The research team then asked clarifying questions about the information reported in the questionnaires during the case-study interview. Finally, researchers followed up as necessary with emails or telephone calls to get more complete data.

The research team found that in many cases records were incomplete or unavailable. Some respondents told researchers that the team could sort and analyze their invoices to understand how much food was locally sourced; others had incomplete data; others did no particular tracking of local purchases. Any data the team was able to obtain are included in the case study narratives below.

Given this lack of direct data from the sites, the research team collected additional secondary economic data in order to provide context for the local food procurement and economic impact discussion in our study sites. This included an analysis of the net cash income or "farm production balance" for all farms in each region of interest. These data are estimations made by the US Bureau of Economic Analysis (based on US Census of Agriculture data, selected primary data, and complex economic modeling). These were correlated with data drawn directly from the Census of Agriculture and the Bureau of Labor Statistics. These data sets do not refer to production for local markets, but rather include all products sold by farms. In each case example, whether net cash income from farming proved positive or negative, significant financial outflows were tracked as farmers produced food products, purchased farm inputs (such as fertilizer and machinery), and as local consumers purchased food to eat.

Business Networks and Social Capital

Given that comprehensive economic data proved so difficult to compile, alternative analytical strategies were also pursued. The literature review and expert interviews revealed that social networks and social capital would be closely linked with economic multipliers, since people who traded with each other financially in one geographic region were likely to form some measure of social connection as well. The team sought

to collect an array of information from each interviewee on the "key partners" and their role in the local food procurement arena in order to analyze the extent of social capital and business networks in each site. Further detail on this approach and data collection method can be found in Appendix A. As with the effort to collect purchasing data, the information received was quite variable across study participants and sites and was not comprehensive enough to be analyzed in a robust manner across all sites. This data did identify additional stakeholders and expanded the number of interviewees in several sites. The information on partners that was obtained by the team is incorporated into each of the case study narratives.

Health Impact Analysis

The World Health Organization defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease."[3] This definition encourages health practitioners to examine and understand health from a multidimensional perspective, exploring factors influencing health beyond individual behavior. Individual well-being and community health are influenced by the complex and interactive forces of the economic, social, and physical environment.

McGinnis, et al. (1993 and 2002) found that social circumstances, environmental exposure, and behavioral patterns (like diet), represent 60% of the underlying causes of premature death in the US.[4,5] While diet and nutrition are key factors in overweight/ obesity, diabetes, cancer, heart health, blood pressure, and osteoporosis, there are also strong relationships between health and social and economic conditions.

To capture this, public health practitioners often discuss health in terms of the social determinants of health that situate health outcomes inside the larger contextual factors that influence health behaviors and opportunities to be healthy. As described in *Healthy People 2020* and elsewhere, the social determinants of health are the conditions in which people are born, raised, work, and socialize, which affect a wide range of health, functioning, quality-of-life, and risk factors (Figure 1). Community environmental factors that affect health include affordable housing, transportation, and access to nutritious foods. Living wages, community engagement, cultural norms, public safety, and a sense of security are examples of social conditions that influence health.

[3] Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19 June - 22 July 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.
[4] McGinnis, J. M., & Foege, W.H. (1993). Actual causes of death in the United States. *Journal of the American Medical Association*, 270(18), 2207-2212.
[5] McGinnis, J. M., Williams-Russo, P., & Knickman, J. R. (2002). The case for more active policy attention to health promotion. *Health Affairs*, *21*(2), 78-93.

Figure 1. Social Determinants of Health (*Healthy People 2020*)[6]

The social determinants of health was a helpful framework for understanding the health and economic impacts that emerge from the case studies as a set of mutually influenced and reinforcing impacts.

Presentation of Results

The research team's analysis of the concepts and findings from the three literature review areas (Critical Analysis of Economic Impact Methodologies [p. 111], The Role of Networks and Social Capital in Economic Development and Community Health [p. 125], and Considerations for Health Impact Analysis [p. 135]) and the themes and findings from the qualitative analysis of case study interviews produced seven broad categories of impact that cut across both health and economics. The following seven categories were used to organize and present the findings in each case study:

Building social capital and community connectivity: Activities creating and/or impacting social connectivity and the development/maintenance or social networks.

Creating jobs and generating income: Increases in the number of jobs available; workplace opportunities to develop skills that increase a person's employability; and opportunities for individuals to obtain supplemental income.

[6] http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=39

Increasing economic activity and developing resources: Increases in purchase and sales of goods and services, increases in financial resources such as grants and allocations of public and private funding to food related initiatives.

Improving diet and nutrition: Programs, policies, and practices addressing food consumption behaviors related to diet and nutrition; improvements in access to healthier foods and the quality of nutritional intake by individuals and groups.

Enhancing student academic achievement: Opportunities to enhance student learning about local, fresh foods, and improve overall achievement.

Improving mental health: A state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community (WHO, 2013).

Environmental stewardship: Activities impacting environmental protection, including sustainable food production practices, changes in food distribution that reduce carbon footprint and improve air quality,[7] and sustainable disposal of food waste.

Study Limitations

The primary study limitation was the length of time and financial resources available to conduct study activities. The study was designed and data collected over just a six-month period. The short timeframe affected the number of case study sites researchers could feasibly examine, the number of people that could be interviewed in each community, the amount of quantitative data that could be collected, and the research team's ability to do in-depth analysis on each community. The research team was also unable to visit the case study communities in person, so all interviews were conducted on the phone. Therefore, it was not possible for the research team to have a comprehensive understanding of either all the contextual factors or all of the stakeholders in a given community. Interviewee selection was partially based on individual willingness and availability to talk with the research team during the study timeframe.

As a result, there were many unique and interesting community achievements that the research team was unable to highlight through this project. As described above, this time and resource limitation was also a significant barrier to collecting data to support full economic impact and social network analysis. However, the team continues to

[7] Local food trade may not in itself automatically reduce the carbon footprint. (Avetsiyan 2013) (Coley 2009). Whether this happens depends on the carbon efficiency of local production and distribution compared with more distant sources.

Avetisyan, M., T. Hertel, and G. Sampson, Is Local Food More Environmentally Friendly? The GHG Emissions Impacts of Consuming Imported versus Domestically Produced Food. (2013) *Environmental and Resource Economics,* 1-48.

Coley, D., M. Howard, and M. Winter, (2009) Local food, food miles and carbon emissions: A comparison of farm shop and mass distribution approaches. *Food Policy*, 34(2): 150-155.

believe that the analytical methods identified for the economic impact and social networks components are potentially very useful in understanding the impact of local food procurement; with additional time and resources, this would be a fruitful additional line of inquiry and research to pursue.

FINDINGS AND CONCLUSIONS

Communities across the country are creating innovative and effective models for strengthening procurement of locally produced foods. The case studies in this report provide detailed descriptions of the diverse ways in which communities are collaborating to structure local food procurement activities in varied local contexts, seeking to foster both health and economic impact.

Following is a summary of the health and economic impacts that were identified; an overview of the practical strategies, approaches, and factors that furthered the success and sustainability of these initiatives; insights on how to measure the impact of local food procurement; and opportunities for future action.

Economic and Health Impacts

The stories told in the case study communities showed that achieving both health and economic impacts through institutional procurement of local foods relied on building trusting relationships among stakeholders, identifying and mobilizing resources and assets already present within the communities, creating supportive policies, and building appropriate food-system infrastructure. The research team identified seven categories of mutually influenced and reinforcing impacts: Building Social Capital and Community Connectivity, Creating Jobs and Generating Income, Increasing Economic Activity and Developing Resources, Improving Diet and Nutrition, Enhancing Student Academic Achievement, Improving Mental Health, and Environmental Stewardship.

Each case study highlights the community-specific health and economic impacts that were identified; these also produced cross-cutting findings, as follows:

Building Social Capital and Community Connectivity

Social network literature suggests that networks go through iterative steps of maturing and adding capacity over time. This research and analysis suggests that building stronger economic impacts, and larger economic multipliers, depends on building stronger social cohesion and social capital. Building this cohesion is a long-term process that must remain attuned to and strengthen the existing assets and capacities of communities, while pursuing a long-term vision of sustainability and ethics.

The case studies presented in this report exhibited diverse stages of network maturity and effectiveness. Common elements of social network success that were present to various degrees in the communities featured were a shared sense of identity, place, and heritage; a common vision or mission across sectors; a wide range of stakeholders engaged in shared decision-making; trust built over time; a systems perspective that situated local food procurement inside a broader economic view; clarity about the various roles organizations play within the network; willingness to set aside individual partners' short-term agendas in favor of long-term mutual gain; and efforts by larger organizations to nurture smaller ones to build the overall strength of the network.

As social networks matured and produced impacts, they built social capital that created new opportunity, a lasting culture of collaboration, and greater resilience. These elements combined in a nonlinear and unpredictable manner to produce positive and mutually reinforcing outcomes, or "collective impact,"[8] in each of the studied communities. To name two instances from this report: In southern Arizona, the Community Food Bank and its Community Food Resource Center engage low-income constituents in building their own sustainable sources of food and food-related income, in partnership with local community-based organizations to create networks of producers, purchasers, and consumers. In Kentucky, leaders were intentional about engaging farmers in planning for a stronger local food-system, thus laying the foundation for a network across purchasers and producers.

Creating Jobs and Generating Income

In each locale studied, local food trade increased, resulting in greater sales for selected farmers, more widespread local food commerce, greater visibility for local foods and local farmers, and marginally higher employment, not only for growers but also within distribution systems, such as truck drivers at Piazza Produce in Kentucky. In Arizona, the initiative promoted entrepreneurship and economic self-sufficiency through development of value-added products by community members; in the Arizona case, a tortilla business grew from a close family business to hiring employees to meet demand. In addition, the development of infrastructure and market opportunities fostered participation of low-income communities in the food economy by providing training in farming as well as a farmers market to create reliable access to customers. The process of local food procurement itself resulted in job creation, including the farm-to-table coordinator in Louisville and farm to school coordinators in several of the profiled school districts. While these may be grant-funded staff initially, in some cases they have become permanent positions.

In certain cases, the collaboration among farmers, institutional food buyers, and intermediaries led to the creation of new products, such as processed produce (cut carrots) and premade foods (like soup) that had not previously been offered for sale;

[8] Kania, J., & Kramer, M. (2011). Collective impact. *Stanford Social Innovation Review, 1*(9), 36-41.

this could lead to expanded business opportunities based on creation of new differentiated products.

Increasing Economic Activity and Developing Resources

Each locale studied suffers from significant leakage of economic resources, as outlined in each case example, because each region has the ability to produce a greater proportion of its food locally. Several of the case study communities did have an explicit objective related to local economic development, and in all of the communities there was at least an implicit understanding that launching or increasing local procurement activities could have economic benefits for the community. The case studies demonstrated that the strength of local procurement networks, and the construction of new physical, social, economic, and knowledge infrastructure, helped create local efficiencies that made expansion of local food procurement more likely over time. These new efficiencies that favor local trade often served to heighten product differentiation, consumer loyalty, and niche branding that strengthened local trade and corresponding economic impacts. The profiled communities implemented a variety of procurement approaches to increase locally purchased products, including purchasing local foods directly from farmers, increasing purchasing of local foods through local intermediaries, and leveraging interest in local food procurement to influence product lines of larger distributors. All of the local food procurement initiatives developed new business relationships and networks or leveraged existing ones to facilitate the effort. Cooperative distribution efforts in Wisconsin (Fifth Season Co-op) and cooperative purchasing in Vermont (VT Food Service Directors Association) are good examples of this.

The sites reported various strategies for increasing their institutional commitment to local foods while holding overall costs neutral. For instance, Burlington schools purchased surplus products and found additional buyers to create volume shipments at lower prices, and a Wisconsin hospital changed its recipes to offset higher costs for some products.

The local food initiatives also produced new revenue and resource streams for institutions. For instance, the school garden at Manzo Elementary School in Tucson, Arizona, sells surplus to both parents (at cost) and to local restaurants (at a profit). In the communities in this study, food service directors were often able to leverage public support by engaging in local food networks and by purchasing from local producers; this helped them attract new public as well as private investment (such as for school kitchen equipment), and other stakeholders in the communities were also able to attract resources, such as state and local grants.

The networks of support examined in this study also elevated the importance of small-scale initiatives, helping to reduce barriers to entry into commercial activity, creating paths out of poverty for low-income stakeholders, and increasing coordination

throughout the locale. Some of the profiled communities went beyond the purchase of produce and meats to include local value-added products in their efforts, such as the purchase of local flatbread and cheeses produced in the Burlington area.

A feature of all the case study communities was the provision of material and/or technical support for local growers to increase both their productivity and, most importantly, their ability to meet standards necessary to sell to institutional buyers, facilitating the growth of the local food economy.

Improving Diet and Nutrition

All of the case study communities had improving nutrition as an important objective for their local food procurement activities. In particular, the institutional purchasers across sites were motivated by an intention to improve access to fresh, healthy food options. For all sites, this included fresh fruits and vegetables, and many communities also included other products, such as antibiotic-free meats in Burlington, Vermont, or locally produced vegan tortillas in southern Arizona. Many of the local food system stakeholders interviewed across the case study sites approached improving diet and nutrition both as a way to address food insecurity and hunger as well as a way to prevent obesity and improve the quality of diet.

School districts across the case study sites reported anecdotal evidence of increased consumption of fruits and vegetables by students; however, none had the resources for intensive evaluation to measure changes in consumption. A few districts had evidence from student attitudes and/or from plate waste studies that suggested that students were demonstrating increased acceptance of fresh fruits and vegetables. District staff interviewed for this study shared the perspective that young students who learn about food early gain a foundation for healthy eating that they are likely to retain for life. School districts in all the case study sites emphasized the importance of integrating farm to school efforts into the curriculum and into the educational school day for achieving improvements in diet and nutrition over the students' lifespans. Some activities that facilitate integration into curriculum include nutrition education, hands-on activities such as school gardens and farm trips, and programs aimed at increasing knowledge about food production and local food systems.

Enhancing Student Academic Achievement

As in many farm to school programs, the programs included in these case studies integrated local food procurement into curricular and extracurricular activities. This included incorporating concepts of food production and preparation, especially through experiential learning activities, which connected most often to math and science curricula, but also to culinary arts education. These education activities included horticultural activities through school gardens (soil preparation, planting, growing, and harvesting and worm composting); environmental studies; real-life data collection and analysis activities; food preparation activities; and visiting working farms

to enhance students' understanding of how food is produced. In addition, the school-based procurement initiatives inferred from the research—which demonstrates the link between proper nutrition and students' ability to concentrate and perform academically—that their programs would have a positive effect on student achievement.

Improving Mental Health

Several case study sites discussed leveraging farm to school and gardening activities to create opportunities for students to more fully reach their potential and contribute to the school community. One case study site—southern Arizona—reported an intentional approach to using school gardening activities to aid social/emotional learning and development.

Environmental Stewardship

In some of the case study sites, notably southwest Wisconsin, southern Arizona, and Burlington, Vermont, stakeholders also attended to environmental concerns, working to reduce food waste and diverting food waste from the traditional waste stream to composting, which enhanced the local capacity to grow food. In addition, through the farm to school programs in Wisconsin and Vermont, the students learned about the environmental effects of the global food production system, including effects on carbon emissions/climate and resource intensity of various types of food production.

Successes and Challenges

Interview participants in the case studies noted certain key factors that facilitated or impeded their ability to ensure or sustain local food procurement activities and the intended health and economic benefits. This section describes factors that contributed to, or hindered, communities' success in growing and sustaining local food procurement.

In the absence of a strong locally determined food system, institutions that want to source local products cannot do so overnight – it is necessary to first establish relationships, build systems infrastructure, and adopt public and private policies. Both momentum and capacity are built through numerous iterative rounds, taking incremental steps. Respondents reported variable progress in their local food procurement efforts, featuring cycles of stronger activity followed by cycles of diminished strength, with impact often compounding over time.

Factors for Success

Overall, the sites studied demonstrated that leaders, systems, and programs that are flexible, innovative, and able to respond to opportunities without too much overthinking are critical to success. Other key factors that cut across the profiled sites include:

Linking institutional change with broad, long-term community support and engagement. The interview participants in this study reported that they pursued local food procurement strategies intending to strengthen their communities' health and economic resilience, believing that local foods facilitate community health, unique educational opportunities, and stronger local economies. The participants took a holistic vvew of conditions in their community, noticing the interrelationships between community health, community wealth, community connection, and community capacity. Across the case studies, participants found that success of institutional procurement of local foods was enhanced by buy-in and support from the broader community, which was fostered and reinforced through engagement of community members.

For instance, in Burlington, Vermont, the school food service director has built solid support from the school board, reflecting the value the broader community places on the economic development benefits of local food procurement. In addition, a membership program of the local food co-op creates opportunities for community members to volunteer at the school and other agencies, leveraging their participation into broader awareness and connectedness. In the community setting, Burlington parents are engaged in school food awareness through a program in which new foods introduced in schools are featured at the local grocery. Finally, in schools, students are engaged in growing food, learning about local growers, and connecting to local foods through curricular and extracurricular programs. Other case study sites also report strong community-wide commitment to, and engagement in, development of local foods systems.

Inclusive partnerships and networks that enable open communication. The sites studied reported that forming inclusive, multi-sectoral partnerships improved communication and efficacy and offered opportunities to leverage limited resources for mutual benefit. For instance, in southwest Wisconsin, the La Crosse County Farm2School Collaborative engaged food service directors, other school staff, growers, and food distributors in an open exchange of information. The collaboration allowed for cost savings, and it fosters continued trust and a commitment to farmers, even when farmers were forced to raise prices. In some communities, new organizations emerged to formalize partnerships and create forums for open dialogue about pricing and procurement among a broad array of stakeholders. A good example of this is Wisconsin's Fifth Season Co-op, which includes all the primary stakeholders of the regional food distribution system (farmers, buyers, distributors, workers, and consumers) in framing a common vision that is expressed through concrete economic exchanges.

Both formal and informal networks played important roles in addressing local procurement and facilitated open dialogue and price negotiations in Vermont, Arizona, and Kentucky. This dialogue enabled communities to balance institutional budget constraints with fair pricing for local products. In many cases, the open dialogue also enables advance planning for purchasing, ensuring their purchasers have a reliable and sufficient supply of products and that growers sell to a predictable market. Schools, hospitals, and food banks all may command high levels of trust, and they often sere as respected conveners of discussions that help integrate across multiple sectors and issues.

Collaborative and entrepreneurial leadership. Interviewees from all the case study communities emphasized the importance of collaborative leadership in the challenging work of building local food systems. Interviewees from all the case study sites also pointed to local food procurement as an effective strategy for enhancing community collaboration. Indeed, in many cases it has been a driving force in creating an overall culture of collaboration within each locale. In the case study sites, different aspects of collaborative leadership were emphasized, including personal connection and mutual trust; collaborative work to formalize relationships and network infrastructure; trusting dialogue among practitioners with diverse backgrounds; seeking insights into different aspects of food systems, economic development, community organizing and nutrition; and maximizing the results from small investments by leveraging networked action. It was understood across case study communities that long-term collaborative leadership requires a commonly held vision based on long-term benefit, rather than short-term or segmented interests. Interviewees acknowledged that building that type of long-term collaborative leadership is challenging but essential for successful systems change.

Development of local productive and processing capacity. The capacity to produce and process local food for institutional markets varied widely across sites, but in all cases the further development and coordination of this capacity was a factor for success. Kentucky is actively increasing its productive capacity by transitioning from a high dependency on tobacco farming to more sustainable agricultural production using tobacco settlement funds. Communities in Jefferson County, Kentucky, are also nurturing the development of small businesses that can process locally grown foods into value-added products like soup. Communities in southwest Wisconsin, on the other hand, have built substantial productive capacity over decades, and they recently focused more on aligning supply and demand and institutionalizing systems that would build fairness for all stakeholders, which promote greater local self-determination.

Dedicated funding to build sustainability. Dedicated funding streams—like CDC's Communities Putting Prevention to Work (CPPW) and Community Transformation Grants (CTG), the USDA Community Food Projects Competitive Grants Program and Farm to School grants—provided, and in some cases continue to provide, crucial resources to each region that help foster sustainability. Through their focus on developing policy and building systems, these funding mechanisms facilitated convening local stakeholders to

define a vision of systemic change, frame key strategic elements of a local food system, build trust and a collaborative ethic across sectors, and coordinate implementation activities. The infusion of funding helped to attract professional and political support for local foods initiatives from school administrators, civic leaders, voters, and potential funders/investors. This funding also provided resources to engage constituencies who do not usually participate in policy, purchasing, and implementation (like students, parents, low-income residents, and farmers), and their engagement helped solidify implementation and extend impacts beyond institutions and into the overall community. In particular, the projects in Arizona and Vermont reported that engaging low-income and food insecure people helped empower community members to build greater influence over the foods that they eat and to create new economic opportunities for themselves. These funding mechanisms also supported training and curricular resources for students, farmers, and community members that enhanced long-term capacity to produce and consume healthier foods. Finally, these resources were invested in or leveraged investment in the physical, economic, social, and knowledge infrastructure necessary for successful institutional procurement of local foods, such as food preparation equipment or facilities, storage areas, loading docks, and distribution networks.

Challenges

Accessing or acquiring capital equipment and basic infrastructure. Many case study participants noted the need for new capital resources and/or basic infrastructure, such as refrigeration to preserve food and equipment needed to process or prepare food. School districts in southwest Wisconsin and Burlington, Vermont, mentioned as a challenge the lack of equipment needed to prepare food from scratch or to process local produce so that it could be available throughout the year.

Keeping a product cool from the time it is harvested until it is delivered to the purchaser was a challenge in Kentucky because growers lacked on-farm coolers and refrigerated delivery trucks. To address this, a local intermediary picked the fresh products up from some farmers, but there were inefficiencies in the process. Another idea now being considered in Kentucky is establishing different points throughout the state where farmers could deliver their produce, which could then be collected using a refrigerated truck.

Financial leakage. Several study participants identified that outflow of economic resources for purchase of products from distant sources was an issue for local economic development. Leakage limits the options available to local food leaders and also limits the resources they are able to apply to implementing a local vision for food. This leakage makes outside funding all the more important, but such investments should strive to create connection points where the leakage of resources may be reversed.

Some funding is limited in scope, and it is difficult to find ways to sustainably fund long-term systems change. Although local foods practitioners understood their roles in long-term efforts to promote systemic change, some felt constrained by funding that is either limited in scope, narrow in expected outcomes, or short-term in tenure.

Reducing barriers related to regulation, record-keeping, and food safety requirements. The interview participants reported that institutional procurement of local foods from small-scale growers can introduce regulatory barriers to entry for both growers and institutions, as both may have additional paperwork and expenses not required for their traditional purchasers and vendors, respectively. Growers interested in selling to an institution are usually required to have Good Agricultural Practices (GAP) certification and to purchase expensive liability insurance. While GAP certification and related food safety regulations are important for public health, there is a need to develop processes and initiatives that lessen barriers that prevent growers from selling food to local institutions.

For their part, institutional buyers interviewed in this study also reported holding back from certain potential purchases because of food safety concerns, worries over inspection standards, or uncertainty about their legal responsibilities.

Local intermediaries can play a role in overcoming such barriers. In Wisconsin, Fifth Season Co-Op ensures that its growers are GAP-certified and offers food-safety liability insurance to its members at a reduced rate. The Kentucky food distributor Grasshoppers worked with Louisville Farm-to-Table to build grower capacity to meet food safety regulations. By partnering with other local nonprofits, they convened two-day conferences in Bowling Green and Frankfort covering topics related to food safety, packing, and grading; meeting buyers' expectations for standard-sized lots; strategies for successfully selling to wholesale markets (as opposed to selling direct to individual consumers); pests and disease; and financial record-keeping.

Prioritizing local food procurement despite competing priorities. Food purchasing budgets and staff time are not unlimited. Study participants reported that introducing local foods, which often requires greater attention from staff both in procurement and preparation, competes with other priorities. Often local foods cost more.[9] The critical contribution that school food service makes to educating students about proper diet and supporting academic success is often undervalued by teachers, administrators, and parents.

Food service staff in the Burlington School District emphasize the impact of nutrition on academic success, especially in the face of teachers' concern about fruit and vegetable snack time cutting into class time. In Arizona, the food bank balances local

[9] In some cases, the foods themselves may cost less than conventional choices, but incorporating local foods may require more staff time.

food procurement with its priority to address food insecurity; this food bank identifies ways to create business and job opportunities to their clients, prioritizing the local food economy as a tool for empowerment and reducing poverty.

Another way in which institutions, such as hospitals, are able to prioritize local foods despite higher costs was by offsetting their expenses internally. The hospital in La Crosse, Wisconsin, buffered the higher cost of local ground beef by modifying their chili recipe to include less beef. The Burlington, Vermont, hospital hopes to create cost-savings by increasing their composting, thus decreasing the high cost of waste disposal.

Institutional policy development and adoption must be followed by strong policy implementation activities. Although adoption of policies can help guide organizational vision and provide enforcement mechanisms, participants reported on challenges related to policy implementation activities such as establishing programs and systems, staffing, investment, and evaluation that were necessary to achieve desired change and impacts.

In Wisconsin, the larger policy context provided a stimulus for action at the local level. For instance, federal policies influenced school food service purchases, as directors acted to meet new standards for fruit and vegetable consumption in the Healthy and Hunger Free Kids Act. As part of schools' efforts to increase local procurement, they modified school health and wellness policies to support local food purchasing and serving practices. Subsequent implementation activities resulted in new and modified programs, with staffing and resources aimed at increasing health, wellness, and nutrition education, including gardening programs, cooking classes, Harvest of the Month, Meet your Farmer, and farm field trips.

Some food service staff take extra steps to translate federal nutrition guidelines in ways that are meaningful to students so the students learn about different options for fulfilling those guidelines. For example, "Students need to take half a serving of fruit on the salad bar" is translated into "four apple slices equal half a serving size."

Practical Strategies and Approaches by Sector

The case studies included in this research demonstrated various practical strategies and approaches to successful and sustainable procurement of locally produced food.

Common strategies across all types of institutional purchasers and sectors included:

Common Strategies

Networks

- Building respectful, trusting relationships between food service directors/institutions and local farmers, producers, and businesses.[10]
- Establishing clear and reliable purchasing agreements that offer producers a fair price while being sustainable for all members of the value network.

Education

- Offering professional development opportunities for food service staff and other staff (clinicians, food bank client-service staff) on preparation of raw foods and reductions of waste food; conducting health education and conveying the links between nutrition and health; farmers receiving education about food safety protocols.

Marketing

- Marketing local food programs to parents, constituents, customers, and community members to gain political and financial support and public relations benefits.
- Highlighting the local farmers/producers/businesses that are featured in meals served in the cafeteria, sold in retail stores through tie-in initiatives, and in food provided to clients.
- Marketing the availability and wisdom of buying local foods more generally.

In addition, each type of institution featured in the case studies had unique strategies that can provide practical guidance:

K-12 Schools

Meals

- Introducing students to new or unfamiliar items incrementally, such as through the Fruit and Vegetable Snack program.
- Changing menus to reflect and highlight foods that are produced locally.
- Serving multiple types of meals (e.g., breakfasts, snacks, dinner, summer meals, etc.) and using local foods in each.
- Reducing waste and recycling surplus or "waste" food by composting.

Networks

- Engaging students as co-collaborators with food service staff in local food procurement initiatives.
- Offering volunteer and internship opportunities and community-based activities that encourage purchase/consumption of healthy local foods introduced in schools.

[10] As described on p.3, the definition of "local" is community-specific and varies across the case study communities profiled in this study.

- Developing food-purchasing cooperatives to facilitate negotiation of prices, extend the efficiencies of larger districts to smaller ones, help farmers aggregate products, and share best practices.

Education

- Offering educational experiences for students in growing and harvesting foods.
- Integrating local foods into the academic curriculum (i.e., culinary arts, math, science, business training, special research projects, community service hours, etc.).
- Educating students, staff, and community members about the benefits of fresh, local food.
- Serving foods that are grown on school grounds, if allowed by the district.
- Offering educational opportunities that reinforce the importance of diet and nutrition.
- Integrating training on collaboration into school curriculum.
- Connecting work on local foods to composting and other environmental sustainability initiatives.

Marketing

- Developing and promoting tie-in initiatives in which the same local food is featured on the school menu and at local retailers to reinforce the product and extend consumption to families.

Policy

- Creating and solidifying local purchasing policies.
- Creating/modifying school wellness policies to support efforts to offer local and nutritious foods to students.

Hospitals

Meals

- Changing patient and cafeteria menus to use foods that are produced locally.
- Offering patients menu choices rather than a fixed menu to increase buy-in and reduce waste.
- Identifying the names of local farms supplying food on hospital menus as a way of building customers' awareness of farmers and promoting customers' consumption of local foods beyond the hospital facility.
- Reducing waste and recycling surplus or "waste" food by composting.
- Compensating for increased costs if needed by modifying menus/recipes or incorporating a mix of less expensive and more expensive local food products to balance costs.

Networks

- Working with smaller farmers as they ramp up production.

Education

- Offering educational opportunities to patients that reinforce the importance of diet and nutrition.

- "Prescribing" healthy, local, and sustainably raised foods to patients with nutrition-related health conditions.
- Connecting work on local foods to composting and other environmental sustainability initiatives.

Marketing

- Promoting and highlighting the health mission of the hospital and enhancing public relations through local food procurement, support for local food system development, and attention to environmental issues through waste reduction and reduced carbon footprint.

Policy

- Investing resources and staff time into local food strategies as part of broader community benefit and nutrition-related prevention goals.

Food Banks

Food distribution

- Purchasing or accepting donations of foods that are produced locally.
- Offering constituents food choices rather than preset options.
- Offering local and healthy options in food distribution.
- Connecting recipients to farmers donating or selling food to the food bank.

Networks

- Working with smaller farmers as they ramp up production, and procuring from larger sources in ways that do not undermine the smaller producers.
- Convening diverse stakeholders to form a broader and more inclusive vision for local food systems change.

Education

- Offering educational opportunities to constituents that reinforce the importance of diet and nutrition.
- Offering skill development, workforce readiness, and job training in food-related fields (e.g., culinary arts).
- Advocating for recipients to assume a more proactive role in shaping the future of their food supply.
- Connecting work on local foods to composting and other environmental sustainability initiatives.

Marketing

- Sharing the capacities and successes of food bank customers, especially when engaged in community economic development activity, rather than portraying clients as "needy."
- Promoting the concept that food banks may be effective vehicles for empowerment, not simply sources of handouts.
- Building national awareness of the potential for local food-related community economic development that engages low-income residents.

Policy

- Embracing a commitment to empowerment and community development that challenges the concept that food handouts should persist over time.

- Recycling surplus or "waste" food by composting.
- Seeking dedicated funding for community economic development to be central to the mission of food banks.

Reflections on Measuring Impact

This study attempts to further conceptualize approaches to the measurement of the economic and health impacts of local food procurement. In addition to the summary impacts section above, a description of the health and economic impacts specific to each community that participated in this study is included at the end of each case study.

As this report illuminates, local food procurement is in large measure very community-specific, dependent on the existing conditions (history, geography, agricultural) that are in place, the capacities of community members, and the depth of vision for local self-determination that may have been established in each locale. However, measurement is critical to understanding how, at least in a broad way, to accelerate local food procurement in ways that maximize impact and benefits. Additional research will be required to further identify key characteristics of successful initiatives and to more comprehensively measure impacts.

Measuring economic impacts is made more difficult by the fact that in each locale studied, economic resources have leaked away for extended periods of time, as our case examples have shown. In such settings, the primary desirable economic impact is to create alternatives that actually build local health, wealth, connection, and capacity; one cannot expect immense positive impacts in the short term until such alternatives have matured into sustained systems.

Due to the costs and complexities of precisely measuring economic impacts, as outlined in the Critical Analysis of Economic Impact Methodologies discussion (see p. 111), given the limits of the data available and even greater limits of staff time at the local level that could be allocated for compiling purchasing records, the general finding from these case studies is that the more localized the institutional purchaser's definition of "local" is, the stronger the local economic impacts are likely to be, all other things being equal.

Identification of quantitative measures. Many interviewees expressed the need for devising better quantitative ways of demonstrating impacts to their stakeholders. Further funding should build the capacity of grantees to identify indicators or measures of impact and to collect data that can be used for analysis, quality improvement, and contributing to the evidence base.

As described on pp.14-18, this study identifies seven broad areas of impact that might be useful for further exploration as categories for which quantitative indicators could be

developed: building social capital and community connectivity; creating jobs and generating income; increasing economic activity and developing resources; environmental stewardship; improving diet and nutrition; and enhancing academic achievement.

Most community initiatives hold a solid intuitive grasp of local conditions and emergent conditions, but they lack comprehensive databases or analytical tools that would help local leaders meaningfully measure and evaluate success.

Enhancing quantitative analysis with qualitative evidence. As this study and prior experience[11] suggests, there are limits to the availability of quantitative data and the efficacy of both quantitative measures and single-dimension measures inside rapidly changing contexts such as local food systems. Often the most successful measures of systems dynamics reflect emergence[12] that cannot be captured through static measures. The most effective measures link across multiple issues. Quantitative data is most effectively interpreted in concert with qualitative evidence.

Support evaluation and research. Formative evaluation techniques will be especially useful in identifying such quantitative and qualitative indicators and creating more effective and better integrated monitoring and evaluation strategies. Also, well-planned and well-financed longitudinal studies may provide answers to many of the pressing questions highlighted in this study. Without significant investment, the research questions driving this study will continue to be only partially answered.

Fund data sharing and engage food service practitioners in analysis. In the current absence of grant-funded collection of impact data, such formative evaluation would benefit from developing working agreements with study participants/sites and offering financial remuneration to support the work of compiling records and other data useful to the study. It may be that requests for detailed purchasing and serving data seem intrusive to food staff. Even though they are happy to have their stories told and their financials released, collecting data is beyond their capacity because of the intense demands of keeping the food service financially on track. Engaging food service practitioners and food system leaders to reflect together on their practices, to help devise measures of success, and to help evaluate successes and impacts will also make measurement more useful and increase motivation to improve evaluation practice over time.

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[12] Meter, Kenneth A. (2007). "Evaluating Farm and Food Systems in the US" in Williams, Bob, & Imam, Iraj (2007). *Systems Concepts in Evaluation: An Expert Anthology*. American Evaluation Association monograph.

Opportunities for Future Action

Even small steps can produce large impacts over time. Since results are cumulative and depend on strong local networks, it is more important to support local network development than to insist on rapid results. Effective work for building local food systems is iterative, pursued according to a local vision and managed by local stakeholders based on their own self-interest. Many communities hold considerable capacity already, and existing assets should be explicitly recognized and built upon.

Invest in communities at all levels of network maturity. Beginning initiatives often create impact using minimal resources and may generate considerable enthusiasm, and funding those initiatives can build institutional capacity. Midstage initiatives often channel early enthusiasm into lasting momentum and structure. Mature initiatives may be better able to marshal volunteer resources and investments from community stakeholders; yet some mature-stage players also resist further change.

Funding programs such as CPPW and CTG and USDA have helped increase local institutional food procurement. Similar funding infusions could help sustain and deepen this work in the future.

Key ingredients include:

- Building or enhancing partnerships and collaborations and maintain the momentum of existing work.
- Dedicating staff positions to the work, which plays an important role in initiating, expanding and sustaining local procurement initiatives and the collaborations that support them, as do physical infrastructure and equipment, preparation of curricular materials and training approaches, and support for developing impact metrics and monitoring data.
- Supporters must recognize that local stakeholders are in the best position to understand the unique local and historical context for food system work, and those stakeholders appreciate and can build upon existing assets and capacities in the community. In particular, the emergent qualities of local food system work in each region must be understood so that institutional purchasing can help foster positive local trends.
- Having a focus on promoting systemic change in each locale, as well as in broader systems that influence each locale.
- Having an awareness of long-term cycles of change and considering long-term funding and/or having realistic expectations for what can be accomplished in a shorter timeframe.
- Having work plans that are flexible; institutional food service staff operate in a highly unpredictable environment.
- Fostering buy-in and support from institutional administrators.

- Diversifying funding sources in order to bring greater resilience to institutional purchasing initiatives.

Institutional food purchasing should be framed around the formation of strong and resilient social, professional, and business networks.

- Collaborations that effectively leverage local resources will create stronger impacts.
- Respectful and inclusive local networks, characterized by a mutual sense of trust, should be promoted through food-purchasing activities, surrounding marketing efforts, and policy initiatives.
- Local foods initiatives should foster an empowerment approach.
- Building a culture of collaboration is likely to create long-term growth in social capital.
- Local network activity will be strengthened if participants also engage in broader or national networks of professional colleagues. Active farm-to-cafeteria, food-security, food-and-justice, and empowerment-food-bank networks help sustain local work. Networks should also be strengthened through dedicated funding, since this work cannot be sustained solely through earned income.
- Strong, cohesive networks can be important public goods and should be paid for and incentivized as such – rather than asking commercial transactions to cover the costs of creating public goods.

Institutional food purchasing should engender a long-term, inclusive educational process.

- The focus of institutional purchasing should be building capacity among constituents and community members.
- Adults who participate in capacity building activities are more likely to pursue healthy habits.
- Investing in children and youth will often have the greatest long-term impacts. Young people who experience a positive learning environment are likely to retain skills and active interests into their adulthood. Practitioners suggest that learning how to grow food is the basic step that prepares youth to value healthy food, to eat well, and to consume wisely when they become adults.

Additional research and evaluation is also needed. See Reflections on Measuring Impact on page 27.

CASE STUDIES

Southern Arizona Case Study

CDC funding: CPPW grant (2010–2012) and REACH grant (2012–2013)
CPPW Recipient: Pima County Health Department
REACH Recipient: *Cosechando Bienestar* (Nogales)
Institutional purchaser interviewed for this study: Community Food Bank of Southern Arizona
Food suppliers: Avalon Organic Gardens & Eco Village, Bonita Beans, Forever Yong Farm, Crooked Sky Farm

Key collaborators interviewed:

- **Tarenta Baldeschi,** Avalon Organic Gardens & Eco Village
- **Leona Davis**, Education and Advocacy Coordinator of Community Food Resource Center (a program of the Community Food Bank of Southern Arizona)
- **Matthew Fornoff,** Mariposa Community Health Center
- **Joyce Latura**, Mariposa Community Health Center
- **Robert Ojeda**, Vice President of Community Food Resource Center (a program of the Community Food Bank of Southern Arizona)
- **Diana Teran**, Owner and Founder of La Tauna Tortillas
- **Moses Thompson**, Counselor, Manzo Elementary School

Other key collaborators:

- *Cosechando Bienestar*
- *Somos La Semilla*
- Nogales Community Development
- Sherry Daniels and Marcy Flanagan, Pima County Health Department
- San Xavier Cooperative Farm
- Janos Wilder, chef and owner of three restaurants
- Pima County Food Alliance

Definitions of "local" for food purchasing:

- Community Food Bank: southern Arizona and northern Mexico

Case Study Story

Community Food Bank Provides Traditional Food Assistance and Innovative Capacity-Building Projects

The **Community Food Bank of Southern Arizona** (est. 1976) serves individuals and families across Cochise, Graham, Greenlee, Pima, and Santa Cruz counties in southern Arizona. The food bank serves its region through distribution of free boxes of basic foods through The Emergency Food Assistance Program (TEFAP) and Food Plus. The Community Food Bank also helps its customers apply for Supplement Nutrition Assistance Program (SNAP) benefits, runs a family assistance center, and offers a variety of recreational and

community-building activities among its constituents, with a special emphasis on children. Through its innovative and nationally recognized Agency Market, the Community Food Bank donates a variety of perishable and nonperishable items to 140 nonprofit agencies in their region with 400 feeding sites. It also works to nurture community partnerships that are focused on strengthening the local food system through its Community Food Resource Center.

The Community Food Bank notes that Arizona has the third-highest food insecurity rate in the nation, after New Mexico and the District of Columbia.[13] One of every three southern Arizona residents (34%) in the Community Food Bank service area lives below 185% of the Federal Poverty Level.[14]

Responding to these needs, the Community Food Bank distributes over 30 million pounds of food each year, drawing upon $41 million of donated food, through a wide network.[15,16]

While the Community Food Bank seeks to source its food locally as much as possible, there are a very limited number of farms in the Community Food Bank's service area that serve local markets. The Community Food Bank does not have accurate figures showing how much food is procured locally, but its records do show that it purchases about $100,000 worth of pinto beans from Bonita Beans, a farm and wholesaler located in Willcox, Arizona, about an hour east of Tucson. The Community Food Bank also works with two small farms, Forever Yong (one hour south of Tucson) and Crooked Sky (in Phoenix), where it purchases produce to resell at cost through its farmers' markets. Other sources of donated locally produced foods include Avalon Organic Gardens & Eco Village (see below), backyard gardeners, and other farms.[17] As a result of these limited sources of locally produced foods, Mexico is one of Community Food Bank's major suppliers. At the southern end of the Community Food Bank's service area, the border crossing at Nogales is the largest inland fruit and vegetable port in North America. The Community Food Bank reports that between 2009-13 they have imported between 7 and 10 million pounds of produce each year through the Nogales

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[13] Community Food Bank of Southern Arizona (nd). http://communityfoodbank.com/hunger-in-arizona/the-latest-statistics-on-food-insecurity-map-the-meal-gap-2013/, viewed August 25, 2013.
[14] Meter (2012). Field research for southern Arizona. Crossroads Resource Center, for the Community Food Bank of Southern Arizona, February 29. Funded through CPPW. Available at http://www.crcworks.org/azsouthfield12.pdf.
[15] Community Food Bank of Southern Arizona. http://communityfoodbank.com/cfb/about-us/food-boxes/, viewed August 25, 2013.
[16] Community Food Bank of Southern Arizona Annual Report 2011-2012, p. 3. http://communityfoodbank.com/pdf/annualreport.pdf, viewed August 25, 2013.
[17] Meter, K (2011). Southern Arizona Local Farm and Food Economy. Crossroads Resource Center, for the Community Food Bank of Southern Arizona, December 30. Funded through CPPW. Available at http://www.crcworks.org/azsouthsum11.pdf.
Meter, K (2012). Field research for southern Arizona. Crossroads Resource Center, for the Community Food Bank of Southern Arizona, February 29. Funded through CPPW. Available at http://www.crcworks.org/azsouthfield12.pdf.

subsidiary.[18] This amounts to nearly one third of all food donations. Other donations of non-locally produced foods come from local and national retailers, including Wal-Mart.

The Community Food Bank estimates that about 40% of produce arriving from Mexico spoils before it can be distributed to several food banks scattered in their service area. The Community Food Bank is devising strategies to reduce this loss. For example, they are working to find partners willing to pick up fresh produce and deliver it more rapidly across the food bank's large region and also by developing composting programs to produce precious soil fertility in this desert setting, which will support its farms and technical training programs.

In addition to its main facility in Tucson, the Community Food Bank operates food banks in Amado, Green Valley/Sahuarita, Marana, and Nogales. The five food banks that make up the Community Food Bank's outreach network ship food to an additional 27 delivery sites, and they also sponsor three mobile delivery units to reduce the travel burden for their constituents. The Community Food Bank also runs the Caridad Community Kitchen in Tucson, which offers culinary training. The food bank sponsors 1,120 community gardeners and four farmers' markets,[19] hosts a food production garden on its main campus, and owns and operates two training farms in Tucson and Marana.[20] Through the Community Food Bank, community members can donate the surplus produce from their gardens through the gleaning program and attend desert gardening workshops; youth can apprentice at the training gardens; and backyard gardeners or food entrepreneurs can get technical support to start small businesses.

Punch Woods was a visionary executive director who guided the Community Food Bank from 1978 to 2003, bringing it to its current status as a national leader in pursuing capacity-building strategies that challenge the notion that food handouts represent a long-term solution to addressing hunger. As part of this vision, the Community Food Bank established the Community Food Resource Center in 2001. The subsequent executive director, Bill Carnegie, who retired in late 2013, allowed this vision to carry forward.

Community Food Resource Center Helps Build the Local Food System

The Community Food Resource Center focuses its work on building solid networks and personal capacity among its constituents – including low-income farmers – through community-driven initiatives. Its vision is to "improve community food security for the people of southern Arizona by promoting, demonstrating, advocating for, and collaboratively building an equitable and regional food system, which supports food production and strengthens communities." The Center's work with individuals, schools,

[18] E-mail from Leona Davis, Community Food Bank, to Ken Meter, Crossroads Resource Center, citing figures from the Nogales food bank. July 3, 2013.
[19] Community Food Bank of Southern Arizona Annual Report 2011-2012, p. 2. http://communityfoodbank.com/pdf/annualreport.pdf, viewed August 25, 2013.
[20] Community Food Bank of Southern Arizona (nd) http://communityfoodbank.com/, viewed August 25, 2013.

and community-based organizations includes mounting education and advocacy campaigns; training residents in food production, composting, and desert farming/gardening; and supporting entrepreneurship. As Robert Ojeda, vice president of the Community Food Resource Center, points out, "the solutions for alleviating an ever growing hunger problem lie not only in serving immediate needs but in supporting the creation of robust and resilient local food systems."[21]

To successfully run all their programs, the Center relies on volunteers. Individuals donate about 10,000–15,000 hours of time to programs each month--the equivalent of 65 full-time employees. Whenever possible, the Center tries to hire volunteers for intern or staff roles. Leona Davis, education and advocacy coordinator at the Center, shared the following:

> *We are very committed to bringing community members into teaching and leadership roles, really as soon as possible…in the case of youth apprentice program for instance, once the apprentices "graduate" from the year-long program, they are offered internship positions if they wish to continue. They can earn a little bit more money, and increase responsibility and leadership within the program.*

Graduates from the year-long youth apprentice program have gone on to teach farming at local schools, to become vendors at the farmers' market, and to pursue higher education in agriculture.[22] The Center was able to hire five participants from its gardening classes to support gardening activities, cooking classes, and more. The Center's programs build community capacity and reinvest in the community by drawing from and building local leadership.

Through the Community Food Bank's Cosechando Bienestar grant, the Center leads several gardening programs that further facilitate social networking and community building. For example, a weekly networking meeting for gardeners—hosted by a different gardener every week—has regular attendance of 25 to 45 people.

Similarly, the Center collaborates with community partners to affect change in the region. One example is the Pima County Food Alliance (PCFA), formed in 2011 by a network of community groups, including farmers, community college officials, food bank staff, and local government staff, in partnership with the University of Arizona's Mel and Enid Zuckerman College of Public Health. The PCFA was established to achieve an integrated, regional food system that promotes community-based strategies to increase access to healthful food. The Alliance is working to build an integrated regional food system in a deeply challenging desert context.[23]

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[21] Meter, K (2013). "Addressing hunger by strengthening local foods logistics." *Journal of Agriculture, Food Systems, and Community Development*, June.
[22] http://communityfoodbank.com/wp-content/uploads/2007/02/CFRC-brochure-2012_3_WEB.pdf
[23] http://www.pimafoodalliance.org/about/history/ accessed August 20, 2013.

In 2011, PCFA and local celebrity chef Janos Wilder partnered with the Pima County Health Department to reinterpret a local law to allow herbs and produce grown in community gardens to be served in restaurants and school cafeterias. This increases access to locally grown foods for Pima County residents.

The Community Food Resource Center also recognizes that broader outreach and policy work through PCFA must be accompanied by on-the-ground business development.

Capacity-Building Programs Inspire New Tortilla Business

La Tauna Tortillas, founded by Diana Teran**,** is an illustrative example of the Community Food Resource Center's business development efforts. Teran's son had extremely debilitating chronic health problems that were alleviated by natural and healthy foods, which inspired her to spend a number of years developing healthy versions of traditional meals for her family. With the encouragement of family and friends, Teran launched her La Tauna Tortillas business to provide her family with income when her husband was laid off. For her flagship product, she used her original whole-wheat, vegan tortilla recipe made without shortening or lard.

Teran credits the Community Food Resource Center as a key contributor to her success. The Center encouraged her to pursue training and certification in safe food handling and helped her locate available commercial kitchen space. They encouraged her to create a commercial product and to pursue the creation of a full-fledged business.

After becoming a licensed food handler, she began selling her product at the Community Food Bank farmers' market. There she made connections with other food entrepreneurs. This gave her the confidence to open a storefront with adequate commercial kitchen space. Her connection to the Community Food Bank garnered media coverage, which led to phenomenal growth in the business. Teran explains:

> *A big, big factor… is that the Community Food Bank is well respected and loved …The media tends to them. The [Community Food Bank] did an awesome thing for me and I'll never forget it; they actually worked with a TV station that would be interested in our story. Our local newspaper became very interested in this story, so they wrote an article that was published in over twelve cities around the United States. This gave us great publicity, and a big boost in our production…a 30 percent boost overall.*

Now Teran and her husband both work full time for the business, and they have hired two additional full-time staff and several other part-time staff. She has national contracts pending, contingent upon her ability to scale up for larger markets.

Securing credit has been a significant challenge to the Terans' ability to grow the business: "in order for you to get a loan you have to have a lot of good credit or have a lot of money… that's been our biggest challenge and still is." Initially, the Terans

borrowed money from friends and family; their long-term solution has been to identify a business partner that can help keep the business thriving.

The Terans also need to overcome biases about health foods. Teran shares that education is part of her role in this business: "eat healthy, enjoy your food, and you won't have to go to the doctor as often."

The Community Food Bank farmers' market has also facilitated the growth of La Tauna Tortillas by supporting the firm as it expanded its professional networks and consumer base. Teran recalls that she met the director of a local charter school at the market. After the director realized that serving the product could facilitate compliance with the school's new wellness policy, Teran began working with the school to serve her product.

The farmers' market also facilitates vendor collaborations and business opportunities. Teran remarks:

> *All vendors are very close and they all work with each other. Like the guy who sells honey, he gave us a jar of honey to sample [with] our tortillas …the guy who makes natural corn salsa… I make natural corn tortillas for him, so he can sample them…so we all work together in one way or another.*

As a result of a connection made at the farmers' market, Teran is also collaborating with San Xavier Co-op Farm, a large Native American-owned farm just outside of Tucson. San Xavier is growing heritage varieties of corn and wheat that are well suited for desert conditions, and they are not genetically modified. Teran is developing recipes that feature these local products.

Teran's ability to construct an interconnected and collaborative business even while wrestling with family concerns exemplifies how networking efforts in the region, including capacity-building programs at the Community Food Resource Center, foster economic-development ripple effects throughout the southern Arizona region.

Innovative Food-Based Programs at Local Elementary School Builds Student Capacity and Increases Access to Healthy Foods

The Community Food Bank's ability to serve as a trusted advisor also contributed to **Manzo Elementary School**'s remarkable initiative to convert an abandoned and neglected city lot into a native plant habitat. The gardening skills staff learned from that project were used to convert an underused courtyard on the school grounds into a thriving mini-farm and to expand and evolve a series of horticulture and farming activities that have benefited the school community in a variety of ways.

Manzo is a community elementary school (pre-K to 5) located in Barrio Hollywood, a western neighborhood of Tucson, Arizona, with an enrollment of approximately 300 students. Students attending the school are predominantly Mexican American (87% Hispanic) and Native American (5%). Ninety percent of students participate in the free and reduced-price lunch program.

In search of strategies to foster communication and support between students and adult staff and improve student-to-student relationships, the school's guidance counselor, Moses Thompson, initiated a multifaceted garden program, which includes: aquaponics, rain irrigation, farming activities, composting, and a pollinator program. The programs have created enthusiasm among students and parents alike, ultimately improving the school climate and creating a sense of local pride. Thompson recounts:

> *We have a student population and a neighborhood population that is connected with and values food production. I feel like, to some extent, that's why our kids feel comfortable and are excited to come to school. The same goes with the parents.*

This transformation began to take root in 2006, when Thompson assisted the student council in taking care of a vacant lot across the street from the school. Those efforts evolved into a garden, initially focused on horticulture and desert gardening, and then further evolved into a mini-farm, encompassing many aspects of food production. Thompson notes:

> *Four years ago I really felt a shift in available funding and a lot of energy toward local farming, health and wellness, and preventable illness: diabetes, obesity, and heart disease. That's where a lot of funding opportunities came from; it was kind of a natural transition into food production for me.*

Although support for this mini-farm project has been broad, the Community Food Bank is a critical partner in growing and maintaining the project. The Community Food Bank funded projects such as the aquaponics system, a raised-bed garden, and some of the rainwater harvesting catchment. They also provided staff, community volunteers, and technical support. Gardening experts from the Community Food Bank conducted parent and staff gardening and composting workshops at the school. The funding for the Community Food Bank's technical assistance work in schools came from a few grants, and the CPPW grant was an important source of funding for this work from 2010–2012.

Thompson relies on funding from community partners and grants to build the structures and habitats and to finance other capital improvement projects. Meanwhile, produce sales cover operational costs. The school sells the produce through their "Manzo Market" program. In order to facilitate affordable, healthy food access in the immediate neighborhood, produce is sold at the same price as the local grocery store sells it. Some of the products are sold at a premium to outside community members and restaurants, which helps fund the program:

> *With the subsidized pricing that we offer our parents during the school year, we're not able to make enough money to keep the project going. But with the small percentage that we sell outside of the school community there's plenty of revenue to buy fish food, chicken feed, seeds, compost and replace broken equipment.*

By balancing sales through these two sets of customers, Thompson sold $1,300 in produce last school year and covered operational costs. Staff time was provided in kind. The school sold $450 of produce to commercial buyers and community members outside of Barrio Hollywood, while selling $850 to school families. Sales during the summer months are particularly critical because produce is sold at a premium to individuals and businesses outside the school community. The school also receives various forms of in-kind support. For instance, Manzo partners with the University of Arizona to offer internship opportunities to students, in which they participate in experiential learning opportunities for college credit.

Thompson discussed the challenges of running the food production program while also serving as a counselor. Thompson uses a form of therapeutic horticulture to engage and work with students on a range of social, behavioral, and emotional issues.[24] He also shared his determination to demonstrate not just the student social/emotional health benefits of the program, but also its academic benefits to administrators concerned about achievement in this sometimes low-performing school. To support the farm as a classroom, Thompson led efforts to secure a new ecology teaching position at the school. Together, Thompson and the ecology teacher are writing new science curriculum to be used in the school. Through the farm program, students are taught tangible food production skills, as well as math and science through direct, integrated lessons. For example, students collect and track the volume and weight of food waste from the cafeteria. Over the time period that the programs were designed and implemented, math and science scores improved. Program successes have positioned the school as a model site for other schools within Tucson Unified School District (TUSD).

Now, Thompson has his sights set on becoming an approved food vendor to TUSD by providing fresh produce to Manzo's food service program. With the Community Food Bank's support, Thompson is meeting the challenges this goal presents, such as learning about food safety regulations, Good Agriculture Practices (GAP), and determining how the food grown/harvested on school grounds will be divided among different uses--served to students through the cafeteria, sold to the community through the farmers market, and sold at a premium to local restaurants.

Community Food Bank leaders expressed that assisting Manzo to develop its gardening initiative has helped accomplish the food bank's broader mission of economic empowerment. By participating in the school's small business selling produce, students have the opportunity to learn entrepreneurship skills. Thompson also shared that the garden can play an important role in prevention and fostering a better overall school environment. For example, a local church made a $35,000 investment in the initiative because research indicates that better student academic achievement and engagement is an intervention that can help reduce children's risk of future incarceration. By diversifying their funding streams (e.g., Audubon, local church, and

[24] The American Horticultural Therapy Association defines therapeutic horticulture as a process that uses plants and plant-related activities through which participants strive to improve their well-being through active or passive involvement. Available at: http://ahta.org/sites/default/files/DefinitionsandPositions.pdf

Community Food Bank) the school has established and expanded the garden, greenhouse, and animal habitat programs.

Rural Network Expands Reach of Food Bank, Brings Additional Resources to Regions

The Community Food Bank also helps to coordinate the ***Somos la Semilla*** (We Are the Seed), a rural network of community-based organizations, health centers, farmers, and funders. *Somos la Semilla* includes partners from across southern Arizona and northern Sonora and Chihuahua, Mexico. It was founded largely because of an understanding that people on both sides of the border share common interests through their residence in the Sonora Desert bioregion. The network also upholds historical cultural values that predate the drawing of the border. This regional effort helps raise funds and build capacity for more local community food initiatives.

Along the Arizona-Mexico border, the city of Nogales, Arizona, where 34% of the population lives below the federal poverty level, benefits from the rural capacity-building efforts of *Somos la Semilla*. In Nogales, *Somos la Semilla* member **Mariposa Community Health Center** and other partners, such as Nogales Community Development, are part of *Cosechando Bienestar* (Harvesting Wellbeing), a partnership of local organizations focused on "building up and piecing together all the parts of the community that will support healthy, local foods."[25]

Mariposa Community Health Center, which operates three healthcare facilities serving residents of Santa Cruz County, created *Cosechando Bienestar* to renew food traditions in Nogales so that locally grown goods can be enjoyed by all in an effort to promote better health. Staff also recognized that the lack of access to high quality foods not only affected individual health but also has an economic impact on the entire region.

Mariposa, in partnership with Nogales Community Development and Nogales Rural Innovation Consortium, jointly applied for several grants to fund the *Cosechando Bienestar* initiative to address food access and economic development needs in Nogales. In 2012, the collaboration received two grants – the CDC awarded a sixteen-month REACH grant to support the development of the Nogales Mercado farmers' market, and the USDA awarded a three-year Community Foods Grant to support the farmers' market, technical food production training, development of a food policy council, and entrepreneurial projects. Through these grants, the partners have begun more formal collaboration to focus greater attention on food-system planning for their area. They can also offer business services to residents, including entrepreneurship and business development courses and guidance through all licensing and certification processes. **Avalon Organic Gardens & Eco Village**[26] is one of three produce vendors

[25] *'Harvest' locally for health and economic benefits*, Matthew Fornoff, Nogales International, August 6, 2013.
[26] Avalon Organic Gardens & Eco Village is now opening its own restaurant in Tucson.

that have played an important role in supporting the farmers' market through their consistent participation as a vendor while the market gets up and running. Avalon is also an important partner in the Community Food Bank's garden club and the Community Garden Leader training program, teaching horticulture to Nogales residents via Cochise Community College and providing gardening experiences to students and staff from Mexicoytl Charter School of Nogales.

Within the first six months, the market had an average of ten consistent vendors per week and has established a significant customer base. The market draws approximately 100 people every week, with each anchor vendor earning roughly $150-$200 in weekly sales. Matthew Fornoff, the market organizer, uses WIC Farmers Market Nutrition Program (FMNP) voucher redemptions as a proxy measure for market traffic:

> *I know we have new people almost every week because of the WIC/FMNP vouchers. Every week someone comes up to the Cosechando Bienestar market table and says, "I have these checks or coupons. How do I use them?" So I know they're new to the market or at least new to using the checks.*

At the time of our interview in August 2013, Fornoff had just received the market's first Electronic Benefit Transfer (EBT) machine so the market can redeem SNAP benefits, allowing vendors to benefit economically while products remain accessible to low-income customers. While vendors set their own prices, Fornoff is pleased to report that the market's produce prices are comparable to those at nearby supermarkets, although meats sold at the farmers' market tend to be a bit more expensive.

In addition to increasing food access and creating a new marketplace, the Nogales Farmers' Market has provided numerous opportunities for community members to get to know each other. Joyce Latura of Mariposa Community Health Center noted that people linger at the market long after it closes, talking and relaxing. The market has become an ideal opportunity for community members to gather socially in an informal setting.

Fornoff and his colleagues hope they can soon feature home-garden produce at the market, with many home gardeners managing and sharing one common table. A related Community Garden Leader program provides stipends for selected individuals to attend weekly gardening trainings for three months in exchange for the equivalent amount of time spent volunteering for community food-related programs.

By taking advantage of partnerships, allies working in diverse community sectors (health, food banks, community coalitions, etc.) were able to leverage additional resources, educations, and funds to support a local foods network in southern Arizona.

Key Findings and Impacts

Economic and Health Trends

The health of the people and the economics of the agricultural sector in southern Arizona are embedded within more broadly challenging economic conditions. Arizona as a whole has a poverty rate of 16.2%, compared with an overall US poverty rate of 14.3%. For Pima County, the rate is 17.4%, and in Santa Cruz County, the poverty rate is an astonishing 26.2%, while in the city of Nogales, it is even worse at 33.9%.[27] Likewise, the July 2013 unemployment rate in Arizona was 8% compared with 7.4% for the United States,[28] and it was 19.2% for Santa Cruz County and 7.2% in Pima County.[29]

Arizona's unique demographic makeup stems from its location on the US-Mexico border and is another driver of health and economic conditions in the state. In 2010, Arizona's population was 57.8% white non-Hispanic, 29.6% Hispanic/Latino, 4% Native American, 3.7% black, and 2.8% Asian/Pacific Islander. Arizona has seen significant demographic shifts between 2000 and 2010, including an increase of 24.6% in the total population, which included a 6.0% decrease in the proportion of white, non-Hispanics, and a 4.3% increase in the proportion of Hispanics.[30] Pima County is 65.4% non-Hispanic, and 34.6% Hispanic; Santa Cruz County is 82.8% Hispanic, and 17.2% non-Hispanic.[31] Finally, southern Arizona has younger population than the US as a whole. 24.7% of the Arizona population is under age 18 (25.5% Pima, 31.7% Santa Cruz) compared to 23.5% for the US.

The Community Food Bank, its many partners, constituents, and other local food system leaders are operating within an extractive economy. A 2012 study of the farm and food economy of southern Arizona, sponsored by the Community Food Bank, using CPPW funds, found that southern Arizona consumers spend over $3 billion each year purchasing food sourced outside of their region.[32,33] This creates leakage of local economic resources that far outstrips the Community Food Banks's fundraising and donation reach. Moreover, during the economic crisis of 2009, the region's households lost $6.5 billion of net assets in a single year[34] – only the worst of several years in which residents have taken on more debt than their asset base allows.

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[28] Local Area Unemployment Statistics, Bureau of Labor Statistics. http://www.bls.gov/lau/#tables
[29] Economic Research, Federal Reserve Bank of St. Louis.
http://research.stlouisfed.org/fred2/categories/27429
[30] Arizona Department of Health Services. Arizona Diabetes Burden Report 2011.
http://azdhs.gov/azdiabetes/documents/pdf/AZ-Diabetes-Burden-Report_2011.pdf, p. 5.
[31] American Fact Finder, US Census Bureau,
http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml#none
[32] While importing food appeared to reflect a sensible division of labor in the post-WWII era, the system that delivers food to Southern Arizona is extremely energy-intensive, and by removing wealth from the region, also serves to create the very poverty that the Community Food Bank addresses through food handouts. As energy prices rise, and availability of fossil fuel becomes less certain, cities such as Tucson may well be forced to produce more of their own food if they are to survive as cities. Ironically, Tucson once was home to large orchards that shipped citrus fruit to distant markets, but this land has been converted to urban uses.
[33] Meter (2013), 16.
[34] Meter (2013), 16.

Community Food Resource Center Vice President Robert Ojeda sums up the practical nature of building a localized economy that is responsive to low-income constituents quite eloquently:

> *Our farmers' market provides a very low-risk way for both home gardeners and small farms to sell food while retaining 90% of the revenue, no matter what their earnings are. We've had quite a few very small home gardeners scale up to become medium-sized gardeners, and farmers become small food businesses because of their exposure to the farmers' market and their ability to enter the market in a low-risk way. Some have the potential to grow into much larger businesses trading statewide.*

The 2012 study confirmed challenging trends in net farm incomes. Southern Arizona's 2,350 ranchers and farmers "sell $300 million of food commodities per year (1999–2009 average), spending $320 million to raise them, for an average loss of $20 million per year," the study concluded, adding that "since 1999, there has been only one year (2004) in which farmers in southern Arizona earned more than they spent on production costs." Overall, "net farm income trends have been negative since 1989." In one single year, 2009, the region's farmers spent $106 million more producing crops and livestock than they earned selling their products. This represents a loss of 39% of sales.

Overall, the Community Food Bank study concluded, "Seventy-two percent of the region's farms and ranches reported net losses to the Census of Agriculture in 2007." Despite doubling productivity during recent years, "Southern Arizona farmers and ranchers earned $85 million less by selling commodities in 2009 than they earned in 1969 (in 2009 dollars)."

Figure 2: Cash receipts less production expenses for southern Arizona farms ("Farm Production Balance," also known as Net Cash Income), for 1969–2009.

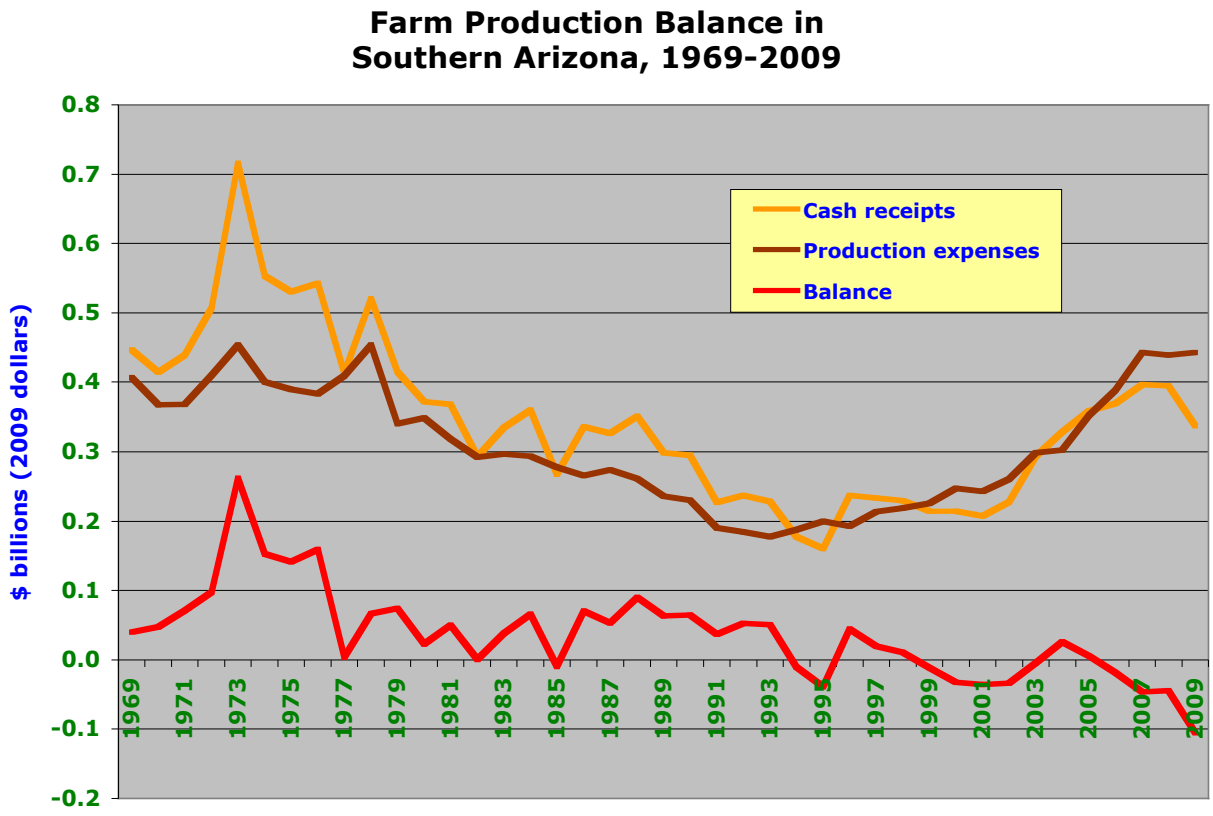


Chart compiled by Ken Meter for the Community Food Bank of Southern Arizona (Meter, 2012). Data from Bureau of Economic Analysis, Regional Economic Accounts

This is not to argue that small steps do not have powerful significance. It is simply that economic significance cannot always be measured strictly in financial terms, nor can it always be viewed within a national context. Indeed, from the Terans' perspective, the economic gains created by local food programs have been enormous.

Similar to the challenges in the agricultural sector, Arizona as a whole and southern Arizona in particular face significant health challenges.

From having one of the lowest obesity rates in the nation (14.9%) in 2000 (second only to Colorado), Arizona's obesity rate has risen to 25.4% as of 2010, and the state now ranks 35th in the nation, higher than 14 other states and the District of Columbia.[35] In 2009, only 26% of Arizona residents reported that they eat five or more servings of fruit or vegetables each day; this is down from 37% in 2000.[36] These are alarming trends.

Obesity is one of two key risk factors for diabetes (physical inactivity is the other). The Arizona Department of Health Services' 2011 *Arizona Diabetes Burden Report* found

[35] F as In Fat: How Obesity Threatens America's Future 2013. Trust for America's Health. http://www.fasinfat.org/adult-obesity/
[36] Centers for Disease Control and Prevention. http://apps.nccd.cdc.gov/brfss/display.asp?cat=FV&yr=2009&qkey=4415&state=AZ

that 489,000 adults were living with diagnosed diabetes in the state and that the prevalence of adult diabetes increased from 6.5% to 8.9% between 2003 and 2010. The Department of Health Services estimates that, taking into account high rates of undiagnosed diabetes, nearly 600,000 adults in Arizona have diabetes, and the border counties have the highest rates of diabetes in the state. Not only is this disease a significant burden on individuals in terms of health and quality of life, it is a significant economic drain on the state: the American Diabetes Association calculated that in 2006, diabetes cost Arizona $3.4 billion, including $2.3 billion in medical bills and $1.1 billion in indirect costs.[37] According to the US Centers for Disease Control and Prevention, "on the US-Mexico border, the impact of diabetes is reaching epidemic proportions."[38] A randomized survey of Hispanic adults over 40 conducted in the late 1990s in Pima and Santa Cruz counties found that the prevalence of diabetes was 22%, 2 to 2.5 times higher than non-Hispanic whites. A 2002 study compiled data from all border counties in the United States and found that 16.1 percent of those surveyed reported having diabetes and an additional 13.6 percent reported pre-diabetes.[39,40]

As described in the Considerations for Health Impact Analysis, health impacts are linked to employment, diet and nutrition, mental health, academic achievement, environmental health, and social capital.[41]

Health and Economic Impacts of Local Food Procurement in Southern Arizona

Building Social Capital and Community Connectivity

- A solid foundation has been built for community economic development that is inclusive of, and responsive to, low-income residents and pursues a vision of developing the local region "from the inside out." Practical successes have given this tangible form, increasing its ability to be replicated.
- Low-income constituents are welcomed as participants in an emerging network of food leaders that harnesses local resources to implement a sophisticated economic strategy. Tangible credentials have been built among low-income residents.
- New local loyalties are steadily being built among southern Arizona residents, the essential first step toward building broader consumer loyalty to locally produced products. Collaborative networks reinforce this ethic of local loyalty.

[37] Arizona Department of Health Services. Arizona Diabetes Burden Report 2011. http://azdhs.gov/azdiabetes/documents/pdf/AZ-Diabetes-Burden-Report_2011.pdf
[38] Border Health Strategic Initiative. US Centers for Disease Control and Prevention. http://www.cdc.gov/pcd/issues/2005/jan/04_0081.htm
[39] http://www.borderhealth.org/files/res_63.pdf
[40] http://www.borderhealth.org/files/res_2213.pdf
[41] Henderson T. Health impact assessment. HB 1800: Oregon Farm to School and School Garden policy. Portland (OR): Upstream Public Health; 2011.

- Manzo Elementary School has built a cohesive network of supporters in the community. With Thompson's leadership, the programs at Manzo Elementary School have created a climate in which students, staff, and parents have stronger ties to each other and a stronger commitment to the school.

Creating Jobs and Generating Income

Community-based strategies that address food insecurity led to improved employment and income opportunities, such as:

- Increased opportunities for low-income populations to enter the workforce, who draw upon new skills and connections to acquire better-paying jobs. Free training on food production and processing, including growing food at home for market, are offered at the food bank sites, making them accessible to low-income community members.
- Low-income farmers have gained reliable markets for produce.
- New business opportunities and new business networks have been formed.
- New jobs have been created:
    - La Tauna Tortillas hired two additional staff as part of their expansion.
    - Community Food Bank hired six additional positions through CPPW to specifically support food systems work that still exist today through leveraged funding.

Increasing Economic Activity and Developing Resources

- Over one hundred thousand dollars of locally-raised food items were purchased by or donated to the Community Food Bank. This represents an innovative channel for local economic exchange.
- Community Food Bank provided material and technical support to several school gardens, which produced a combined 25,000 pounds of produce in the first year.
- Manzo Elementary sold approximately $3,700 of foods harvested from its garden to local restaurants, grocers, and parents. This created new business connections and allowed the school to generate revenue to sustain its educational programming.
- Additional financial resources were obtained due to early successes. One local church has provided ongoing support to Manzo Elementary for the gardening program, totaling $80,000 thus far, and the school has also worked with the Audubon Society and University of Arizona to write smaller grants. Tucson Unified School District (TUSD) partnered with the Community Food Bank on a USDA grant that enables the school district to buy $25,000 in local produce in 2013.

Cosechando Bienestar received two federal grants totaling $390,000 over three years to support the development of a farmers' market, gardening training, local food policy efforts, and local food-related entrepreneurial programs.

Improving Diet and Nutrition

- Community-driven strategies in addressing food insecurity led to increased access to healthier and fresher foods through a diverse range of activities, especially to low-income people who have higher rates of poor health. For example, the Nogales Farmer's Market participated in the WIC Farmers' Market Nutrition Program (FMNP) and began accepting payment via Electronic Benefit Transfer (EBT) for SNAP program participants. Other strategies increased individual knowledge and skills about growing healthy foods. For instance, the Community Food Resource Center offered gardening classes teaching community members how to grow their own foods. Over time, the farmers' market organized by Mariposa Community Health Center has increased the number of vendors selling at the market and has increased the number of customers returning to the market. The farmers' market manager also identifies that it is an important community asset for building connectivity through offering a public space where community members can gather.
- Mariposa Community Health Center also hosts a gardening program as well as educational classes on a wide range of health and wellness topics (i.e., diabetes prevention for youth, nutrition classes for women, etc.) Mariposa has also cohosted regional conferences to discuss local food systems for southern Arizona and northern Mexico.
- Avalon Farm runs an innovative program that allows individuals to receive food vouchers redeemable at their village restaurant for time volunteered on the farm.

Enhancing Student Academic Achievement

- Manzo Elementary School demonstrates that schools can
    - use food production education to teach math and science skills
    - leverage experiential learning opportunities to help improve school climate and offer a different learning approach that can facilitate student engagement
- Since the advent of the garden, greenhouse, and animal habitat at Manzo Elementary School, overall student achievement on school state exams has improved. Thompson believes the experiential learning opportunities and the student and family engagement fostered by these programs contribute to this success.

Improving Mental Health

- Manzo Elementary School used horticulture and gardening as a social/emotional development strategy for its students. Staff found the strategy to be effective in facilitating communication and support between adult staff and the students as well as creating opportunities for improving behavior and relationships among students. Staff and community partners articulate long-term outcomes, such as reduced risk of incarceration, from increased student achievement and engagement.
- Community Food Bank staff members also receive feedback from new low-income home food producers that gardening has improved their mental health.

Environmental Stewardship

- The most common environmental stewardship/sustainability strategy cited by interviewees for this case study was composting. The process of composting diverts waste from landfills and prevents production of detrimental pollutants, such as methane--a greenhouse gas--and leachate. Additionally, composting produces beneficial microorganisms that regenerate soils.[42] This was particularly important in supporting agricultural production in this desert region.

Factors for Success in Institutional Procurement of Local Foods

Interview participants from southern Arizona noted factors that impacted their success in ensuring or sustaining local food procurement activities and the corresponding health and economic benefits. These themes centered on:

- **Empowering low-income populations.** Low-income populations can play a meaningful role in the definition and development of the local food economy. The Community Food Bank, through its Community Food Resource Center, asserts and implements a potent vision – one that runs counter to the prevailing food bank mode. While the typical role of food banks has been to distribute food donations to food-insecure individuals and families, the Community Food Bank also acts on a vision that low-income people should join in co-creating a localized economy that they help define and shape.
- **Building local productive capacity.** Enhancing and encouraging local productive capacities supported health and created ripple effects throughout the community. One new entrepreneur can create multiple new jobs while also supporting other local businesses. The Community Food Bank has actively fulfilled this role. For instance, hands-on support and guidance provided by the Community Food Bank helped Teran complete the steps to develop and launch a business.
- **Working toward systems change.** Each new strategy and program can contribute to multiple goals, ultimately leading to systems changes. For example, a farmers'

[42] http://www.epa.gov/composting/benefits.htm

market is not only a place where low-income people can save money by purchasing healthy food at subsidized prices, but it also becomes a critical connection point where customers, farmers, and businesspeople exchange productive skills, learn about health, plan future collaborations, and forge a common vision.

- **Connecting partners and building trust.** Partnerships have been critical to launching new businesses and the communities' success in making changes to the local food system. Community Food Bank activities have built trust among and connected community members, local farmers, schools, and other community organizations. Diana Teran shared stories of the support the Community Food Bank provided her family and how that contributed to her interest in and ability to launch a local food business.
- **Community-wide commitment to the long-term vision.** The general commitment within the community to address food insecurity and to increase the availability of healthy foods went beyond specific projects or funding opportunities. For example, community members met for over two years to work toward their goals before receiving funding to organize activities such as the farmers' market in downtown Nogales.
- **Established institutions as conveners.** Large and/or established institutions can serve as conveners or center points for effective networks. Through these networks, they can create new economic options for low-income residents and bring scarce resources to more rural regions, thus creating opportunities for building community resiliency.
- **Diversity of funding streams.** To enhance the breadth and sustainability of programming, the school diversified its funding stream (e.g., Audubon, local church, and the Community Food Bank) that established and expanded its garden, greenhouse, and animal habitat programs. Revenues generated from the schools' farmers' market have helped pay for program operating expenses, including premiumpriced sales during the summer months to individuals and businesses outside the school community.
- **Offering fair value for farmers.** Institutions can support small, local vendors by allowing for reasonable prices for their products. For instance, Mariposa Community Health Center supports local vendors by allowing them to sell their products at the farmers' market without the need to lower their price points.

Factors That Presented Challenges in Institutional Procurement of Local Foods

Interview participants from southern Arizona also noted challenges in promoting, fostering, and sustaining local food procurement activities and the corresponding health and economic benefits. These themes centered on:

- **Lack of robust distribution systems.** Approximately 40%[43] of the potential donations of fresh food from Mexico to Community Food Bank are wasted because of the lack of transportation available to immediately transport food to local food banks. Similar waste could occur for fresh foods procured locally. The Community Food Bank is devising strategies to reduce this loss by, for example, finding partners willing to pick up fresh produce and deliver it more rapidly across the food bank's large region and developing composting programs to produce precious fertility in this desert setting and support its farms and technical training programs.

- **Increasing demand for food assistance.** Demand for food assistance is increasing, which limits the resources a food bank has to invest in local foods. Increases in client emergency food assistance needs and decreases in federal funding have created additional challenges for the food bank in meeting the communities' needs.

- **Difficulty measuring impact.** Meaningful and measurable outcomes of impact are difficult to identify and collect. The Community Food Bank is trying to identify relevant approaches to evaluate the impact of the unique programs it offers.

- **Limited access to capital resources.** It is challenging for small entrepreneurs to access capital resources. La Tauna Tortillas indicated that expanding the business without sufficient capital was a challenge. This may be a similar challenge other small local food entrepreneurs face in launching/expanding a business.

- **Need for school policy change and staff training.** Policy changes and training may be needed to enable on-site sale of foods from school gardens to school cafeterias. Currently produce harvested in the Manzo school gardens cannot be served in the school cafeteria. Manzo staff members are working with the school district to obtain approval to be a vendor to sell these foods to the school. Once the school district approves this effort, staff will be required to complete additional training on preparing foods from the school garden. Finally, school staff will have to determine what quantities of produce will be sold to the school, through the farmers' market, and to individuals and businesses outside the school community.

- **Adequate staffing and funding in schools.** The level of resources in schools for staff, training, volunteer support is uncertain at times. For instance, the Tucson Unified School District requires one counselor for every 600 students. Currently there are approximately 300 students attending Manzo Elementary. There is a possibility that Thompson's time will be split between two schools, which would hinder his ability to continue overseeing the garden, greenhouse, and animal habitat programs. University interns at Manzo have provided additional support,

[43] Per Robert Ojeda's estimate.

but they also require additional supervision. Thompson anticipates that the school will need to obtain funds to ensure that there is paid staff that can provide the structure and supervision required to maintain the success of the internship program.

- **Market scheduling.** Farmers' market vendors rotate between markets in Tucson and Nogales. It is anticipated that market schedules may overlap in the future, which may affect vendor participation.
- **Extreme weather.** Farmers/growers deal with extreme weather conditions. The area can be as cold as zero degrees (Fahrenheit) during the winter months and 120 degrees in the summer months.
- **Increased opportunities for agricultural education.** These are required to sustain local food movement efforts.

Jefferson County, Kentucky Case Study

CDC funding: CPPW grant (2010–2012) and CTG grant (2012–2014)
CPPW and CTG Recipient: Louisville Metro Government
Institutional purchaser interviewed for this study: Jefferson County Public Schools
Food suppliers: Piazza Produce, Grasshoppers Distribution[44]
Key support programs: Louisville Farm to Table, Kentucky Local, Kentucky Proud
Key collaborators interviewed:

- **Alicia Arnett,** Supervisor, Fresh Fruit and Vegetable (FFV) Program, Jefferson County Public Schools
- **Jose Cubero,** Piazza Produce
- **Sarah Fritschner,** Coordinator, Louisville Farm to Table
- **Tina Garland,** Kentucky Farm to School Coordinator, Kentucky Department of Agriculture
- **Laura Peot,** Head of Operations, Grasshoppers Distribution[44]

Other key collaborators:

- Kentucky Agricultural Development Fund
- Kentucky Department of Agriculture

Definitions of "local" for food purchasing:

- Jefferson County Public Schools: 150-mile radius (in addition to Kentucky, this includes portions of Indiana, southern Ohio, and Tennessee)

Case Study Story

Farm to Table Project Works to Establish a Strong Collaborative Foundation for Local Food Procurement

The **Louisville Farm to Table project** is a project of the Louisville Metro Economic Development Department. The project developed out of a collaborative process initiated in 2005 to discuss Louisville's food economy and to devise ways to support rural Kentucky farmers recovering from the decline in the tobacco industry. The federal Tobacco Transition Payment Program was established in 2004 under the Fair and Equitable Tobacco Reform Act to help tobacco farmers transition to other types of farming. In Kentucky, this federal buyout program is implemented by the state Department of Agriculture through the development of a **Kentucky Agricultural Development Fund** and the **Kentucky Proud** program, which is a Kentucky Department of Agriculture branding initiative that establishes relationships, systems, and incentives to promote purchasing Kentucky-grown foods.

As the buyout progressed, many farmers who had formerly had productive tobacco farms near Louisville were left with less income and farmland that needed to be put to new uses. In 2005, the Local Food Economy Workgroup, an ad hoc group comprised of

[44] Grasshoppers Distribution closed in December 2013 about six months after the interview for this case study. The company stated: "Our decision to discontinue our service is a result of our lack of financial sustainability. The economics of the local food distribution business requires scale that we have not been able to achieve, despite the best efforts of many people over these years. We ultimately have decided to do what we feel is best for our Grasshopper clients and our network of farmers and artisans."

Louisville-area elected officials, county judges, private citizens, and agriculture extension agents began to hold quarterly meetings to discuss how farmers could convert their farms to lucrative products that would leverage the buying power of Louisville citizens. A primary focus of the group was to establish a market for local foods produced in Kentucky. In 2008, a study[45] commissioned by the Louisville Metro Economic Development Department and the work group found that Louisville is a $3 billion food market. The study included focus groups with farmers and prioritized several strategies that could help farmers capture some of that market. The report further recommended that a region-wide coordinating initiative be developed in order to pursue several strategies at once – to serve as a "broker" to bring buyer and seller together. The Louisville Metro Economic Development Department formally launched the Louisville Farm to Table project in 2009, and they hired Sarah Fritschner to coordinate the effort. Fritschner estimates that the Farm to Table initiative facilitated the purchase of $1.5 million in local foods over the last four years.

Just as the Louisville Farm to Table initiative was getting off the ground in 2009, the **Jefferson County Public Schools (JCPS)** began purchasing locally grown food for both the National School Lunch Program and the Fresh Fruit and Vegetable Program.[46] The district is made up of 172 schools serving 101,000 students in pre-K-12th grade, and 67% of students in the district qualify for free and reduced-price lunches. The district's School and Community Nutrition Services Department prepares and serves over 15 million lunches, breakfasts, and snacks each year. Over 60,000 JCPS students participate in the National School Lunch Program each day, and half of those also eat breakfast at school. As part of the Fresh Fruit and Vegetable Program, 17,500 students at 35 elementary schools receive healthy snacks three days a week along with nutrition education that is provided at snack time. The district was motivated to serve local food as a strategy to promote the health and well-being of its students and promote the local economy. Key staff from the JCPS Nutrition Services Department–including Director Julia Bauscher, Nutrition Services Center Manager Marsha Dysart, and Fresh Fruit and Vegetable Program Supervisor Alicia Arnett–have been instrumental in developing the vision and implementing the district's commitment to increase procurement of local foods. Fresh Fruit and Vegetable Program Supervisor Alicia Arnett explains:

> *Kentucky was so big into tobacco farming that once they started shutting those down they had to substitute going to something else. So we are trying to give back, and with us being such a big district, there's a lot of money that the farmers could make from us purchasing through them.*

[45] Market Ventures Inc./Karp Resources (2008). Final Report: Building the Local Food Economy, Louisville, Kentucky – Executive Summary. Viewed October 23, 2013 at http://www.marketventuresinc.com/images/PDF/1LVL-Exec-Sum-Louisville-Food-Strategy.pdf

[46] The Jefferson County Public Schools are a grantee of the USDA's Fresh Fruit and Vegetable Program since 2009. The program subsidizes fresh fruits and vegetables for snacks in participating elementary schools that have more than 50% of students who are qualified for the free and reduced-price lunch program.

At the same time that the Jefferson County Public Schools' farm to school program and the Louisville Farm to Table project were getting off the ground, the Louisville Metro Government applied for the federal Communities Putting Prevention to Work (CPPW) grant for obesity prevention, and they were awarded funding in 2010. The CPPW grant funded collaborative work on a range of policy, systems, and environmental change strategies for obesity prevention. One of the key strategies was working to support nutrition and purchasing local foods by the Jefferson County Public Schools. From the outset, it was clear that there was a need to work simultaneously on building systems and capacity within the school district and investing in the continued development of Louisville Farm to Table.

Jefferson County Public Schools use USDA school nutrition funds to source locally produced food. In the 2012–13 school year, the district spent $542,650 on produce for its Fresh Fruit and Vegetable Program (out of a total snack-service budget of $902,066). This involved $53,309 of produce items that were locally sourced (9.8% of total produce expenditures). Weather-related crop failures limited the program's spending in school year 2012–13; in the previous school year, the snack program spent 13.3% of its produce budget on local produce items. The snack program is also used as a testing ground for inclusion of new local produce items in the broader farm to school program connected to the school lunch program. For instance, butternut squash is regularly on the lunch menu now, after samples offered through the Fresh Fruit and Vegetable Program proved students would eat it.

During the 2012–2013 school year, the overall JCPS district bid out over $270,000 in local produce through its farm to school program (this figure includes Fresh Fruit and Vegetable Program expenses outlined above). The district is also interested in expanding its locally sourced food. Currently, Sarah Fritschner of the Farm to Table program is trying to work with poultry farmers in eastern Kentucky to aggregate their products into larger units in order to fulfill a chicken bid for the school district.

The district also connects the local food purchasing to student health and education. Arnett provides each school involved in the Fresh Fruit and Vegetable Program with a thumb drive that includes a variety of nutrition information on each product offered in the Fresh Fruit and Vegetable Program. Teachers use this as background material for classroom discussions, announcements, or activities related to the fruit or vegetable snack item that is being served on a given day. This further connects educational programming with foods provided through the program.

CPPW funds contributed to the district's development of 27 raised bed gardens in schools, and a Farm to School Grant from the USDA provides for farm field trips, posters, and flyers. These introduce the farmers who provide the day's produce to the students to help students "know it actually comes from the farm and not Kroger," Arnett explains. The process of developing a local food purchasing initiative has given farmers and school personnel the opportunity to learn about and make the effort to meet each other's expectations. For instance, Arnett shares that:

We like to get items based on a count system and they like to sell things by weight. Farmers/producers don't want to sit there and hand count 113 apples in a box. It is more feasible for them to provide our produce in weight. I then have to convert the weight into how many servings I can get out of a case so that we are both asking for apples and apples and not apples and oranges.

Jefferson County Public Schools Efforts Enhanced by State Farm to School Program

To ensure integration of local procurement efforts, the Jefferson County Public Schools works with the state level **Kentucky Farm to School** program, run through the Kentucky Department of Agriculture. Tina Garland, coordinator of Kentucky Farm to School, shares that statewide farm to school activities have grown significantly during her three years of involvement; statewide purchases of locally sourced food by school districts grew from $35,000 during the 2010–11 school year to $460,000 in 2012–13. Garland shares that from her perspective:

Opening up communication and starting that dialogue with each other [between food service directors and producers], that was the biggest thing we ever did… Education, excitement and the collaborative nature of this work are what's been driving the expansion of the program over the last three years-- showing the benefits of how it can help the community. People rally around something that is positive.

The program provides various resources to schools, including a bid/RFP worksheet to help schools' purchase local products, a farm to school resource guide for how to start a new program, and a nutrition curriculum guide. The program also facilitates a "trade show" that allows farmers to provide information on their products to school food service directors. The program coordinates and hosts a junior chef competition to develop food-service-director-friendly recipes that feature local products, and they are expanding the program from 38 teams with 177 student participants in 2013 to an expected 100 teams in 2014. Sullivan University, a hospitality-oriented university, has set aside $70,000 in scholarship funds for winning teams. Finally, the program supports and leverages student interest in agriculture, farming, and school gardens. Garland relates that:

One group… that is very successful within the school is the Future Farmers of America (FFA) department. The FFA department has started growing food for the schools. We've had beef projects, pork projects, hydroponic lettuce. Owsley County School on any given day will serve at least four items on their menu that have come out of the garden which the FFA students have grown. Owsley County Schools have done a tremendous job.

Partnerships Between Growers, Distributors, City Government and the School District Facilitate Local Purchasing

In order to build purchasing and distribution channels for the Jefferson County Public Schools' farm to school programs, the district's nutrition services staff have worked with a new distributor, Grasshoppers Distribution[47]; an established firm, Piazza Produce; and directly with local growers. All parties point out that Sarah Fritschner of Louisville Farm to Table has played a pivotal role in helping to build relationships and identifying innovative approaches that maximize benefits for institutional purchasers, growers and distributors, and the broader community.

Grasshoppers Distribution was started in 2006 by four farmers with funding from a USDA value-added producer grant and the Kentucky Agricultural Development Fund. Grasshoppers Distribution closed in December 2013, about six months after the interview for this case study.[47] The original purpose was to collaborate across farms so the farmers could create more effective approaches to selling their high-quality produce to consumers through Community Supported Agriculture (CSA), in which customers pay for a subscription in advance for produce delivered throughout the season. The initiative began with four farmers offering produce 26 weeks in the year. In 2013, Grasshoppers worked with 70 family farms, offering a wider array of products (e.g., locally grown produce, antibiotic-free meats, dairy products, bread) and an online ordering system. Rather than paying an upfront cost (typically in the range of $500), customers could pay on a weekly basis.

Grasshoppers continued to be centered on an online farmers market and subscription grocery service; however, their expanded business model also included providing locally sourced food to institutions, restaurants, and wholesale customers. They worked with approximately 15 different producers in any given week and around 60 producers over the course of the year. Those were mainly small-scale farmers, but they also included value-added food producers for items like bread. Most of the producers were clustered within a 60-mile radius of Louisville, but Grasshoppers also worked with growers south of Bowling Green and some just south of Lexington. Grasshoppers' Head of Operations Laura Peot explained that they worked with growers from both Kentucky and southern Indiana since there are a number of "great farms" within the 60-mile radius of Louisville. Grasshoppers purchased nearly $600,000 of product from local producers in 2011 and 2012, though only a small portion of this is through its farm-to-institution program. In addition, Grasshoppers worked with local businesses to process and add value to its products. The company worked with local kitchens (restaurants/catering companies) to make and freeze soups with products they had a hard time moving. Grasshoppers would sell the produce to the kitchen, buy their soups, and then sell them to their CSA/customers.

[47] In announcing the decision to close, Grasshoppers stated: "Our decision to discontinue our service is a result of our lack of financial sustainability. The economics of the local food distribution business requires scale that we have not been able to achieve, despite the best efforts of many people over these years. We ultimately have decided to do what we feel is best for our Grasshopper clients and our network of farmers and artisans."

In 2012, Grasshoppers submitted a bid and received a contract for the School Lunch Program and Fresh Fruit and Vegetable program with the Jefferson County Public Schools.[48] Peot shared that some growers were able to increase activity after hearing Grasshoppers had won the snack program bid. For example, one grower planted a field that was not in use and sold 17,000 radishes for new income. Peot shares that there were some farmers who initially were not prepared for growing on the scale needed by the district:

> *[They were excited about the opportunities connected with new bids] but when it comes down to harvest time, their planning is a little bit off. You know, it's a learning process and they haven't done it before, and it's difficult to increase your numbers. But, yeah, growers have been very happy to have the business.*

Grasshoppers, and the growers and producers they work with, also experience a tension between sustainable farming practices and price, as Laura Peot explained:

> *Our consumer market really demands… chemical-free naturally grown produce. So, when a grower comes to me and is interested in supplying Grasshoppers, I'll… take a reading of what their growing practices are, and… decide which market they would be best suited for....Our customers really demand the non-sprayed items. And then [Jefferson County Public Schools], it really all comes down to... price….There [are] a lot of growers we have on the larger scale that can supply produce at a price that's reasonable for Jefferson County, but that do not spray. But really that's not as much of a consideration as the price point for that fresh fruits and vegetables program…*

Peot further explained that fruits are difficult to grow in Kentucky without chemicals. When Grasshoppers offered fruit that has been sprayed, they ensure that customers know what farm it's coming from and that it has been sprayed.

Piazza Produce, based in Indianapolis, distributes produce in a four-state region: Indiana, Illinois, Ohio, and Kentucky. With the development of the Kentucky Proud program and increasing focus on producing foods for local distribution and consumption, Jose Cubero of Piazza Produce's Louisville branch saw an opportunity to leverage existing distribution channels and deepen his company's relationships with growers and purchasers. Piazza launched its Kentucky Local program in 2007. Currently, the company's Louisville branch works with approximately a dozen local farmers that provide produce for restaurants, institutions, and other customers through the Kentucky Local program.

Jose Cubero has worked closely with Louisville Farm to Table, Grasshoppers Distribution, and local farmers to help establish reliable production and local markets for Kentucky-

[48] Currently, Jefferson County Public Schools uses a different approach to buying local foods for the school lunch program, buying directly from growers.

grown produce and value-added products. Piazza helps connect farmers to the school lunch program at Jefferson County Public Schools by providing support to the farmers to produce products that meet the needs of the district in terms of volume, timing, and food safety; aggregating products from multiple farms when necessary to meet the district's volume; providing coolers for storage; and delivering product to the district.

Grasshoppers and Piazza have found great value in contracting out processing to those local businesses that already have the facilities and capabilities. For example, Grasshoppers worked with a local catering company to make soups and another local food business to make pickles. To shred and package cabbage for JCPS, they are working with Paul's Fruit Market, a local grocery store in Louisville that has the necessary tools and capabilities on site. Arrangements to outsource processing enable them to buy more quantities of each product from farmers, especially for bumper crop produce for that year; support local businesses; and meet increased demand from their customers for value-added and ready-made products.

Piazza's Kentucky Local program is unique in the company. It takes advantage of the state agriculture department's Kentucky Proud initiative, which helped Piazza get Kentucky Local off the ground; Kentucky Proud also fostered the development of Louisville Farm to Table. Jose Cubero's interest and commitment in working with local growers to help them identify and supply local markets has been instrumental in the success of the initiative. As a native Kentuckian, Cubero also brings a deeper understanding of the community's history and context as it relates to the local food system. Piazza's existing infrastructure has been an important asset in the local food procurement work in Louisville. The company has centralized locations where farmers can drop off produce, and two drivers and vehicles are available six days a week for sorting and delivering products. Cubero does all the sales work as well as logistics and inventory. Finally, Piazza's corporate vision encourages and supports employees in creating new opportunities that can benefit the business. This environment fostered Cubero's ability to pitch and pilot the Kentucky Local program.

Cubero is working with Sarah Fritschner of Louisville Farm to Table to expand the network of farmers selling to local institutions and restaurants. Cubero emphasizes that the success of their distribution efforts can be attributed to building a local business model that respects farmers and supports sustainability (both economic and environmental). He feels that to do his job well, he must take time to visit farms regularly so that he can understand how the farmers and their farms are doing and see the quality of the products firsthand. From a business perspective, these efforts have also paid off in a 10% increase in sales and customers between 2007 and 2013, and the addition of two farms to his suppliers. In 2013, Piazza's Kentucky Local program hit $100,000 in sales; the company has added a second truck driver and is contemplating adding another full-time employee to the payroll. In 2011, Piazza sold $19,000 to Jefferson County Public Schools.

Cubero and Fritschner meet directly with farmers to gather feedback about barriers to becoming involved with local food distribution. The plan is for Piazza, with support from

Fritschner, to work directly with growers and value-added producers to address the identified barriers to expand the supply of Kentucky-grown food available for local purchase. For example, they have begun to provide resources and technical support for farmers on recordkeeping practices that are needed to sell through an aggregator like Piazza. Piazza also has a Food Safety Department that works with local farmers to help them comply with food safety guidelines from the USDA, and state and county governments.

This careful interweaving of collaborative roles is possible because of the close sense of personal trust that has been built by individuals – one that cuts across organizational boundaries. It is also based on an exceptional personal commitment each individual has made to work above and beyond to make these programs successful, while keeping a vision of a long-term future in mind.

For example, Sarah Fritschner's efforts to build systems from a foundation of personal commitment and relationship building, while still nurturing and supporting those relationships, may yield new approaches to sustainable institutional procurement. Inherent in this approach to creating innovative systems is the challenge of being able to both capitalize on and value the critical role of the broker in forging relationships and create a dynamic and lasting system that can continue to thrive in the face of change (i.e., changing community context, players, food policies, etc.)

Fritschner explains that the goal of the Louisville Farm to Table Project is to create sustainable *systems* that support local food trade: "Instead of pairing a farmer with a person, where the system breaks down when one of those people dies or moves or decides that it's not worth it, what I wanted to do was establish a system so that players could change, but the system still existed."

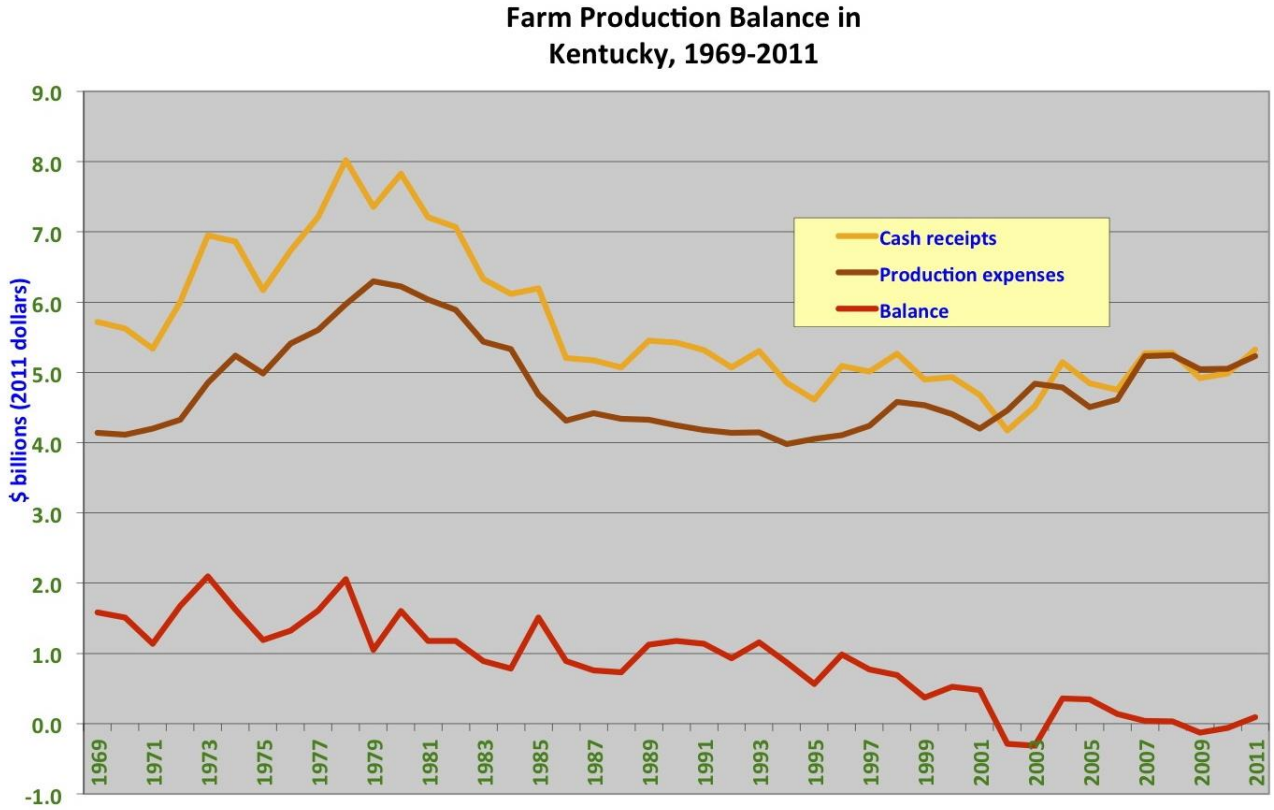
Key Findings and Impacts

Economic and Health Trends

Profitability for Kentucky farmers has significantly declined in recent years, particularly in the past 15 years after the Tobacco Master Settlement Agreement in 1998. In 2011, when farmers in the state sold more commodities than ever in history, farmers earned $1.5 billion less than their 1969 counterparts had earned (See figure 3), once data were adjusted for inflation. While this trend reflects the shift from tobacco production, it is also closely associated with a decline in cattle sales, as tight margins created by an industrial animal industry squeezed small producers out of business. The growth of a poultry industry did not improve overall livestock sales either. Even production of cash grains such as corn soybeans and wheat, which consumes most of the state's farmland, has suffered declining margins. All this reflects a national economy that is structured in ways that remove wealth from farm regions.

State consumers spend $10.9 billion buying food each year, with at least $9.8 billion of these purchases estimated to be sourced out of the state. Since farmers also purchase at least $1.8 billion of farm inputs sourced outside of Kentucky, the state's farm and food economy leaks more than $11.1 billion each year – about $30 million per day. This is tempered only slightly by the net cash income (cash receipts less production expenses) earned by farmers: an average surplus of $0.5 billion each year over the years 1989–2011 (or an average net income of $5,800 per farm each year). These trends help prompt the state to pay close attention to diversifying its agricultural base. As the chart shows, bringing new crops into production has helped in small ways to stabilize, but has not turned around, these losses.

Figure 3: Cash receipts less production expenses for Kentucky farms ("Farm Production Balance," also known as Net Cash Income), for 1969-2011.



Data from Bureau of Economic Analysis, Regional Economic Accounts.

The state of Kentucky, and Jefferson County specifically, face health challenges as well. Jefferson County ranks 30th out of Kentucky's 120 counties on the County Health Rankings.

Health and Economic Impacts of Local Food Procurement in Jefferson County, Kentucky

Building Social Capital and Community Connectivity

- An effective coordinator brought farmers, food services, food buyers, and policy makers together, increasing collaboration and creating more resilience for the region; leaders hope that in turn, this will build a more lasting and responsive system over time.
- Coordination at multiple levels – within and across the city, county, and state (e.g. Kentucky Proud, Farm to Table, Farm to School), along with coordination across community sectors (i.e., schools, farmers, distributors, local businesses, local government) fostered long-term economic potential.
- Students are introduced to local farmers who supply food to the school. These opportunities help students understand the local food system and the interconnected roles of each player in that system.
- Farmers and buyers learned more about each other's interests and needs, and they developed solid experience in working together.
- Distribution firms began to coordinate activities, reducing duplication of effort.

Creating Jobs and Generating Income

Jefferson County/Louisville region:

- Increased kitchen staffing at Jefferson County Public Schools has resulted in more income.
- About a dozen farms have increased local food sales. This has increased the number of farm jobs available, including more employees at certain farms.
- New products have been created for schools; this created new business for one local processor.
- Louisville Farm to Table estimates that it brokered hundreds of thousands of dollars of local food sales per year, for a total of $1.5 million over the past four years.

Statewide:

- Piazza Produce tapped new markets through its Kentucky Local program, and sales have risen 10% over the past six years. Piazza is now expanding its emphasis on this program; they have already hired a new driver with plans to hire additional staff and invest in additional infrastructure.
- The Kentucky Farm to School program reports that schools across the state purchased $460,000 of local food in 2012–2013, up from $35,000 three years earlier.

Increasing Economic Opportunity and Developing Resources

- Farmers gained new technical and marketing skills.
- Piazza Produce built new storage facilities to handle local foods.

- Jefferson County Public Schools have used the Fresh Fruit and Vegetable snack program as the testing grounds for introducing new fruits and vegetables to student diets; this creates potential income sources for farmers and distributors.

Improving Diet and Nutrition

- Student participation in the school meal programs in Jefferson County and in Kentucky overall has increased, improving the quality of students' nutrition as well as reducing hunger.
- Farm to School program and the Fresh Fruit and Vegetable Program both include nutrition education. The programs increase student access to fresh fruits and vegetables and aim to change student acceptance of these fresh, healthy foods and increase consumption of them. Student consumption behavior drives new menu items. Over time the school district has incorporated new products as regular items on the school lunch menu – demonstrating the success of the Fresh Fruit and Vegetable Program and Farm to School program at achieving lasting change.

Enhancing Student Academic Achievement

- Jefferson County Public Schools uses its Fresh Fruit and Vegetable Program as a vehicle for educating students about the specific foods they are eating.

Factors for Success in Institutional Procurement of Local Foods

Interview participants from Jefferson County noted factors that impacted their success in ensuring or sustaining local food procurement activities and the corresponding health and economic benefits. These themes centered on:

- **Collaboration, open communication, and ongoing dialogue.** All interviewees emphasized the importance of relationship-building and dialogue to identify and address barriers and to maximize benefits that can be achieved. Jefferson County stakeholders recognized the need to come together to develop new approaches to agriculture in the state following the federal tobacco settlement, with an emphasis on relationship-building, education, and systems development.
- **Education and networking events for growers and producers.** Sarah Fritschner (Louisville Farm to Table) has worked together with farmers and distributors on education and networking events related to inventory, packaging, and food safety. For example, they partnered with several local nonprofits to host a two-day conference geared toward farmers covering topics related to food safety, packing and grading, how to keep produce uniform, how to successfully sell to wholesale distributors and direct to large purchasers (as opposed to selling direct to consumers), managing pests and disease, and managing finances. The conference proved to be successful in providing farmers with information and

resources related to capacity building that was beneficial for their farming businesses. Attendees immediately began inquiring about future conferences.[49]

- **Leadership.** The school district saw its role as a key convener and stakeholder in development of the local food economy and in creating a market for Kentucky-grown specialty crops. Leadership by the food service director was pivotal.
- **Advance planning to match supply and demand.** Distribution companies, like Piazza and Grasshoppers, can partner with local farmers to forecast consumer demands for the following year. Together they establish how much the farmer can produce and the company can determine how many farmers are needed to meet a customer's demand for a particular product. Institutional purchasers, such as schools, can create high volumes of demand that require multiple farmers to meet it, and smaller distribution companies can be well positioned to build relationships and systems to help supply those institutions.
- **Reliable systems for purchasing and distribution**. Piazza Produce has set up systems to efficiently provide consistent supplies of local products. Piazza sets up consistent purchasing volumes, promotes buying local, sells and delivers the products, and promotes the local suppliers on their website. Farmers can rely on this distribution system and thus focus on growing food. The Kentucky Local program is mutually beneficial, increasing Piazza's sales while promoting and supporting local farmers/producers and supplying local customers with high-quality food.

Factors That Presented Challenges in Institutional Procurement of Local Foods

Interview participants from Jefferson County also noted challenges in promoting, fostering, and sustaining local food procurement activities and the corresponding health and economic benefits. These themes centered on:

- **Transitioning from a historically tobacco-growing state**. While the tobacco settlement provided funds for Kentucky to shift toward more sustainable agriculture, the legacy of export-based agriculture still permeates the food-market infrastructure and farmer aspirations. For those farmers interested in learning about beginning anew, or reinventing farming on their land, engaging in the shift means learning new farming skills, gaining access to the resources needed to sell for local markets, and determining a new business model that will help sustain farms.

[49] Laura Peot from Grasshoppers had expressed plans to continue partnership with Sarah Fritschner on providing technical assistance and training on additional topics (such as demystifying organic certification and reduced costs through group GAP certifications); however, it is unknown how that may have carried on after Grasshoppers closed.

- **Barriers related to product traceability, recordkeeping, and risk.** Farmers have to weigh the burden of additional facilities, recordkeeping, insurance costs, and oversight with potential benefits of partnership with Piazza, Grasshoppers, or directly with institutional purchasers. Established farmers with the requisite business and food-safety know-how often do not see the need to raise food for institutional purchasers, where prices may be lower, commitment to purchase is uncertain, and startup costs may be high. Newer growers who need to rapidly identify market opportunities often do not have the resources to sustain the risks of supplying an institution that needs to control costs. Public and private investment and support, such as the Louisville Farm to Table initiative and Grasshoppers and Piazza's training programs, are needed to help new and smaller farmers develop the skills needed to supply institutional customers.
- **Sustainability and continued community support.** The Farm to Table program builds relationships and addresses barriers to collaboration between consumers, purchasers, distributors, aggregators, and growers. A sustainable funding model for Sarah Fritschner's position has not yet been developed; this is part of the education process and infrastructure required to make production for local markets more efficient. Similarly, the Farm to School program and other local procurement initiatives struggle with maintaining and growing resources. The Louisville efforts address this in part through ongoing education for students, the public, food service directors, and food producers about where food comes from and the importance of fresh and local food.
- **Farmers who are interested in consumer-focused farming often do not see a way to build a lucrative operation from crops or livestock raised for local markets.**
- **Maintaining the flow of communication between groups, particularly statewide.** As the state lead for the national farm to school network for Kentucky, Tina Garland created a farm to school network to aid in regularly disseminating information to the national level. An administrators' conference is held annually for food service directors. Garland added a track called "The Pitch Room" to the conference, which allows producers to showcase their products to the food service directors. The food service directors are accustomed to processors pitching their products so it was a natural fit to include local producers. This forum created another avenue for food service directors and producers to convene.
- **Cold chain management.** Cold chain management entails cooling the product directly out in the field and keeping it cool until it's brought to the purchaser. According to Laura Peot of Grasshoppers: "Many of their growers don't have coolers at their facility and don't have refrigerated delivery trucks. That means that even if they're able to harvest and able to spray the produce down with the hydro cooler, there's still a loss of quality for every hour the product isn't in the correct temperature range. To get around that, Grasshoppers used to pick up product from some of the farmers that were farther away, but there were

problems because the truck would end up waiting for hours because the produce wasn't ready and it wasn't harvested yet. It became really inefficient." One idea being considered is increasing efficiency by establishing different points throughout the state where farmers could deliver their produce, which could then be collected using a refrigerated truck.

- **Short growing season, weather related issues, and insects.** These issues can affect the amount of available local products for institutions buying in bulk. Jefferson County Public Schools was not able to meet its local purchasing goals for 2012–13 because of weather-related crop failures.

- **Tracking the impact of local food procurement.** Food service staff at the Jefferson County Farm to School program would like to be able to track, or have somebody help them track, the health and economic impacts of local food purchasing. Currently, they have limited staff, which put constraints on the amount and type of tracking that can occur. Tracking local food purchases is time-consuming unless purchasing software is set up to provide ready data; many institutional purchasers in other states rely upon the distributor or broker to provide them with a tally of foods that were locally sourced, but without dedicated funding they do not have the capacity to answer this question for themselves at a time when overall operating budgets are tight. Tracking economic impacts is even more fraught, as outlined in this report.

Burlington, Vermont Case Study

CDC funding: not applicable
Institutional purchasers:
- Burlington School District
- Food Service Directors Association (FSDA) of Vermont
- Fletcher Allen Heath Care

Food suppliers: Individual farms, local producers, local food businesses, Reinhart Foodservice (main distributor)

Key collaborators interviewed for this study:
- **Doug Davis**, Food Service Director, Burlington School District, & Co-Chair, Food Service Directors Association of Vermont
- **Daria Holcomb**, Manager of Nutrition Services, Fletcher Allen Health Care
- **Jenn McGowan**, Development and Programs Manager, Burlington School Food Project, Burlinaton School District
- **Allison Weinhagen**, Director of Member Services, City Market/Onion River Co-op

Other key collaborators:
- Sustainable Schools Project
- Intervale Center
- Friends of Burlington Gardens
- City Market/Onion River Co-op
- Hunger Free Vermont
- Dealer.com
- Gardener's Supply Company
- Green Mountain Coffee Roasters
- Smarter Lunchrooms Movement

Definitions of "local" for food purchasing:
- Burlington School District: foods grown or produced in Vermont
- Food Service Director's Association: New England
- Reinhart Foodservice: New England

Case Study Story

Longstanding Farm to School Initiative Serves Diverse District

Located on the eastern shore of Lake Champlain, Burlington, Vermont, is a small, relatively prosperous city in a state with a long tradition of local foods activity. **Burlington School District (BSD)** serves 4,084 K-12 students in six elementary schools and two specialized academy schools. Due to Burlington's status as a refugee resettlement community, the Burlington School District student body is much more diverse than other districts throughout the state. Approximately 70% of students identify as Caucasian, 13% are African American, 9% are Asian American, 4% are multiracial, 3% are Hispanic/Latino, and fewer than 1% of students are Native Hawaiian/Pacific Islander or American Indian. By contrast, in the rest of the state, 93% of students identify as Caucasian. BSD students speak over 56 different "home" languages, and

approximately 500 students in the district (14%) participate in English Language Learning services. In the 2011–12 school year, 51% of the student population qualified for free or reduced-price lunch, compared to 38% statewide.[50]

A local food movement began developing in the 1970s to strengthen Vermont's agricultural sector and create greater choice in the Vermont food system. In 2002, the Burlington Legacy Project, a community-driven initiative to improve sustainability in all areas of Burlington community life, convened a town meeting to garner community input on sustainability priorities. Community residents overwhelmingly expressed a desire to have access to more local, fresh, and healthy food options in public schools and throughout the community.

From that meeting, a group of local nonprofit leaders, community members, and Shelburne Farms secured a grant from the USDA's Community Food Projects Competitive Grant Program that acted as seed funding for the "Growing Farms, Growing Minds" project in Burlington. The group was charged with engaging diverse community groups in partnership with the Burlington School Food Service to improve school meals, encouraging healthier food options, and building community capacity to successfully achieve these goals.

The Burlington Food Council was established in 2003 to coordinate government agencies, nonprofit organizations, and volunteers interested in improving the local food system. The Food Council, with significant community participation, implemented a community food assessment, which informed the development of a food-action plan for the Burlington School District and subcommittees to further develop and implement the action plan. It was through these efforts that the **Burlington School Food Project** was born. In 2008, the Burlington School Food Project became an independent initiative.

This project created two positions to coordinate and procure local foods at the school district. Funding from Green Mountain Coffee Roasters funded the Farm to School coordinator position (first ever in the country), held by Sarah Heusner. The position is now funded through the food service operating funds with support from City Market/Onion River Co-op. The development and programs manager position, held by Jenn McGowan, was a grant-funded position that was added to the school district budget in 2013.

The Burlington School Food Project's mission is "To connect students and their families with whole, fresh, and local foods to improve the health of the community." The Project is committed to increasing local, fresh, healthy food access for all students, regardless of socioeconomic status. The district offers free breakfast, after-school snacks, dinner, and summer meals to all students every day—these programs show that the Burlington community is committed to good nutrition and aware of the impact it has on learning.

[50] Burlington School District Annual Report; http://bsdweb.bsdvt.org/Board/annualreports/Feb2013.pdf

In 2007, the district changed its food service policy to grant free lunch to all students who qualified for either free or reduced-price lunch under federal guidelines. In 2013, the state of Vermont followed suit, making lunch free to all low-income students who qualify for any subsidy under federal guidelines.[51] BSD is recognized as a national leader on policy in other arenas as well–its wellness policy, which promotes school health and nutrition practices, was selected as a model policy example by the Centers for Disease Control and Prevention (CDC). Burlington School Food Project credits the initial USDA grant with creating a coordinated approach to local food system development among key collaborators in Burlington.

District Employs a Wide Variety of Local Sourcing Approaches

In order to support its commitment to a vigorous local sourcing effort, Burlington School District purchases foods from a wide variety of local sources (largely within 25 to 50 miles of Burlington). Much of the local products come through Reinhart Foodservice L.L.C. (Burlington location). Through the Food Service Directors Association of Vermont, the school district has a strong relationship with Reinhart to maximize local produce options available for purchase. Additionally, the district works with many individual farms that deliver their products to one of the middle schools that has ample refrigeration and freezer storage space. The farm to school coordinator then delivers food to individual schools. Working with growers directly allows the school district to receive maximum value for each sale and helps the district solidify relationships with each grower.

Burlington School District purchases chicken from a local free-range chicken processor who was finding it difficult to sell anything but white meat to customers who valued his sustainable practices. The farmer offers these high-quality meats to the schools at a price that is lower than the school had paid for conventionally produced chicken.

Burlington businesses also deliver local value-added products to the school district, including bread and rolls from one baker and artisanal bread from another. All are made with New England wheat.

In addition to these local sourcing practices, the program sources some local foods from a larger New England regional area through its distributor Reinhart Foodservice, along with its other nonlocal broadline products. All purchases from Reinhart are made via the Food Service Directors Association of Vermont (see below), which for 28 years has served districts throughout the state as a cooperative buying group that enables districts to negotiate lower prices.

[51] The scaled fees were intended to allow families to pay for meals based on their income. However, research has shown that students who qualified under the reduced-lunch category were often unable to afford even the reduced fee or to purchase food to bring to school.

Focus on Building Local Food Knowledge, Sustainability and Partnerships

The Burlington School Food Project offers a comprehensive program that goes beyond sourcing from local farms. Jenn McGowan emphasizes that the learning connection and community engagement of the farm to school project is equally as important as the local food sourcing. Burlington School Food Project emphasizes local food knowledge and skills among its students through a wide range of strategies, including:

- Educational programs that teach students how to grow and harvest foods through school gardens and partnerships with local farms and to prepare locally grown foods. There are eight school gardens and a half-acre school farm in the district.
- Educational programs that teach students and staff about the benefits of buying local, coupled with marketing the local farmers, producers, and/or local businesses providing foods to the school cafeterias. This includes a partnership with Shelburne Farms' Sustainable Schools Project, which is "a dynamic model for school improvement and civic engagement, designed to help schools use sustainability as an integrating context for curriculum, community partnerships and campus practices."[52]
    - The educational programs engage 400 students during the spring and fall, producing over 4,000 pounds of vegetables each school year.
    - Student-made farm to school art, including quilts, ceramic vegetables, and paintings, is displayed in six school cafeterias.
- Offering credit courses to high school students on the history of food production.
- Integrating elements of food production within existing course curricula using practical examples to spark exercises in math or science, and giving students community service hours for their participation in gardening activities. The district also runs a hands-on job training program about food systems, food production, and gardening to 45 at-risk middle and high school students.

Students are engaged in developing and executing the School Food Project objectives, as McGowan notes:

> *We quickly learned that the most successful, the most exciting changes, happened when the kids were involved….we've seen how much impact it is to have the kids connected to the food. If they're involved in a program and so proud of what they're doing, or they see that it's from their school garden, they're much more likely to eat it.*

In addition, the project includes policy, training, and community partnership components that leverage additional resources, build infrastructure, and increase sustainability.

[52] Sustainable Schools Project, http://www.sustainableschoolsproject.org/

Many of the nutrition-focused components of the project are incorporated into the district's wellness policy to enhance and strengthen efforts to offer healthy, nutritious foods to students and to offer educational opportunities that can reinforce the importance of diet and nutrition.

The program also provides professional development opportunities for food service staff, for example, on how to prepare foods delivered from local farms/producers, how to safely handle foods in the kitchen, and how to minimize food waste. The nearby Blodgett Oven Company offers free commercial kitchen space for training school food-service staff.

City Market/Onion River Co-op (pg. 72) provides the schools (and other food-related community initiatives) with annual financial support and volunteers through the co-op Member Work program. The co-op's nutrition educator provides workshops for a range of Burlington School Food Project activities.

The Burlington School Food Project raises funds for their programs through a variety of sources, including the schools' Parent Teacher Organizations (PTOs), afterschool programs, and partner organizations, with the majority of the funding coming from private foundations. They are also currently partnering with the Smarter Lunchrooms Movement[53] to develop an evaluation approach for the new mobile adult culinary training program the district is launching. This diverse base of support allows the school to draw upon multiple funding sources and increase the sustainability of the project.

A hallmark of these exchanges is that they are mutually beneficial; the Burlington School Food Project team reciprocates by contributing back to the community. When heavy rainfalls in 2013 led to flooding, the district's food service offered its coolers to farmers free of charge for storing their produce. Farmers routinely use the extra space for winter storage.

The longevity and success of the farm to school initiative can be attributed in large part to the strength of these multi-sectoral partnerships and the team running the Burlington School Food Project. Activist, artist, and volunteer Bonnie Acker is the heart of the farm to school work. Recently she was awarded an official day in her honor by Burlington's Mayor Miro Weinberger for her work with the project. Farm to School Coordinator Sarah Heusner has engaged 25 high school teachers in farm to school work. Jenn McGowan, development and program manager, has been influential and key to the success of the project, from her hands-on work with the garden and cooking activities for students to leveraging financial resources. Politically savvy and with a background in the restaurant industry, Food Service Director Doug Davis has brought an entrepreneurial edge to the food service. He has become a national leader, formerly serving as director of the School Nutrition Association. He was involved in the Vermont Farm to

[53] The Smarter Lunchrooms Movement (http://smarterlunchrooms.org/) is part of Cornell University's Center for Behavioral Economics in Child Nutrition Program and funded by USDA. Burlington School District is receiving free evaluation services from Smarter Lunchrooms.

Plate Strategic Plan strategic planning process and also serves as co-chair of the Food Service Directors Association of Vermont, the statewide food-purchasing cooperative. In addition to their individual responsibilities, each team member fosters relationships with growers, community organizations, businesses, and many other sectors. It really is a community effort.

Davis points out that local food procurement plays a critical role in establishing political support for the district's food service among members of the school board, because engaging local farms, businesses, and other stakeholders garners exceptional goodwill among voters. As a result of this board support, all schools in the district now have the standard kitchen capacity and physical facilities required to cook basic meals from scratch, which required considerable financial commitment from the school board.

Building on a Foundation of Collaboration Through the Food Service Directors Association

The Burlington School District's effort to source food locally benefits from the communities in Vermont that have asserted their vision in a small and relatively remote state. Indeed, asserting local will is essential as markets have become more impersonal and trade more distant; otherwise smaller communities would have little voice at all.

One example of this is **Food Service Directors Association (FSDA) of Vermont.** FSDA was established in 1985 when a small group of food service directors came together to create a food-purchasing cooperative for school food services. By combining their purchasing power into a single entity, these smaller schools gained the ability to negotiate for what they wanted, rather than accepting choices defined by others. The Co-op functions well enough that larger districts like Burlington play a key role in ensuring that schools of all sizes are treated fairly. Through FSDA, food service staff have also trained each other to adopt better purchasing procedures (i.e., writing a bid, analyzing the responses, etc.). BSD's Food Service Director Doug Davis, who has served as the FSDA director, describes the genesis and benefits of the FSDA this way:

> *Many schools were being charged way more than they could afford. Many schools are being hit with delivery charges, minimum delivery fees, all kinds of fees, fuel surcharges, whatever. So, the group was formed to give us more buying power and give us more clout with our broadline distributors. It also created a methodology in which small schools could meet the USDA's bid requirements by signing onto the cooperative.*

Today FSDA membership has grown to represent 135 schools across the state, purchasing a total of approximately $7.5 million of food and related products each year and representing approximately 40% of the state's school purchasing power.

Among the distributors that the FSDA buys from is the local office of **Reinhart Foodservice**. FSDA originally worked with the La Crosse, Wisconsin arm of Reinhart, and when Reinhart sought to expand its New England presence, it established a facility just

north of Burlington in Colchester, Vermont. Reinhart now serves as the primary vendor for the purchasing cooperative. Davis highlights that FSDA's proximity to Reinhart has facilitated good communication between the two organizations. He feels that Reinhart recognizes the Association's purchasing power and has been helpful in fulfilling their needs. After some negotiating, the schools are now able to order from any local source they specify. Yet Davis is quick to point out that most of BSD's local food (under 50 miles) comes directly from local farmers, since Reinhart's catchment area is all of New England.

Reinhart's established a system for tracking local and nonlocal items lets each district make informed decisions when purchasing products, because, as Davis points out, the term "local" is defined differently in different districts based on their sourcing goals. Some districts focus on "hyper-local" products that are within a 50-mile radius of the district. Yet because of Vermont's mountainous topography, a 50-mile distance as the crow flies might involve hundreds of miles of driving through those peaks and valleys. A district that sets a larger radius, of say, 150 miles, can draw upon food in several states[54] and the Canadian province of Quebec, although USDA requires that National School Lunch Program funding be spent within the United States. Davis also explains that some districts may also define local to include products sold at local businesses, even though manufactured elsewhere. Davis emphasizes that this flexibility is central to the success of the Association's model. The Association has used its influence to increase the number of local products available to Vermont schools, such as Vermont Village Cannery Applesauce (Barre, VT) and American Flatbread pizza dough (Burlington, VT).[55]

The FSDA has encountered some challenges in its efforts to sustain local food procurement initiatives. First, the short northern growing season limits the amounts and types of foods the FSDA can purchase during the school year. Second, Davis feels that districts are making more local purchases than they are giving themselves credit for, because they are thinking mostly about fruits and vegetables and not products like meat and dairy, making it difficult for food service departments to market their own achievements. Finally, finding the balance between sourcing local foods through the broadline distributor versus directly from farmers is also a challenge. For instance, BSD may wish to purchase product direct from a producer in the Burlington area, but if Reinhart is offering a similar Vermont product, there are contractual implications. In addition, many local farmers are so small that they are reluctant to sell their products through the large distribution companies because of the cost of product liability insurance and meeting Good Agricultural Practices (GAP) certification requirements.[56]

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[54] Depending on the district's location in the state of Vermont, a 150-miles radius would include several of the following states: New Hampshire, Maine, New York, Massachusetts, Connecticut.

[55] Best Practices in Vermont School Operations, Programs, and Governance Showcase. 2012. http://www.vtvsba.org/showcase.pdf

[56] The Vermont Department of Agriculture noted in 2010 that GAP audits require an administrative fee of $50 plus a charge of $92 per hour for the actual audit. The state did provide grants to offset these costs, but farmers had to pay for the audit up front and then apply for reimbursement. http://www.uvm.edu/vtvegandberry/GAPS/Audit%20Program%20Information%20-%20VT.pdf

Moreover, many farmers are able to sell all their crops through more direct means and see little reason to negotiate the loer prices demanded by broadline distributors.

While the FSDA has contributed to the success of local food procurement efforts in Vermont, Davis stresses that the primary force driving local purchasing is building strong relationships, not the number of miles the food has traveled:

> *The goal really is to create relationships within communities, and create support within the community [through] the local food meal program. The benefit of us allowing schools to connect with local farms, local farmers markets, local pizza place…whatever, is that it builds a level of community.*

Broadening Community Impacts Through Wider Partnerships

City Market/Onion River Co-op has also played an important role in building a stronger base of support for the purchasing efforts of the Burlington schools. The co-op grocery began as a buying cooperative in 1973 that carried only natural foods produced or processed in the state of Vermont. In 2002, the nature of the co-op changed significantly when it opened a storefront in Burlington, selling both natural foods and conventional items at affordable prices.[57] At that point, the name of the Onion River Co-op was changed to the City Market/Onion River Co-op to reflect the change. The only grocery store in downtown Burlington, the store serves an average of 4,000 customers per day and has approximately 9,100 members/owners.

One of the co-op's goals is to "*provide low-income consumers with access to progressive, social, and healthful choices through education and outreach and to specifically reduce childhood hunger in Burlington.*"[58] Members receive a discount if they volunteer at the store or selected community organizations,[59] including the Burlington School Food Project. (See description above of how co-op volunteers contribute to the Burlington School Food Project).

As the co-op has expanded and increased its paid staff, there is less need for volunteer work within the grocery. As a result, the co-op decided to expand the Member Work program to offer opportunities for members to volunteer at community-based organizations whose mission and programs are aimed at ending local hunger and/or strengthening the local food system. Member workers qualify for the same discounts at

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[57] The co-op has established a 10% discount for seniors and WIC participants to work toward making prices affordable for community members across income levels.
[58] http://www.citymarket.coop/about/mission-statement
[59] Organizations that are currently part of the Member Work program include Burlington Area Community Gardens, Burlington School District--Burlington School Food Project and Sustainability Academy at Lawrence Barnes, Chittenden Emergency Food Shelf, Committee on Temporary Shelter, Friends of Burlington Gardens, Grow Team ONE, Hunger Free Vermont, Integrated Arts Academy, Intervale Center, Local Motion, New Farms for New Americans, Northeast Organic Farming Association of Vermont, ONE Community Dinner, Vermont FEED.

the store whether they volunteer in store or at a community organization. Approximately 4% of co-op members are involved in the Member Work program, and member workers volunteered 18,000 hours in 2012, with 300–400 member workers volunteering within the community each month.[60] Over time, City Market/ Onion River Co-op has developed a structured framework for the Member Work program (e.g., regular communication with volunteers and partner organizations, tracking volunteer hours, selecting organizations that have a volunteer coordinator, etc.), which contributes to the success of their Member Work program by offering meaningful and structured volunteer opportunities.

As membership director Allison Weinhagen describes it:

> *[W]e have thousands of hours of Member Worker time every year that we can donate to these organizations. What better way to spread the good work that those organizations are doing but by getting our members more involved and more understanding of what the issues are in our community?*

In addition to offering volunteers, the co-op contributes to their partner organizations by

- donating money
- donating credit that can be used to purchase goods at the grocery store
- providing educational programs (e.g., nutrition education)
- writing letters of support for grants
- using the co-op's marketing budget to promote partner activities and events.

The co-op also builds networks with farms and food businesses, buying local products both directly from farmers and through distributors. Each grocery department has established its own relationships with different local farmers so it can maximize placement of Vermont local products. In partnership with the Intervale Center, the co-op also offers education, training, and technical assistance for farmers who wish to develop plans to grow and enhance their businesses.

The co-op also supports other local businesses by providing access to their wholesale distribution network, by offering a discount program to local food businesses, and by delivering produce free of charge to specific businesses. Moreover, co-op members can receive discounts at these local business partners.

In addition to nurturing these community partnerships, the co-op aims to offer living wages to its staff. Wages range between $9.50 and $30 an hour across eight pay grades, based on recommendations set by Vermont's Joint Fiscal Office.

Finally, co-op members can participate in the patronage refund program (similar to a profit-sharing agreement) through which the co-op disburses refund checks to its members based on a percentage of the total purchases made by the member in the

[60] In 2012, 18,000 member workers redeemed discounts equivalent to $265,000 in sales, which equates to $14.70/hour.

previous year. In 2012, patronage refund checks totaling $643,000 were issued to 7,689 members, returning an average of $84 to each participant.

Hospital Commits to Healthy, Local, Sustainable Foods

Another key institutional purchaser of local food in the Burlington area, and a significant stakeholder in the movement, is **Fletcher Allen Health Care**. Established in 1879, it was one of the first hospitals in the state.[61] The University of Vermont-affiliated hospital is comprised of four campuses and employs 7,000 people. The hospital provides approximately 6,000 meals each day through five retail cafés and room service for its patients. All menus include healthy food options that can be local, organically grown, free of genetically modified organisms, gluten-free, and/or hormone-free.

The institution began serving healthy, local, sustainable foods in 2006 when the hospital signed the Healthy Food in Health Care Pledge launched by Health Care Without Harm. The pledge outlines approaches healthcare facilities can adopt to improve patient well-being and community health, and promote environmental sustainability.

The hospital began small by purchasing one product—locally grown whole wheat to replace white bread products—and has steadily increased the number of local foods it serves.

Daria Holcomb, the manager of Nutrition Services at Fletcher Allen, attributes the success of the local food procurement initiative to the engagement process her team follows. The nutrition services staff meet regularly with distributors, farmers, and vendors all at the same time. While this consumes time on the front end, it also leads to greater efficiencies and cost-savings in the long run. Through these meetings, team members develop stronger coordination of their efforts, build common understandings of the strengths and weaknesses of various approaches, and build trust that helps them cope with unexpected change.

The nutrition services team also advances the purchasing program incrementally each week. For each potential new local item, they designate one person to lead information gathering, including meeting with the farmer/producer of that product. That product lead provides the team with information about the producer, the product, and its cost, and the team member shares product samples at the weekly meeting. After taking these steps, the team then determines whether or not the new product will be served at the facility. This information-gathering process produces considerable group buy-in and open communication, and it helps ensure that managers across each campus order the same products.

To help sustain momentum, Holcomb adds, it is critical to celebrate each "small" success and market successes to the broader community. Fletcher Allen also periodically hosts educational events for the general public. This has brought additional

[61] http://www.fletcherallen.org/about/welcome/our_history/

recognition to the facility, which in turn fosters funding opportunities. The hospital executes a wide range of activities related to local food procurement, but it has not yet evaluated these programs.

The hospital hosts three gardens, one of which was turned into a community garden with educational programming. Here, chefs meet with community members and offer weekly cooking demonstrations alongside gardening education provided by master gardeners. The hospital also raises bees on campus and hosts a farmers' market serving both employees and the broader community.

Composting has been a major priority for the facility for over 25 years. Ninety percent of disposable food service items are compostable. By 2020, Vermont will require everyone to reduce, separate, and recycle food waste/scraps (Vermont Act 148).[62] Since transporting compostables off-campus is significantly less expensive than trash disposal, this shift represents a significant financial savings to the hospital. The hospital has also taken steps to restructure food service within their facilities aimed at reducing food waste, for instance kitchens serving patient rooms were restructured to a "cook-to-order" model that reduces food waste, saves money, and promotes environmental stewardship.

As a large institution, Fletcher Allen recognizes the influence they could leverage through their food purchases, including forming community partnerships that benefit smaller local hospitals, for example, by ensuring that smaller hospitals are charged the same rate for products as Fletcher Allen. In addition to its partnerships with Vermont Fresh Network, Health Care Without Harm's Healthy Hospital initiative, Fletcher Allen was involved in the development of the state's Farm to Plate Strategic Plan in 2009, which was produced in response to a state mandate.

Key Findings and Impacts

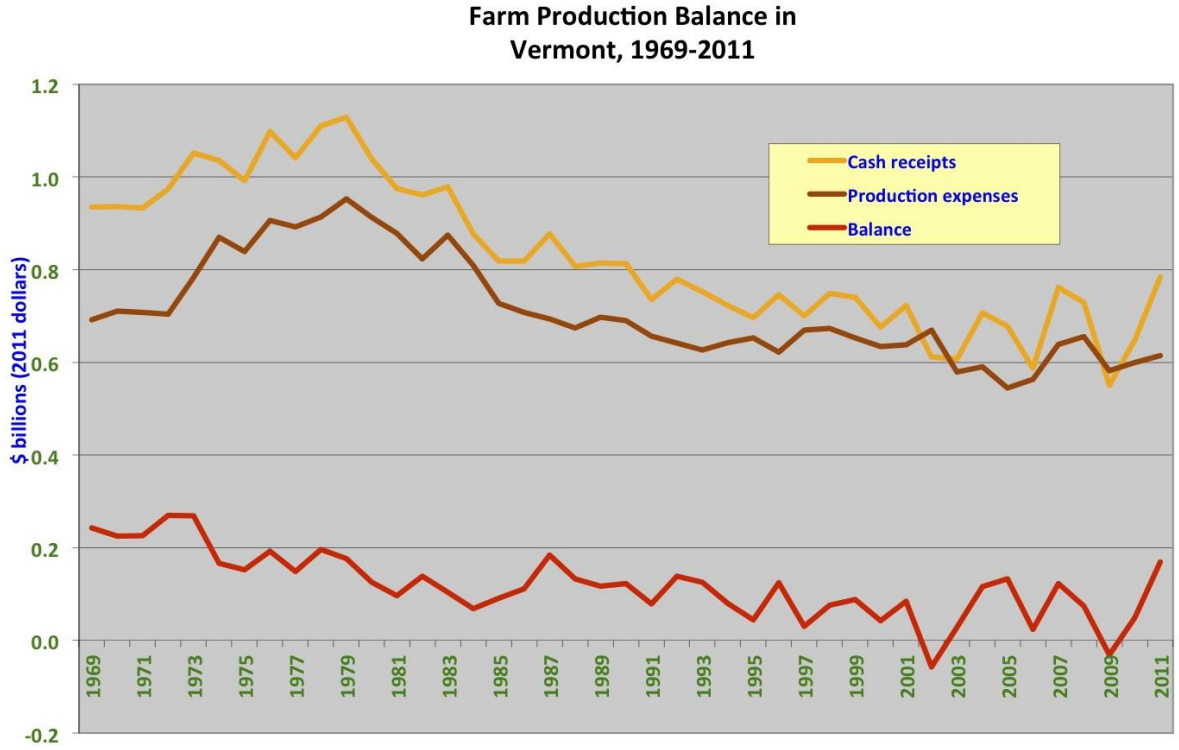
Economic and Health Trends

A small state with a long tradition of fierce independence, Vermont has a long and rich farming history. Yet, this tradition was placed in jeopardy as Midwestern lands were opened to cultivation in the nineteenth century, undercutting New England farmers, who often found themselves at a competitive disadvantage. Urban land pressure (and related increases in land prices) in the twentieth century placed further constraints on Vermont farmers. However, beginning in the early 1970s, grassroots farmers and consumers launched a potent local foods movement. This activity gained strength despite overall trends in the broader agricultural economy, which had continued to struggle. Figure 4 shows this erosion of the agricultural commodity economy; local food

[62] Institute for Local Self-Reliance, http://www.ilsr.org/rule/food-scrap-ban/vermont/

sales are relatively small compared with these trends and do not influence the data on these charts in any significant manner.

Figure 4: Cash receipts less production expenses for Vermont farms ("Farm Production Balance," also known as Net Cash Income), for 1969–2011.



Data from Bureau of Economic Analysis, Regional Economic Accounts

Even for conventional farmers, economic trends have been challenging. The 6,984 farmers in Vermont earned $73 million less producing crops and livestock in 2011 than their counterparts had earned in 1969 (in 2011 dollars to adjust for inflation). They averaged a net cash income of $77 million per year on $709 million of sales (11% of sales; data covers 1989–2011), yet net income has trended downward for decades. This amounts to an average net income of only $11,100 per farm, leaving most farm families dependent upon off-farm jobs to have more consistent income sources and to cover health insurance costs.

Given the state's closeness to agriculture, combined with these economic conditions, food is one of the first sectors Vermonters have addressed in their efforts to strengthen the state economy (the food sector accounts for 16% of the jobs in the state)[63] and to create a sense that state residents can attain their own economic, social, and environmental priorities.

[63] Conner, D., Becot, F., Hoffer, D., Kahler, E., Sawyer, S., and Berlin, L. (2013). Measuring current consumption of locally grown foods in Vermont: methods for baselines and targets. *Journal of Agriculture, Food Systems, and Community Development*.

Commodity farms were deeply dependent on inputs (for example, fertilizers, petroleum products, and machinery) that were sourced externally, creating a $250 million financial outflow each year.[64] Meanwhile, Vermont consumers purchased at least $1.6 billion of food products each year sourced outside the state,[65] resulting in a food- and farm-related outflow of more than $1.8 billion per year. Vermont has worked for years to keep more of that economic activity within the state.

There is significant room to grow the local food economy in Vermont. Conner, et al., (2013) calculated that about 423,000 acres of farmland would be required to feed the entire state population the fruit, vegetables, protein, and diary it requires; this compares to 708,000 acres of land currently in production for these major food items, out of the state's total of 1.2 million acres in farms. Yet that study measured a prevailing level of just $52 million of local food sales in the state (2.5% of the food purchased) and estimated that total local food sales were closer to $100 million once missing data were accounted for. Nearly half of the measured food sales involved direct sales from farmers to consumers.

Vermont appears to have enough land to feed itself the most essential foods; this suggests Vermont has the strategic capacity to define what foods it wishes to grow for itself, and the rest can be imported. Having the power to make such choices will become increasingly important as oil costs rise. To implement this vision, the state will need to build economic infrastructure (warehouses, food distribution routes, greater processing capacity, etc.) that creates efficient local food trade.

Vermont as a whole is a fairly healthy state, ranking first in the 2012 *America's Health Rankings* report from the United Health Foundation,[66] and forty-sixth in adult obesity according to the Trust for America's Health *F as in Fat* [67] 2013 report. Chittendon County, where Burlington is located, is ranked as the healthiest in the state in the County Health Rankings and Roadmaps. Nonetheless, though healthier than most of America, Vermont still has an adult obesity rate of 24%, and 20% of adults in Chittendon County are obese.[68] Further, 51% of students in the Burlington School District qualify for free or reduced-price meals compared to 38% in the state as a whole. The American Diabetes Association[69] calculates that Vermont spends $370 million per year treating medical conditions related to overweightness and diabetes; the state's diabetes rate is among the lowest for any state in the US Of Vermont respondents to the 2011 Behavioral Risk Factor Surveillance Survey (BRFSS), overall, only 23% of Vermont residents eat the recommended number of daily servings of fruits and vegetables. Of Vermont BRFSS respondents, 12% reported being in fair or poor health, compared to 18% overall in the US The proportion of Vermonters reporting fair or poor health has been stable at

[64] Conservative estimate using Census of Agriculture data.
[65] Estimated using Bureau of Labor Statistics Consumer Expenditure Survey.
[66] http://www.americashealthrankings.org/VT/2012
[67] http://healthyamericans.org/report/108/
[68] http://www.countyhealthrankings.org/app/vermont/2013/chittenden/county/outcomes/
[69] American Diabetes Association (2013). Economic Costs of Diabetes in the US in 2012; Supplemental Table 11. *Diabetes Care*, March 6. (Available at www.care.diabetesjournals.org)

11-13% from 2002-2012. In 2012, more than one fifth of Vermonters said their health was excellent (22%), 37% said it was very good and more than a quarter said good (29%).[70]

Health and Economic Impacts of Local Food Procurement in Burlington, Vermont

Building Social Capital and Community Connectivity

- Comprehensive local food strategies are fostered by a unique local culture that raises responsive leaders who realize they have much to gain by collaborating with each other and by building skills, knowledge, and capacity among their constituents. This represents a very mature stage of network development that predates the local food movement, and that predates significant public investment in local foods.
- Solid social and professional networks, based on building productive capacities among residents and firms, help create greater economic resilience for the region over the long term. For instance, City Market/Onion River Co-op successfully partnered with many community organizations through their Member Work program.
- Federal USDA funding for a farm to school collaborative extended resources to an empowered leadership team. The leadership team had built a strong foundation of trust and collaboration in order to make tangible progress toward a local economic development vision. Without solidifying the position of this core of visionary leaders, it would have been very difficult for the Burlington region to build the economic infrastructure needed to serve as a foundation for future development. This vision (as in other cases cited in this report) proposes development from the "inside out"; that is to say, based on the vision, needs, and priorities local residents hold, rather than based on what the market appears to dictate.

Creating Jobs and Generating Income

- Although quantitative measures were not available, it is clear that both school and hospital food purchases help retain and generate local jobs and farm livelihoods by providing markets to local producers, who have been able to take on new production in response to institutional food demand.
- In addition, collaborative purchasing by the Food Service Directors Association of Vermont has fostered sales of New England products to participating schools, with additional jobs benefits to the region (although potentially at some job loss to other regions that had formerly supplied Vermont schools).

Increasing Economic Activity and Developing Resources

[70] Vermont BRFSS 2012 Data Summary, http://healthvermont.gov/research/brfss/documents/summary_brfss_2012.pdf

Although Burlington School District reports that it has fairly complete data sets showing how much food it has purchased from local farms, the data were not available to the research team due to resource limitations within Burlington School District to collect it. Doug Davis reports, however, that the bulk of ultra-local food purchasing (within 50 miles) is done directly from local farms. This is done both to give the farmers full value for their products and to create stronger networks of connection within the local community. While purchases from the food-service-purchasing collaborative are important in establishing greater choices for the school district, and providing schools essential Vermont and New England foods, these would have relatively small impacts on the Burlington region economy itself since the farms are not necessarily trading in the Burlington economy.

As seen in our other case examples, local food purchases create direct economic impacts for farmers selling products to institutions. These impacts are primarily realized in the counties where the farms are located. In turn, each purchase also carries indirect or induced impacts, as farmers purchase inputs from local dealers and pay workers who buy from local stores. Without more detailed data, however, it is difficult to quantify these impacts.

- Burlington stakeholders are building closer economic collaboration among themselves, gaining bargaining power where possible, cycling resources as much as possible through local channels, and building consumer loyalty to local and Vermont foods. These networks, based on productive economic exchange, mutual trust, and collaborative work toward a common vision, are critical components for strengthening the local economy and promise to build larger economic multiplier effects over time.
- Long before local foods activity became mainstream, school food purchasers had recognized the wisdom of aggregating their purchases into a purchasing collaborative, not only to increase their food options and reduce costs but also to ensure they could purchase food from local farms and build local commercial networks when they chose to.
- At times, Burlington schools spend more to procure local foods than nonlocal foods, but they have devised innovative ways to hold costs neutral. This may involve, for instance, purchasing surplus products from a farm or finding additional buyers who act in concert with the school to create a volume shipment at lower prices.
- Through such actions, large-scale institutions committed themselves to promoting community economic development through their food purchases, and they did so in a way that also advanced the interests of smaller purchasers.
- Many Vermont school food services have been able to aggregate purchasing power through a collaborative. This has allowed them to more effectively demand certain foods they specify (such as Vermont-raised or sustainably produced) as well as, at times, to obtain lower prices.

- In general, Burlington area farmers do not sell to the schools through collaborative market programs. For reasons stated above, both the Burlington School District and the farmers often prefer to purchase directly. This provides maximum price and connection in the short term, but it also assumes farmers can work with a supportive food service director. Over the long term, there may be reason to institutionalize the power of farmers to negotiate.
- The popularity and effectiveness of the Burlington School Food Project, which generates political good will for policy-makers, has led to investment of additional resources for food services. Food sales alone cannot support the kitchen infrastructure required to prepare fresh foods at each school, so the school board has made new investments to increase kitchen capacity.
- The City Market/Onion River Co-op also purchases local foods, but just as importantly, it collaborates closely with the school district to help create new options for farmers, schools, and co-op consumers. This includes thousands of volunteer hours in the schools and with other community partners that had $265,000 worth of value, measured in discounts on food for volunteers. The economic importance of the co-op is as much in how it builds connections among its members, which broadly represent the community, as from the food purchased by its customers. As the co-op grows, this influence spreads.
- Hospital purchases contribute to the economic mix, although Fletcher Allen was unable to provide information on precisely how much it's purchasing contributes to either the local economy or the state as a whole. The hospital also reports cost savings through waste reductions/composting.
- Business collaborations have produced innovative products such as the use of locally produced flatbreads for pizzas in the schools.

Improving Diet and Nutrition

- In order to increase access to healthy foods for low-income students, Burlington School District eliminated the reduced-price lunch category and provides free meals to all students who qualify for the free and reduced-price meals through federal school meals programs. This pioneering move seems to have influenced the state's decision to do the same.
- By engaging students in the farm to school program, organizers believe that students consume more of the produce offered.
- Many of the locally sourced foods are of higher quality than might otherwise be available through traditional channels, for instance, organically raised chicken and high-end cheese from Shelbourne Farms.

Enhancing Student Academic Achievement

- Burlington School District works closely with a Burlington visual artist who engages children in creating art based on vegetables the students raise in school gardens, and on tasks they complete as they integrate food-production skills into curricular exercises. While quantitative data do not appear to be available, this integrated education is believed by school leaders to advance academic achievement.

Environmental Stewardship

- Burlington School District places a priority on purchasing foods that are sustainably raised by local farms; this advances the local vision for fostering environmental protection.
- As part of a partnership with Shelbourne Farms, Burlington School District students are taught about sustainability.
- Fletcher Allen Health Care, through its Healthy Hospital Pledge, works to reduce waste through composting and restructuring food preparation practices to further limit waste.

Factors for Success in Institutional Procurement of Local Foods

Interview participants from Burlington noted factors that impacted their success in ensuring or sustaining local food procurement activities and the corresponding health and economic benefits. These themes centered on:

- **Policy context.** The state policy context was an important factor for success. There is strong support among the general public for local growers, farmers, producers, and businesses. This climate has benefited the local food movement. State policies, such as the 2013 law to replace the reduced-price category for school meals with free meals, show commitment to providing healthy foods in schools. This policy change will increase free-meal access to many more low-income children. Burlington School District eliminated the reduced-price meals approximately six years ago, in recognition that even a low cost could prevent low-income students from accessing school meals.
- **Broad community support and formal partnerships.** Community-wide support for increased procurement of local foods has led to increased availability of resources and support for changes in policy and practice at the institutional level. Now the district has individuals and organizations regularly approaching them to collaborate and/or offer resources. The establishment of partnerships has also attracted invaluable resources to the school district. The volunteer hours provided through City Market/Onion River Co-op's Member Work program, for instance, has increased the school's capacity to implement local food programming for students. These help the district build and sustain its efforts, and they also require the school district to respond in-kind as the need arises.

- **Engaging students.** The Burlington School Food Project team indicated that the most successful and exciting changes happened when the students were involved.
- **Support from school leadership.** To successfully initiate and sustain local food programs in a school district requires solid support from leadership and sufficient staffing. Burlington school administrators are very supportive of the local food work. School board members place a high value on the economic development benefits of local food procurement. As a result of leadership support and resource allocation, the district supported staff positions specifically dedicated to implementing local foods initiatives. The school's commitment to local economic development increases the options available to the school and helps support local farms and food business development.
- **Diversifying the funding streams.** This has helped the district pay for and sustain local foods purchasing and educational programming.
- **Collaborative and conscientious purchasing.** Collaborative institutional purchasing by schools, while maintaining good relationships with distributors, has helped increase options for local food purchasing and maintained affordable prices. Collaborative purchasing not only helped reduce price pressure on school food services, it also provided greater choice in setting the terms of purchasing contracts and increased the available options for food service directors. Schools represented within the Food Service Directors Association have the autonomy to determine how they define "local" and the farmers and producers they prefer to work with. This flexibility in contract negotiation has also helped the Association achieve its success. Good relationships between vendors and purchasers entailed open communication. The Co-Chair of the statewide Food Service Directors Association indicated that there is a good line of communication between the association and the schools' primary food distributor. Proximity to the food-distribution company has enabled increased communication that may not have been as open if the vendor had been located out of state.
- **Leveraging hospital purchasing power and mission alignment.** Larger institutions can use their purchasing power to increase affordability of local food procurement for themselves and smaller institutions. Fletcher Allen Health Care leveraged its purchasing power to negotiate the cost of local food purchases. Fletcher Allen also convinced its vendors and farmers to retain these prices in selling local products to other smaller healthcare facilities throughout the state. As a healthcare institution, a hospital may have greater latitude to spend additional money to obtain foods that meet health specifications, objectives that can be met through local food purchasing. For example, Fletcher Allen focuses on products that are organically grown and free of genetically modified organisms, gluten, and hormones. The hospital promotes effective local foods strategies as part of its mission and active commitment to community health.

- **Recognizing successful models**. Fletcher Allen Health Care has received awards in recognition of their efforts to support sustainable, food procurement. This recognition has brought about additional resources to support and expand their efforts. Schools vary in their capacity to increase awareness about and market their local food procurement efforts; this could hinder them from gaining additional support or resources.
- **Buffering high food prices with cost savings**. Fletcher Allen implemented strategies to reduce food waste, which is anticipated to result in cost savings that would allow the hospital to buy products from farmers at higher price.
- **Planning**. By adopting a step-by-step, well-planned approach, large institutions can lead systematic change in serving local foods. Fletcher Allen's approach entails various steps: devise a plan, start off small; meet with the farmers, distributors, and vendors; commit to the vision; celebrate small successes; market successes; and leverage the organization's buying power to support other organizations.

Factors that Presented Challenges in Institutional Procurement of Local Foods

Interview participants from Burlington also noted challenges in ensuring or sustaining local food procurement activities and the corresponding health and economic benefits. These themes centered on:

- **Ensuring access for low-income populations.** Food insecure populations may not be able to prioritize the purchase of locally produced food for their households. Burlington has a high number of food insecure families as evidenced by the percentage of free or reduced-price school lunch participation. In addition, food costs in Vermont are 20 percent higher than the national average, which reduces the buying power of participants in public supplemental nutrition programs (SNAP, WIC). Including local produce in the school district's snack program and free or reduced-price lunch program increased access for lower-income populations without requiring them to pay additional costs. By eliminating the reduced-price lunch category and providing all school lunches for free to all qualifying low-income students, Burlington School District improved access to food generally, and local foods particularly, for their low-income population.
- **Schools' lack of training and basic infrastructure.** Lack of basic infrastructure and skills to prepare foods can act as a barrier to engaging/increasing local food purchases. Until recently, some Burlington schools did not have the basic infrastructure required to prepare raw produce (i.e., cutting boards, food processors, etc.). Dealing with local products may also require new, different, or additional steps in preparing the foods before they are served. These factors

contributed to some resistance from food service staff in engaging in or supporting efforts to increase local foods distributed within schools.

- **Farmer disinterest in institutional purchasers.** Farmers may not be interested in selling to institutional purchasers. Initially, Burlington School District's farm to school representatives received feedback from some local farmers and growers that they were not interested in working with the schools. Farmers were concerned with the schools' ability to pay for purchases and that schools would require that produce be processed. Regulatory requirements may also hinder farmers' interest in selling to institutional purchasers. Many distribution corporations require that farmers obtain liability insurance in the million-dollar range and/or have GAP certification. These requirements can be cost prohibitive for small farmers and ultimately act as a barrier for their inclusion in local food distribution activities. It took the Burlington School District several years to build relationships with farmers before they began to purchase a substantial number of products from local farms.
- **Prioritizing nutrition in educational settings**. Food service operates in a climate that prioritizes academics and has limited understanding that good nutrition supports academic achievement. This can create barriers in establishing or expanding not only local food efforts but also food service programming in general. For example, without that buy-in, some school staff initially argued that adding snack programs would take time away from teaching.
- **Measuring impact.** Limited resources are available to measure the impact of local food programs. Neither Burlington School District nor Fletcher Allen Health Care currently have the resources or systems in place to evaluate programs focused on local food knowledge and skills.
- **Short growing season**. The short growing season in Vermont prevents schools from purchasing local foods year-round.

Southwest Wisconsin Case Study

CDC funding: CPPW grant (2010–2012) and CTG grant (2012–2014)
CPPW and CTG Recipient: La Crosse County Health Department
Institutional purchasers interviewed for this study: La Crosse County schools; Gundersen Lutheran Hospital
Food suppliers: Keewaydin Organics/Just Local Foods, Reinhart Foodservice, Fifth Season Cooperative

Key collaborators interviewed:

- **Diane Chapeta**, General Manager, Fifth Season Cooperative
- **Mike Dvorak**, Division President, Reinhart Foodservice, La Crosse Division; Treasurer, Fifth Season Cooperative
- **Mark Hutson**, Administrative Director of Nutrition Services, Gundersen Lutheran Hospital; and Secretary, Fifth Season Cooperative
- **Kerry Johnson**, Nutrition Services Coordinator, School District of Onalaska
- **Maggie Smith**, Health Educator and Farm2School Coordinator, La Crosse County Health Department

Other key collaborators:

- Keewaydin Organics/Just Local Foods
- Wisconsin Food Enterprise Center
- University of Wisconsin Extension
- USDA Rural Development

Other key funding sources:

- Fifth Season:
    - *Buy Local, Buy Wisconsin* grant from Department of Agriculture, Trade and Consumer Protection (DATCP)
- Vernon Economic Development Association (VEDA)
    - Federal Economic Development Association
    - Food Enterprise Center
    - Five area banks: La Farge State Bank, Farmers State Bank of Hillsboro, Bank of Cashton, Viroqua Bank, and Citizens First Bank of Viroqua
    - Wisconsin Farmers Union
- La Crosse County School Districts
    - Wisconsin Partnership Program (WPP) of the University of Wisconsin School of Medicine and Public Health

Definitions of "local for food purchasers:

- School District of Onalaska: Sourced in Iowa, Minnesota, or Wisconsin. *(Each of the schools' collaborators has a unique, narrower definition of local, ranging from 35 miles to 500 miles.)*
- Gundersen Lutheran Hospital: Sourced within 150 miles of La Crosse.

Case Study Story

Long-time Agricultural Community Refocuses on Local, Healthy Food Access

In 2009, a report developed for *Pioneering Healthy Communities*, a YMCA and Robert Wood Johnson Foundation initiative, indicated that 58.2% of adults in La Crosse County, Wisconsin, were obese or overweight. In response, the **La Crosse County Health Department** helped organized the Healthy Living Collaborative, a multi-sector collaborative made up of community-based organizations, businesses, schools, healthcare organizations, growers, and other stakeholders. The collaborative's goal was to make it easier for community members to adopt healthier behaviors, and it identified three primary aims: increase community fitness and nutrition, and decrease tobacco use. In 2010, the county was one of 31 communities across the country to receive Communities Putting Prevention to Work (CPPW) grant funds from the Centers for Disease Control and Prevention (CDC) for obesity prevention. The county also received a Community Transformation Grant (CTG) from the CDC in 2012. Among other initiatives, the grants funded five positions at the health department, two of which were specifically devoted to local food procurement, including a procurement coordinator (Josh Miner) and an education coordinator (Maggie Smith). The coalition also organized itself into several committees, one of which became the La Crosse County Farm2School Program.

The La Crosse County Farm2School Program has been successful at fostering cooperation among five school districts in La Crosse County, while still allowing each district to establish its own priorities. In addition to the La Crosse County Farm2School Program, the La Crosse region is also home to other organizations and businesses that have made a commitment to procuring locally produced food, including University of Wisconsin at La Crosse, Gundersen Health System, Reinhart Foodservice, Just Local Foods, Fifth Season Cooperative, and Organic Valley. These larger-scale purchasers, both long-standing and emerging, have drawn upon capacity that has been steadily built over 40 years by farmers who created an organic food production industry in a limited-income rural region.

Many of the organic farming pioneers arrived in the 1970s, gradually building topsoil in fields that had been parched by industrial farming methods. They taught themselves how to farm, often by coming together by the hundreds in winter conferences. Many worked two or three jobs in order to build up their businesses. Now some have six-figure incomes.[71]

With decades of effort and innovation, supported by market forces like growing demand for organically grown and raised products in urban areas, southwest Wisconsin has made a dramatic transition. Although a relatively remote, once-struggling rural

[71] Conversation with Brian Wickert, chair of Fifth Season, Feb. 2012.

area, it has become what Diane Chapeta, manager of the local food distributor Fifth Season Cooperative, calls "one of the largest organic regions in the US"

This national reach is further exemplified by the Coulee Region Organic Produce Pool (CROPP),[72] now one of the leading organic food processing companies in the United States. Formalized in 1988, in the midst of a farm-credit crisis, it has grown into a nationwide cooperative involving 1,800 member farms across the United States. CROPP projects $1 billion of sales in 2013 under its trade name Organic Valley. Its headquarters are located in La Farge (population of 750),[73] just 40 miles east of the city of La Crosse.

The maturation of each of these two organic foods initiatives required decades. This illustrates how economic impacts are often constructed slowly over time—not realized overnight. Their national scope also exemplifies how cogent local action can take on wider significance.

The region's small growers slowly forged new market channels, connecting them to limited, primarily prosperous, markets in Viroqua (growers helped solidify a co-op grocery there), La Crosse, Madison, and the Twin Cities. Organic Valley, following a different model, created exceptional processed foods that would be attractive to established market channels, thereby reaching metropolitan consumers with disposable income. However, the growth of the region as a significant supplier of local foods to metro areas left unanswered the question of how residents of southwest Wisconsin would gain access to healthier foods. This was one of the foundational issues addressed by the Healthy Living Collaborative through their strategic planning activities. It was in this context that key stakeholders across the community, with the leadership of the La Crosse County Health Department, applied to the CDC for a CPPW grant in 2009 to address local obesity rates.

Community Partners Build Farm to School Collaboration

As part of positioning itself for the CPPW grant, the La Crosse County Health Department proposed to the county's five school districts a loose collaboration, predicated on the individuality of each school district but also including agreements to work across districts. The school districts of Holmen, La Crosse, Onalaska, and West Salem joined right away, and Bangor School District joined the initiative in 2011. Each school district received subcontracts to support development of their farm to school programs. The four districts that joined right away received $60,000 as part of the CPPW grant, and all five districts also received smaller grants as part of the CTG grant. Each district spent their funds in different ways, but many of them purchased equipment to help with food prep/processing, covered additional staff time to prep local foods, purchased promotional and educational materials, held trainings on food preparation, started/expanded gardens, and purchased the local food itself. Most of the money was put toward investments in equipment, infrastructure, and systems to support

[72] See CROPP Cooperative (2013). *CROPP Cooperative Roots: The First 25 Years.*
[73] US Census Bureau, 2011 estimates.

sustainable farm to school activities. Districts were also required to put an updated wellness policy into place during the grant period, and each agreed to engage in a multifunctional farm to school activity that integrated other curricular and community activities. Under this partnership model, the districts were able to fund staff time for farm to school initiatives and received support from Josh Miner and Maggie Smith, who coordinated the countywide initiative.

The health department found that engaging the districts' food-service directors as leaders for the **La Crosse County Farm2School Program** was an important key to success. Maggie Smith recounts:

> *I think the best thing we did was a setup that went directly through the food service directors, rather than a lot of the communities that had started with administrators. We thought that [by] working with the food service director we were really able to get their buy-in from the beginning. Also, they have a better idea of what they are working with and what sort of limitations they have within the school meal programs.*

With CPPW's focus on policy development as a core strategy for driving practice and enhancing sustainability, the schools adopted wellness policies that support farm to school. For instance, the School District of La Crosse's wellness policy for 2011-13 states, "When possible and feasible, [food] is derived from purchases made in collaboration with local farmers and growers for the purpose of increasing the consumption of minimally processed foods." The district defines "local" as food sourced within the three-state area of Wisconsin, Minnesota, and Iowa, but it retains some flexibility in this definition, based on availability of products. The policy also calls for serving minimally processed foods whenever possible.

To hone in on the farm to school story in the La Crosse County region, the research team interviewed Kerry Johnson, nutrition services coordinator for the **School District of Onalaska**. Onalaska is a town of 18,000 just north of the city of La Crosse in La Crosse County. The district enrolls slightly over 3,000 students in preschool-12th grade. Johnson manages a food service that covers six school sites: a kindergarten center, three elementary schools, one middle school, and one high school. The student body's racial makeup is predominantly Caucasian (83.1%), followed by Asian American, African American, and students who identify as more than one race.[74,75] The Food Service Department serves approximately 2,500 meals per day (2,100 lunches, 400 breakfasts), and 30% of the students participate in the free and reduced-price meal program.

Overall, Onalaska spends $1.3 million per year running its food service, less than half of which involves the cost of food.[76] Johnson reports that $80,000 of food items, 15% of the district's overall food budget of $600,000, were purchased under their definition of local

[74] US Census Bureau http://quickfacts.census.gov/qfd/states/55/5559925.html
[75] School District of Onalaska – Fact Sheet at a Glance Fall 2012.
[76] $600,000 of the district's budget goes to food purchases; $700,000 covers operating costs such as physical plant, staffing, and supplies.

during the 2012–13 school year. This includes purchases of vegetables, fruit, milk, cheese, beans, honey, and cranberries from local sources. Johnson features local foods on the menu four times each month during the school year. One specific menu item is a ratatouille made with local eggplant, bulk squash, and sweet potatoes. Johnson estimates that local food items are sold to the school through three main channels: 40% from Reinhart Foods, 40% from Just Local Foods, and 20% directly from farmers. This latter category includes produce from gardens on school grounds, which contribute as much as 5% of local food items procured in certain months. Increased use of locally and sustainably raised foods has largely been made possible by a cluster of food- and farm-based businesses already in place and ready to serve larger markets.

Existing Food and Agriculture Cluster Serves School Districts

From the early years of development and growth in the 1970s, farmers clustered around the small town of Viroqua, 40 miles south of La Crosse in Vernon County. This town had a creative spirit that welcomed newcomers with innovative ideas. By forming a cooperative grocery store, growers and consumers helped frame a regional vision for the local food system and launch its economic base. Out of this ferment, emerged two food distributors: **Keewaydin Organics** and **Fifth Season Cooperative**.

In 2008, local grower Rufus Haucke launched Keewaydin Organics as a distribution network for 12 family farms near his farm in Viola, not far from Viroqua. By 2013, the firm had grown to represent 70 family farms. Haucke also launched Just Local Foods, which produces and markets foods from the Keewaydin Organics network. As part of the increased focus on local foods in the Farm2School collaborative, Just Local Foods obtained a contract to provide local foods to the La Crosse school district, supplementing local produce provided through the school district's prime vendor,[77] a broadline[78] distributor, Reinhart Foodservice. At that time, Reinhart had not yet begun offering a full range of local produce. However, it was already sourcing local food items to the district that were available through regular commodity streams such as milk, cheese and cranberries.

Just as the La Crosse County Farm2School Program was gearing up in 2010, the multi-stakeholder **Fifth Season Cooperative** was being created in Viroqua in collaboration with the **Vernon Economic Development Association (VEDA)**. Fifth Season has since become a unifying force in the local food economy and is profiled below on page 94. Fifth Season was the collaborative force that brought together many local food businesses, including Gundersen Lutheran Hospital and Reinhart; Keewaydin Organics joined as a distribution member of the co-op, but parted ways in 2013 after deciding to scale back to working with a smaller number of growers.

[77] School officials told researchers that Wisconsin policies require schools to buy food through a prime vendor, so Just Local Foods achieved access to the school market only by working through Reinhart.
[78] "Broadline" is a term that denotes a food distributor offering a "broad line" of products including food and other food-service supplies.

Like the region's organic farmers, **Reinhart Foodservice** got its start in the 1970s; however, Reinhart's business model was focused on a more mainstream market. Reinhart spread from its La Crosse origins, inserting itself into larger buying networks. It now has 32 regional offices spread across the eastern part of the United States, from Minnesota to Florida and from Louisiana to Vermont.

Further strengthening the local food web, Reinhart has become a committed leader of Fifth Season, with Division President Mike Dvorak serving on the Fifth Season Board of Directors as of 2012. Both Fifth Season and Reinhart credit demand for local food by large institutions, such as Gundersen Health System described below, with facilitating Reinhart's membership in Fifth Season. Gundersen's Mark Hutson also described how this engagement grew out of a personal friendship he had with Reinhart's leader.

These clusters of food and agriculture businesses collaborate to provide a diverse assortment of local products to the districts in the La Crosse County Farm2School Program. Produce items come through both Reinhart and Just Local Foods. Centered in a historically strong dairy farm area, the districts have a choice of several local creameries, whose milk is delivered by Reinhart. The districts in the collaborative buy cheese from a factory located 20 miles south in Westby, also conveyed by Reinhart. Apples are an important crop both in southwest Wisconsin and in southeast Minnesota, just across the Mississippi River. Cranberries are raised on several long-established farms about an hour east of La Crosse. Honey and beans are produced by nearby farms.

Despite this abundance of local food within the region, respondents noted that it was sometimes challenging to meet the demand for particular products across all five school districts because of lack of availability in the supply of locally grown products. Schools have particularly stringent needs because they require specific quantities on specific days. Another challenge that some schools faced was the lack of capital equipment needed to prepare food from scratch or to process local produce so that it could be available throughout the year.

Local Foods in the Cafeteria, Classroom, and Grocery Store

In the School District of Onalaska, farm to school leaders integrate local foods into the curriculum, laying the groundwork for future economic development, improved food literacy, life-long nutrition habits, and student leadership. In this regard, Nutrition Services Coordinator Johnson particularly mentioned the school garden. With the garden serving as a visible symbol of the farm to school effort, as well as a starting point for school lessons that might include mathematics, science, home economics, health, and many other fields, the on-site growing space helps anchor student learning in a process of gaining tangible skills.

Student engagement is a key priority for the school; the farm to school program's engagement capacity has reaped rewards for the school food service itself. One group of high school students took it upon themselves to measure food scraps in the lunch program. In so doing, they learned sampling techniques, measurement protocols, and

how to carefully interpret raw data. When the study is complete, the school hopes to know more about which foods are being well received by students and what adjustments could be made to encourage waste reduction and increase fruit/vegetable consumption. They also hope to generate ideas for further research. Such activities constitute academic opportunities for students.

Along with other school districts in the county, Onalaska participates in a creative partnership with local community supported agriculture (CSA), convenience stores, farmers' markets, grocery stores, and worksites that multiply the educational, nutritional, and the potential long-term economic impacts of farm to school practices. As part of the community-wide effort led by the La Crosse County Health Department to promote consumption of fruits and vegetables, the county schools coordinate with Just Local Foods at the beginning of each school year to develop a list of locally produced foods that will be highlighted on school menus. This "Harvest of the Month" is shipped by Just Local Foods to the schools. According to Johnson, "Kids go to grocery stores with their parents and say 'Oh yeah, Brussels sprouts, we had those at school last week roasted, can we try them?' and people really do purchase what their kids want at the grocery store and occasionally that is a healthy thing." In an economic sense, this additional reach from school to home slightly bolsters the income of local growers, distributers (e.g. Just Local), and business (e.g., convenience stores, local grocers). As an exercise in networking across the community, with grocers and a food distributor taking an active role in promoting educational initiatives in the school and communities, social capital is enhanced (although difficult to measure). This also offers a lesson to those concerned with the rewards of the collaboration that has been so well implanted in the local culture.

The district also plans to implement a new policy that will eliminate "bring-your-own-food" class parties in favor of parties catered by the food service in order to improve the nutritional quality of classroom celebrations, prevent the introduction of potential allergens, and eliminate concerns about differentials in students' economic ability to provide treats. The school anticipates that this policy will have positive health effects as well as reinforce more equitable economic relationships.

Among other strategies to increase consumption of healthy local foods, the La Crosse County Health Department coordinates a program in which local college students travel to the schools to showcase new food items. Johnson, of the Onalaska School District, reports that this has generated considerable excitement among the younger students and likely enhanced their experience of the new food. This has the secondary result of building community connections and social capital among the schools, students, and college volunteers.

These practices reflect the ability of school officials to think with considerable sophistication about the food and social systems in which they operate and to intervene in ways that affect multiple levels at once, while taking discrete steps toward a long-term vision.

Johnson says that she believes she should highlight the economic impacts of the farm to school program more often, yet she also adds that the school district's prime motivation was to encourage kids to eat more fruits and vegetables and increase families' access to healthy foods in the community. By working with these community partners (e.g., CSAs, convenience stores, grocery stores, etc.) families have the ability to purchase some of the same healthy foods their children are exposed to at school. The school system viewed local food procurement as an investment in increasing the healthy food options open to future generations, not only in La Crosse County, but also in the three-state area.

Large Area Health System Focuses on Local Foods, Influences Market and Vendors

Gundersen Lutheran Hospital is also a key stakeholder for local food procurement in the La Crosse region. Located in La Crosse, Gundersen Lutheran is the flagship hospital of Gundersen Health System, which operates in southwest Wisconsin, northeast Iowa, and southeast Minnesota. Gundersen Lutheran hosts a full-service food program that includes meals for patients as well as a restaurant where the hospital's 130 employees and the general public can eat. On a typical weekday, Gundersen Lutheran's main hospital campus serves 3,000 meals. Gundersen has been a customer of Reinhart Foodservice for 40 years.

Mark Hutson, Gundersen Lutheran's administrative director of nutrition services, says that Gundersen's primary motivation to buy food locally was to promote economic development in its region. The hospital holds a more localized definition of "local" foods than the schools do, aiming for a 150-mile radius around La Crosse. Hutson estimates that in 2013, the hospital purchased about $130,000 of products from sources within this boundary. Its goal for the next few years is to source 20% of its food locally. His food service purchases ground beef patties, bulk ground beef, pulled pork, cottage cheese, yogurt, pasta, fruits, and vegetables from local sources.

To help facilitate these local food procurement goals, Hutson played a key role in forming the Fifth Season Cooperative and leveraged his long-standing relationship with an executive at Reinhart Foodservice to recruit him to the board of the cooperative. This further strengthened the web of connections that supports the development of the local food economy.

Although only about one-quarter of the hospital's kitchen staff held prior professional experience in cooking fresh foods, Hutson says that minimal training was needed for the staff to gain proficiency.

Many institutions require growers to purchase expensive liability insurance and to become GAP certified, which were often cited as a barriers to increased participation in local food-distribution systems. Because Fifth Season Co-op offers food-safety liability insurance to its members free of charge, and Reinhart Foodservice purchases from

certified vendors who are also insured, Hutson says he has few food safety concerns, even though hospitals must meet higher safety standards than other large buyers.

Overall, he estimates that food costs rise slightly during the produce season, since the hospital is paying more to source food from local farms. Still, he says, overall the hospital has held costs "pretty neutral" because staff have found ways to reduce costs on other items to compensate—for example by reducing the amount of ground beef in its chili recipe. "In some instances, we had to change the menu" to keep costs down, he notes.

In Hutson's view, the changes resulting from local food procurement have been more easily accepted by their customers because, though located in a fairly populous city of 100,000, it is in the midst of a farming region. "People here are fairly familiar with agriculture. People have ties to it," he says.

The hospital also made a key decision that would benefit small local producers. "We decided that once we get a product in, we would not switch it out based on price," Hutson said. That is to say, having decided to buy a certain product from a local farm, the food service would place a priority on maintaining its commercial relationship with that farm over the institution's short-term interest in buying at lower costs. If a farmer experienced rising input costs or found that the market had shifted (perhaps due to weather-related crop losses), the hospital would continue to buy from the farm if prices rose modestly. This places longer-term economic development issues for the region ahead of the short-term bottom line of the hospital itself; yet overall the hospital has been able to hold its expenditures fairly level. This focus on local economic development and trust-based relationships with suppliers yields additional benefits to the hospital, including the ability to negotiate special terms from vendors that might not be available from less direct transactions. One pasta maker in Madison, for example, agreed to create a new product line with lower sodium levels once Gundersen explained that their patients needed this option on the menu.

Based on the positive experience of building such local supply networks, Gundersen has now approached Organic Valley, which is expanding its produce division, to explore purchasing second-quality produce items for use in value-added processing. This takes a primary product (whole carrots, for instance) and adds value by performing a processing step (cutting the carrots into sticks). Hutson expects that Fifth Season Co-op, or an offshoot company, will perform the processing. In an initial test run last year, the co-op produced vegetable medleys and potato blends for institutional use. "The results were quite positive," he says.

Moreover, as Gundersen and Reinhart tell their professional colleagues about what has been accomplished, and what they've learned in La Crosse and Viroqua, they have found that institutional purchasers in Milwaukee and Minneapolis have begun to develop new business relationships that pay closer attention to the economic context in which the food-service programs work. This may result in building even more capacity

and stronger local economic networks in those regions, another indirect impact of southwest Wisconsin's leadership.

At the same time, close networks may also bring complexity. While Hutson serves on the Fifth Season board of directors, he must sign a conflict of interest form each year so that the dual roles he plays are made explicit to others on the co-op board. He cannot participate directly in making decisions about what the hospital purchases from the co-op. "I cannot tell them that's what we are going to buy," he says. Instead he is able to create new purchasing options for all co-op customers, from which his purchasing assistant may select.

Hutson also takes a long-term view about attaining his overall economic development goal. "As time goes by we will notice more economic impact," he concludes.

Fifth Season Cooperative Broadens the Network

Fifth Season Cooperative is helping to knit together farming circles that have been forming for more than a generation. This makes the co-op a critical node of information, financial exchange, and innovation that fuels further collaboration, broader networks, and wider economic impacts.

Fifth Season is a hybrid food cooperative, in which all the primary stakeholders of the regional food distribution system (producers, producer groups, class A buyers, processors, distributors, and workers) are represented on the co-op board. This hybrid co-op model is favored in Europe, but often overlooked in the United States, as USDA co-op specialist Margaret Bau points out.

In just three years, Fifth Season has established itself as a solid cooperative that aggregates sustainably grown local produce, raised under Good Agricultural Practices (GAP) food safety protocols, to supply regional markets within a 250-mile radius of Viroqua. These markets include several cities: Madison and Eau Claire, Wisconsin; Dubuque, Iowa; and Minneapolis-St. Paul, and Rochester, Minnesota. The co-op's goal is "to build a robust regional food system that supports a healthy environment, a strong economy, and thriving communities." In order to accomplish that mission, Fifth Season makes concerted efforts to engage members who "represent all of the key players in the food system at the local level."

As of the summer of 2013, Fifth Season had attracted 33 farmers/producers (e.g., Harmony Valley), 3 producer groups (including Organic Valley), 10 processors, and 5 Class A buyers (including Gundersen; a university; and the Viroqua, West Salem, and Menominee public schools) as members. Workers contributing labor to the co-op are included in the membership body.

Fifth Season opened for business in 2011, selling $60,000 worth of products. This followed two years of patient formational work that established lasting agreements on how to work together and make sure everyone's interests would be well represented over the

long haul. In 2012, despite a crushing drought, the co-op more than doubled sales to $140,000. The co-op projects even greater growth in 2013, with total sales of $310,000.

This is rapid growth for a start-up, and especially for a firm that is charging 10 to15% above conventional prices. It established its niche by buying from farms that are not using chemicals and working with small and mid-size farms. Operations Manager Diane Chapeta says the co-op does "not deal with large farms." The co-op attributes its success to the strong networks it has formed in the region and to the careful initial work it undertook to reduce the potential for long-term conflict among food-system players.

Margaret Bau, cooperative development specialist for USDA Rural Development, brought the hybrid co-op model forward to the community as a way to defuse potential tension that often plagues efforts by small farmers selling to institutional markets. Farmers often relate one version or another of a classic confrontation they face when they try to sell to larger buyers. Buyers may agree to a reasonable price at the start of the season. Mid-season, they may call back to try to renegotiate price points or cite examples of other farms willing to sell for cheaper in an effort to get more products for their dollar. Especially in the case of growers who have taken on new debt to reach this promising new market, often with encouragement from these same buyers, this is a terrible blow that can be fatal to an expanding business. While they were hoping to recover their investment on higher sales, many feel they have no choice but to accept lower prices if they are to repay their debt.

Fifth Season seeks to establish a fair pricing system that is in the interests of all parties to uphold. Fifth Season provides product liability insurance to its members at no charge. The co-op also provides Good Agricultural Practices (GAP) training, Hazard Analysis and Critical Control Points (HACCP) training, Quality Assurance training for fresh produce, and annual audits for each protocol. Larger buyers implicitly recognize they have more to gain over the long term by maintaining the trust of their growers and ensuring that the farms that supply them are financially strong, rather than by putting them in a financial squeeze.

Chapeta says that the co-op does not think in terms of *partnerships*, but rather *memberships*. Each stakeholder plays an immersed role as a member of the co-op, working to uphold a lasting vision. As Chapeta says, "We needed an organization that could blanket the entire infrastructure." This effective collaboration is due in part to the exceptional social connectivity established within the community. The co-op and Healthy Living Collaborative are just two examples of successful multi-sectoral partnerships aimed at changing the local food system.

Engaging Reinhart Foodservice in the co-op was a strategic calculation that helped reduce risk. Initially some co-op members wanted to build their own distribution network. Yet once they realized the costs of maintaining such a fleet, and once they realized that Reinhart would get involved on the management team in an open and respectful way, co-op leaders realized they would be able to extend the firm's reach through Reinhart rather rapidly, with little up-front financial investment of its own.

Chapeta points out that the process also required very tangible investment: three months of staff time were devoted to the paperwork required to form a formal collaboration with Reinhart.

In its first three years, Fifth Season Co-op has built strong reach. Some participants in this study noted that they knew of institutions interested in serving more local foods that were deterred by the need to handle regulatory issues, such as ensuring GAP certification and purchase of liability insurance. By eliminating the need for the purchaser to handle these regulatory issues, Fifth Season minimizes this barrier. As the first local producer group to pass Quality Assurance with Reinhart's La Crosse division, the co-op wholesales to food services through Reinhart and sells to secondary schools in four counties, as well as joining forces with Keewaydin to reach other accounts. Reinhart alone gives the co-op access to 218 institutional food services, with 5,000 more through its partner distributors.

Each winter the co-op convenes a "Growers Meeting." This annual gathering brings together growers, co-op staff, and Reinhart buyers to discuss and determine the fresh produce items and estimate volumes to be purchased in the upcoming season. The farmers decide which products they want to raise and how many acres they will devote to it. A price range is set based on the previous year's sales—farmers know it will not fall below a minimum level, but they also understand that it will not rise to extreme levels either.

As of the summer of 2013, Fifth Season carries 85 different products. While it has launched its business primarily with produce sales, the co-op also recognizes that its future survival depends on being able to offer a wide range of products. "We can't just be fresh produce," Chapeta warns. She calculates that the co-op will be self-sustaining once it reaches $1.5 million in sales. The co-op is currently subsidized through membership fees and local investors who must make a five-year commitment to become shareholders.

Fifth Season Co-op is located in Viroqua's Food Enterprise Center, founded in an abandoned factory in 2009 to host several emerging food-related businesses. Keewaydin Organics is also located in this building, providing opportunities for close collaboration.

In a very real way, Fifth Season Co-op and the Food Enterprise Center have knit together the food system of southwest Wisconsin into a much more diverse, self-determined, and competitive commercial engine. Far beyond the actual sales levels and their financial impacts, they are steadily creating the very connective tissue that would allow wider economic impacts to flourish.

Yet the financial impacts of these partnerships should not be overlooked. Economically new options have been created for farmers and food buyers, new efficiencies have been created through local coordination, and a financial foundation has been built that supports innovation and new ways of doing business that are not otherwise supported in the prevailing economic system.

Key Findings and Impacts

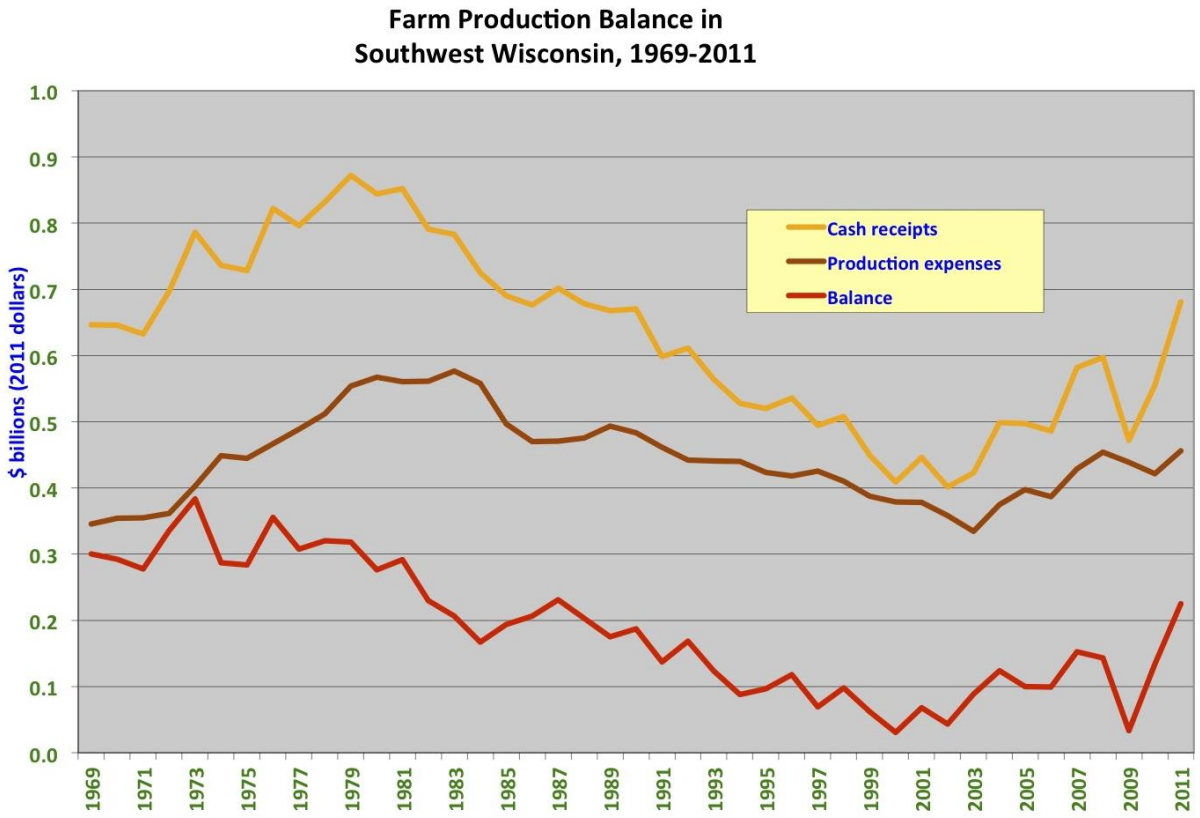
Economic and Health Trends

Even for conventional farmers, economic trends have been challenging. The 8,344 farmers[79] in the five counties closest to the communities of La Crosse and Viroqua—Crawford, La Crosse, Monroe, Richland, and Vernon Counties—earned $76 million less producing crops and livestock in 2011 than their counterparts had earned in 1969 (in 2011 dollars to adjust for inflation).[80] They averaged a net cash income of $111 million per year on $530 million of sales (a cash income of 20% of sales), yet net income has trended downward for decades. This amounts to an average net income of only $13,300 per farm, leaving most farm families dependent upon off-farm jobs for more consistent income and to cover health insurance costs. Moreover, their farms were deeply dependent on inputs that were sourced externally, creating a $170 million financial outflow each year.[81] Meanwhile, consumers in the five-county area purchased at least $300 million of food products each year sourced outside this region.[82] This is demonstrated in Figure 5.

Local food purchases have direct economic impacts for farmers selling these products, which are realized more in the counties and nearby states where the farms are located than in La Crosse County where the procurement took place. In turn, each purchase also carries indirect or induced impacts in the producer communities, as these farmers purchase inputs from local dealers and pay workers who buy from local stores.

Figure 5: Cash receipts less production expenses for southwest Wisconsin farms ("Farm Production Balance," also known as Net Cash Income), for 1969–2011.

[79] Census of Agriculture, 2007
[80] Bureau of Economic Analysis, Regional Economic Accounts, available at http://www.bea.gov/regional/
[81] Conservative estimate using Census of Agriculture data.
[82] Estimated using Bureau of Labor Statistics Consumer Expenditure Survey.



Data from Bureau of Economic Analysis, Regional Economic Accounts

La Crosse County, and Wisconsin as a whole, face critical health challenges as well. While La Crosse County ranks near the top (21st) of Wisconsin's 72 counties on the County Health Rankings,[83] it ranks 60th in physical environment, which includes measures of food access; 5% of low-income county residents do not live close to a grocery store, and 51% of restaurants in the county are fast food restaurants (compared with 41% in Wisconsin overall, and the national benchmark of 27%). Obesity and overweight are major health issues. As is true nationwide, data from recent years indicate that rates of adult obesity are improving. The La Crosse County adult diabetes rate of 7% is slightly less than Wisconsin's overall rate of 8%. Overall, 22.7% of Wisconsin residents eat the recommended number of daily servings of fruits and vegetables,[84] compared to 23.4% in the United States; among youth, 19.1% eat adequate servings of fruits and vegetables, compared to 22.3% of all youth in the US

While the institutions engaged in local food procurement have goals related to enhancing health, promoting the local economy, and building community, they do not consistently evaluate these impacts due to lack of time, resources, staffing, and/or expertise to track and evaluate outcomes. Rather, each institution assumes that the

[83] County Health Rankings and Roadmaps 2013, University of Wisconsin Population Health Institute. http://www.countyhealthrankings.org/app/wisconsin/2013/la-crosse/county/outcomes/overall/snapshot/by-rank

[84] rates not available for specific counties

enthusiasm they enjoy from students, parents, and customers concerning local purchasing leads not only to more sales for local farmers, but also influences the adoption of healthier eating habits.

Maggie Smith of the La Crosse County Health Department shares that in the absence of solid quantitative metrics, she relies on the enthusiasm she encounters from parents as a measure of progress: "The biggest pushback we get from parents is that we are not doing even more."

Health and Economic Impacts of Local Food Procurement in Southwest Wisconsin

Building Social Capital and Community Connectivity

- Existing, solid community partnerships have been enhanced through local, state, and federal funding sources. These fostered new collaborations, based on productive capacities, and advanced a local vision that the region could develop according to its own priorities, from the "inside out," and draw upon existing assets as a starting point.
- By forming stronger social and professional networks that built new productive capacities, southwest Wisconsin food leaders formed two innovative new businesses and wove more effective collaboration among food firms. This promises to build stronger economic connections, with greater economic multipliers, and with hope, more resilience over the long term.
- Student engagement in local food activities through hands-on learning about local food production and healthy living (for example, active engagement in gardening, fostering worm composting, student-led evaluations of the food-waste stream, and passing along new foods and skills to younger students) provides leadership opportunities for youth and contribute to a stronger, more sustainable food system in future years.

Creating Jobs and Generating Income

- Businesses, farmers, and suppliers have co-created innovative new businesses and products that will generate new income by honestly sharing information with each other about potential market opportunities, gaps in supply, and openings for collaboration.

Increasing Economic Activity and Developing Resources

- Institutional purchasers committed themselves to promoting healthy eating habits and/or local economic development. When possible, locally sourced food was preferred because they were minimally processed.

- Gunderson Health System purchased $130,000 of local food. In addition to these direct sales impacts, additional multiplier effects were also likely. However, these are relatively small and difficult to measure precisely.
- Food aggregation intermediaries built substantial new business, spurred on by relatively stable institutional markets and fueled by local, state, and federal funding.
- For school districts, the emergence of multiple distribution channels created new flexibility in meeting produce needs.
- Institutional food purchases would have been unlikely had federal funds not been allocated to hire staff coordinators, to invest in food purchases, and to support resource attainment such as trainings, materials, and equipment for food preparation and storage.
- Food service directors also report cost savings through waste reduction.
- The formation of a new cooperative distribution business, Fifth Season Co-op, offers small to mid-sized producers and processors an opportunity to sell their products into the larger food system. The co-op addresses gaps in the food-system infrastructure in order to connect growers with institutional buyers. They also teach Quality Assurance standards to its members. These efforts have generated significant revenue.

Improving Diet and Nutrition

- Four school districts in La Crosse County (Holmen, La Crosse, Onalaska, and West Salem) revised district wellness policies to encourage the consumption of fruits and vegetables throughout the school day by supporting components like promotion of healthier snacks during school events and celebrations. Some school districts also added language that favored sourcing of local foods when possible and feasible for the purpose of increasing the consumption of minimally processed foods.
- School districts and the La Crosse County Health Department coordinate community nutrition education and outreach programs targeted at the broader community (e.g., parent cooking classes, Harvest of the Month in schools and grocery stores).
- School curriculum integrates gardening and consumption of local foods, leading to:
    - (Anecdotally) Increased student fruit and vegetable consumption behaviors.
    - Increased student knowledge about the benefits of unprocessed foods and locally grown foods.
- Growers, producers, and food distributors assert that increasing access to local foods yields more nutrient-rich produce because it is available closer to peak freshness.
- Several important food businesses in the region adopted a mission of advancing health among their customers (Just Local Foods, Fifth Season Cooperative, Gundersen Lutheran Hospital).

- Gundersen Lutheran Hospital is working with one local business to develop custom, low-salt, minimally processed products, accommodating patients' dietary needs.

Enhancing Student Academic Achievement

- Schools are taking steps to integrate food literacy (and related topics such as environmental stewardship and sustainability) as part of academic curricula. For instance, high school students in Onalaska School District led a plate-waste study as part of curricular activities. Study results led to the school district's development of a composting program.

Environmental Stewardship

- Students gained knowledge of how food choices affect the environment.
- Schools are beginning to take measures to address/decrease food waste (e.g., through food preparation practices, school composting activities, etc.).

Factors for Success in Institutional Procurement of Local Foods

Interview participants from southwest Wisconsin noted factors that impacted their success in ensuring or sustaining local food procurement activities and the corresponding health and economic benefits. These themes centered on:

- **Forming productive partnerships.** This was a key theme related to success. Partnerships engaged food service directors, other school staff, growers, and food distributors in activities that produced results and built an open exchange of information. Participation by multiple stakeholders, operating out of considerable mutual respect, offered opportunities to leverage limited resources for multiple benefits. Engaging all key stakeholders meant that no one felt excluded from important discussions, and it also improved communication and efficacy across the network. Collaboration allowed for cost reductions, as well as continuing connections of trust when prices rose. Formal mechanisms reduced potential conflict and incentivized collaboration.
- **Engaging students and customers.** Interview participants discussed the importance of engaging students and other customers by integrating food lessons throughout school curricula and by hosting public education efforts that would draw new people into collaboration. Many students and community members developed new leadership skills through their participation, and all programs encouraged constituents to take action on their own behalf, freely making choices that were in their own self-interest.
- **Establishing support from school, hospital, and corporate administrators.** Clear support allowed staff to spend less time trying to create buy-in, freeing them up to focus on implementation of local food procurement activities. It led to

increased sense of ownership by staff and allowed external partnerships to be formed with more ease.

- **Making lasting commitments.** For example, at times when local food purchases became more expensive, staff endeavored to hold costs neutral. The hospital reported that overall food costs have not risen a great deal. This established a commitment to community economic development and built credibility and trust with growers.
- **Funding.** Money designated for local food procurement created a climate that allowed food service staff to take on or expand these activities with less risk. Funding was also used to secure capital equipment (e.g., coolers, food processors) that created efficiencies and maximized food output.

Challenges in Institutional Procurement of Local Foods

Interview participants from southwest Wisconsin also noted challenges in promoting, fostering, and sustaining local food procurement activities and the corresponding health and economic benefits. These themes centered on: supply and demand, dealing with regulatory issues, economic "leakage" that diverts income or funds from the local economy, and establishing effective evaluation procedures.

- **Supply and demand.** Participants from all sectors discussed issues related to the lack of available supply of the same locally grown products to meet the demand across all five school districts. Schools in particular had the most stringent needs, because they required specific quantities on specific days.
- **Regulatory issues**. Growers interested in selling to an institution are required to be GAP certified and purchase expensive liability insurance. This was often cited as a barrier to increased participation in local food-distribution systems. At the same time, some participants noted that they knew of institutions interested in serving more local foods, but they were deterred because of the regulatory issues.
- **Economic leakages**. The mainstream food-production and handling infrastructure in Wisconsin and the United States results in economic leakage, since consumers at all levels have few choices but to purchase from distant sources or from local suppliers that are distantly owned. These leakages negatively affect both the local and national economies, since weakened locales are limited in their ability to save, innovate, and grow, often incurring social costs and/or public subsidy.
- **Establishing effective evaluation procedures**. Health department staff noted the difficulties of adapting evaluation methods to fit the unique needs/activities of their local community. Other challenges included ensuring high response rates and creating opportunities for direct communication with parents/teachers to solicit feedback.

- **Lack of capital equipment**. Some schools are not equipped to prepare food from scratch, nor to process local produce so that it is available throughout the year.
- **Balancing affordability and fair value for local foods**. Food service directors must stay on budget. Community advocates may not always understand why a school is unable to buy more food from local sources. Finding a price point that is high enough for farmers and yet low enough for institutional buyers proved a challenge.
- **Prioritizing food service in educational settings.** Food service is often undervalued or not a top priority within the educational setting, despite its role in academic success (children who are hungry are not able to concentrate on learning).
- **Marketing the value of the meal**. Often community members are unaware of the value of the meals provided at schools. For under $3, a student can receive a meal that meets the nutritional standards of the federal government, provides variety, and is at least partially sourced from the local community.
- **Local foods may require extra steps**. Food service staff often need to take extra steps cleaning or preparing locally grown produce, because these may arrive in a raw form.

San Diego County Case Study [85]

CDC funding: CPPW grant (2010–2012) and CTG grant (2012–2014)
CPPW and CTG Recipient: County of San Diego

Key collaborators interviewed for this case example:

- **JuliAnna Arnett,** Senior Manager of Operations and Food Systems, San Diego County Childhood Obesity Initiative
- **Eric Schoeppler**, Contract Specialist, San Diego County Unified School District

Other key collaborators:

- Local growers
- San Diego County Farm to School Taskforce
- San Diego Hunger Coalition
- Whole Foods Market

Case Study Story

A Three-Tiered Definition of What Constitutes Local Food

San Diego Unified School District (SDUSD) and the San Diego County Farm to School Taskforce both use a three-tiered definition of what constitutes local food.[86]

San Diego Unified School District:*

- San Diego Local. Grown/raised within 25 miles from the San Diego county line.
- Local. Grown/raised within a 150-mile radius of the SDUSD Food Services distribution center.
- Regional. Grown/raised within a 250-mile radius of the SDUSD Food Services distribution center.

*Although the school district requests this information during the bid process, and favors more local products, data regarding local purchases is not separated by tier.

San Diego County Farm to School Taskforce:

- Local: Grown/raised in California within 25 miles of San Diego County.
- Regional: Grown/raised in California within 250 miles of San Diego County.
- California: Grown/raised within the state of California.

[85] The research team only interviewed two people from San Diego. This case study is therefore presented as a high level profile. See p.8 for more information on methods.
[86] San Diego Unified first developed the definition and then it was also adopted by the county Farm to School Taskforce.

According to JuliAnna Arnett, senior manager of operations and food systems of the San Diego County Childhood Obesity Initiative, there are several reasons for using the three-tiered definition:

- **California-grown produce is abundant:** As the producer of approximately half of all produce grown in the United States, using the broadest state-level definition of local sets a low bar for meeting goals to increase local food purchasing. The more limited tiers were added to better support local agriculture and the economy in San Diego County.
- **Fostering relationships:** The decision to include caveats allowing food sourced within 25 miles of the county to qualify as locally sourced and within 250 miles to qualify as regionally sourced was based on nurturing a specific partnership with a set of growers who were at that time attempting to form a collaborative.
- **Creating markets for produce grown in San Diego County:** San Diego's Mediterranean climate makes it ideal for most agricultural products; however, the high cost of land and water pushes producers toward crops with high dollar returns per acre. As such, San Diego County's 6,687 farms primarily produce nursery stock, floriculture, and avocados. Specialty crops — fruits, nuts, vegetables, and niche meats — are also major contributors to San Diego's agricultural outputs.

Laying the Groundwork for Local Food Procurement in San Diego County

The groundwork for increasing local food procurement in the **San Diego Unified School District** began over ten years ago when Gary Petill, director of food service, made a proactive decision to purchase healthier foods for school meals.

According to Eric Schoeppler, the district's contract specialist:

> *Our director has always been very aggressive and committed to trying to buy healthier food and local foods. Ten years ago, he began putting salad bars in all our elementary schools–that was a pretty big thing back then. He had salad bars installed at our elementary schools, so students could have fresh fruits and vegetables every day. At the beginning, the local piece wasn't as strong as it is now, but he'd always wanted to do that.*

Funding provided through a CDC Communities Putting Prevention to Work (CPPW) grant was foundational in the effort to increase the district's purchasing of locally sourced foods. The funding made it possible to hire a dedicated farm to school specialist to help solidify the farm to school lunch program, a partnership between San Diego Unified School District and local farmers. The district was poised to take advantage of the opportunity to bring on someone with focused expertise to help drive the program forward. San Diego Unified is the second largest school district in

California, serving over 132,000 students from preschool through grade 12, at 235 school sites. The district has dedicated itself to increasing local food offerings on its menus. In 2013–2014 school year, the district intends to spend 15% of their food budget on locally procured items, jumping from a baseline of 2.5% of its total food purchases in 2010–2011, and 7% in 2012–2013.

At the same time that the district was building its local purchases, it also began to participate in regional conversations about building collaborative approaches to farm to school in San Diego County in a way that engaged local growers and the 42 school districts in the county.

In 2010, the **San Diego County Farm to School Taskforce** was formed as a way to begin a broader dialogue on local food procurement in county schools. Over time, the taskforce formalized and grew to include a wide range of local stakeholders, including food service directors from many districts in the county, growers, food distributors, and public health officials. The taskforce has a two-part mission to increase consumption of local and healthy food and to improve food literacy in schools.

The Farm to School Taskforce is now a subcommittee of the **San Diego County Childhood Obesity Initiative**, a public/private partnership that works to create healthy environments that reduce and prevent childhood obesity in the county.[87] The initiative works in seven domains identified as most important to creating healthy environments: government, healthcare, schools and after-school, early childhood, community, media, and business.

Vision for a Countywide Farm to School Taskforce

The vision of the Farm to School Taskforce is that "San Diego County schoolchildren enjoy healthy foods that maximize seasonal and local products that bolster student achievement and wellness."

JuliAnna Arnett, senior manager of operations and food systems for the San Diego County Childhood Obesity Initiative, explained:

> *For the Farm to School Taskforce, a lot of the work at the very beginning was…trying to get the growers and the school districts on the same page. We helped to make sure that it was a countywide initiative and that anyone who wanted to participate in this process could. The first couple of meetings were really getting people on the same page. We've done activities like creating documents to aid partners in communicating with vendors about the desire to support local products, creating*

[87] The San Diego County Childhood Obesity Initiative is coordinated by Community Health Improvement Partners (CHIP). CHIP is a San Diego-based nonprofit that convenes and manages health-related partnership initiatives. CHIP was engaged to direct and implement the San Diego County Childhood Obesity Initiative because it had established a model for leading high-level multisectoral collaborations.

seasonal availability charts to facilitate menu-planning around available produce, hosting a showcase to highlight local producers, working with schools to come to a consensus on a unified definition of what constitutes local produce, holding a growers' workshop around the school market, conducting a survey of food service practices to come up with standard language and definitions around local sourcing and holding basic trainings on how to incorporate local procurement-type language into the solicitation process.

In order to achieve its vision, the Farm to School Taskforce emphasizes a number of collaborative principles in its work:

- **Building relationships between diverse stakeholders**. The Farm to School Taskforce convenes a group of school food service directors, distributors, growers, public health advocates, and other key stakeholders to develop a **comprehensive approach** to increasing local procurement in the San Diego County school district.
- **Securing buy-in through engagement in the process**. As an example, to cultivate champions of local food procurement among growers, the San Diego County Childhood Obesity Initiative engaged growers in the development and design of a produce showcase and secured participation by 13 area farms
- **Promoting communication and transparency among parties**. Starting conversations between stakeholders on their needs, gaps in existing resources, common goals, and the connection between local food, community health, and student achievement.
- **Sharing best practices, tools, and resources.**

San Diego Unified School District – Increasing Local Purchases

Direct Purchasing Impacts:

- School Year 2013–2014 Goal:
  15% of $3.6 million food budget is locally procured, or $540,000
- School Year 2012–2013:
  7% of $3.4 million food budget was locally procured, $240,000
- School Year 2011–2012:
  4-4.5% of $2.8 million food budget was locally procured, $112,000
- School Year 2010–2011:
  2.5% of $2.4 million food budget was locally procured, $60,000

According to state regulation in California, any commodities that cost over $3,000 must be sent out for bid or request for proposal (RFP), and in a district the size of San Diego Unified, nearly all produce orders meet that requirement. The existing contract structure for the district was based on soliciting competitive bids from vendors, and selections were predominantly based on lowest price. There were two sections to the bid:

preprocessed items (chopped romaine, sliced apples) and whole fruits. Locally sourced foods were not taken into consideration during the bidding process.

With the move toward increasing local purchases beginning in 2010, the contract negotiator and the farm to school specialist worked over a period of months to transition to an RFP structure that added a third section on local foods. The new RFP structure provides more leeway in evaluating vendor proposals by taking into account not just price, but factors like a farmer's proximity to the schools or which distributor has the best local network of farmers. The opportunity for a school district the size of San Diego County Unified School District to make local purchasing a reality likely lays in San Diego being such a significant agricultural community to begin--there are an abundance of local farms and resources to tap.

As part of the structural overhaul, the contract negotiator and farm to school specialist embarked on an extensive information-gathering process to meet with farmers and distributors to better understand their capacity to meet orders, to track produce availability, to make projections around travel considerations, to set realistic expectations for growers, etc. Anticipating some heel dragging from the legal department, the farm to school specialist provided different RFPs or bids that had been done regarding local produce in districts around the country to help overcome institutional reticence.

Changing food-service contracts and bidding structures for a school district as large as San Diego Unified was a formidable task. As Eric Schoeppler attested: "It was a major task. I didn't think we were ever going to get through it, but we did." He emphasized that the work has been worthwhile since the district has been able to see significant increases in locally sourced menu items over three years. The process yielded important lessons for other districts looking to increase local food procurement:

- **Buy-in at the top administrative levels is crucial.** The groundwork for increasing local food procurement actually began over ten years ago with the food service director's proactive and longstanding commitment to purchasing healthier food for schools. That staunch dedication became even more important through the challenging process of getting the legal department to approve the new contract structure. According to Eric Schoeppler, "It really hails back to our director and our assistant director being 100 percent committed to the farm to school program. I can't state that enough how getting buy-in from the top makes it much easier to move down the track."

- **The process itself can be revealing and useful**. As much paperwork and red tape as it might entail, the process can be made to work effectively. San Diego Unified went through an extensive period of meeting with produce companies and vendors to solicit their feedback on how to proceed. Through that, the district was able to set realistic expectations in terms of the vendors' ability to meet demand. They also made the surprising discovery that what the district thought would be exacting and demanding requirements actually weren't: the

vendors had good networks, or at least good enough to continue building in anticipation of the future collaboration, and specialists on staff dedicated to working with institutional purchasers of local produce. The process also created opportunities for dialogue among stakeholders. The district was able to bring vendors to meet directly with local farmers, removing any middlemen. What emerged was that the barriers were less than they anticipated. Through talking directly, vendors, farmers and the school district were able to collectively work through the challenges to develop contracts that worked for all parties.

- **Having a dedicated point person is important to the program's success.** There will be a significant amount of work in the front end to usher in a new contract structure, so having a point person to take the lead in driving the process forward is important. Also, local food procurement is reliant on relationships, like finding distributors who can handle the volume of food orders needed for major districts. A farm to school coordinator can help make those connections and do all the legwork associated with finding these partners. Eric Schoeppler explained:

  > *I don't think we would have gotten over the hump without the farm to school specialist. I think one of the things that has worked really well was having a point person that could focus on the key job, which in the beginning was getting out and doing all the legwork herself. I think this works well with having a person that can be dedicated and committed to just that function, even though she did other things. I'm not sure without that how much success we would have had.*

  The dedicated farm to school specialist has been able to use creative and flexible approaches to drive the program forward and help mitigate potential barriers, such as finding distributors who could handle the volume of the orders and responding to constantly shifting ordering needs, as well as the challenges posed by existing vendor contracts. The farm to school specialist is crucial to the ongoing work in ensuring that there is a key person dedicated to recruiting growers, communicating information and mediating among all stakeholders.

Maximizing Success and Impact Countywide Moving Forward

The Farm to School Taskforce recently conducted a baseline survey of school food service staff in San Diego County to better understand "what we were doing as far as local sourcing so that we can measure future efforts more scientifically, better identify opportunities and challenges, and [generate] market data for our growers and distributors to help them move forward their work and also connect with the districts that are interested in opportunities related to farm to school." Twenty-four of forty-two school districts in the county responded to the survey, and a full report of the results is available online at: www.ourcommunityourkids.org/media/107089/f2s%20baseline%20survey%20report_12.5.13.pdf. The biggest concerns regarding purchasing local foods were delivery, ordering, food safety, and volume requirements being too large for local growers. The top

activities that would encourage purchase of local, regional, and California product were competitive pricing, partially processed products, food safety assurances, high quality product, regulations that make it easier to purchase directly from farmers, and additional facilities/equipment in the school district to prepare food.

The goals of the Farm to School Taskforce moving forward are to focus on relationship building, help build on successes at San Diego Unified to increase local purchasing by schools throughout the county, address issues raised in the baseline survey, and increase local food procurement countywide. JuliAnna Arnett explained:

> *I think that we have worked very closely with San Diego Unified to really leverage their process and making sure that they're more consistent and regularly passing throughout San Diego County. When we pulled in a grower who we knew had more of a collective model, we were able to increase the number of schools that were regularly participating in farm to school quite quickly.*

San Diego Unified is confident that its ability to make major inroads in local food procurement will be an example to other, smaller districts on the Taskforce. Eric Schoeppler explained:

> *After this contract was completed, we met with…the smaller districts in the county. A lot of them now feel that, because of what we did, they can possibly make it work for them, too. I'm hopeful it's going to be a successful thing for other districts.*

CONSIDERATIONS FOR IMPACT ANALYSIS

Critical Analysis of Economic Impact Methodologies

By Ken Meter and Megan Phillips Goldenberg

Brief Introduction on Economic Impact Analysis

Increased interest in local food systems has sparked increased investment, whether at the consumer level (price premiums at the local farmers' market), the regional level (development of a food hub), or the institutional level (farm-to-institution programs). This has fueled a recent rebirth of interest in economic impact studies covering food systems. While these studies vary greatly in their approach and methodology, the conclusions are almost always the same — investments in the local food system yield positive economic impacts. The magnitudes of these impacts are a topic of hot debate, as are the types of food systems investments that render the best return on investment. Results can vary widely depending on the quality and quantity of the data available, the assumptions made, the different scenarios modeled, and the validity of the approach taken (Crompton, 2006).

Due to the complexity and cost of prevailing economic impact analysis (EIA) models, a very real practical issue surfaces when considering the use of economic models in community foods contexts: Should resources be allocated to economic modeling, or to building the foundation of local food trade?

In general, EIA estimates several "ripple effects" that a given new revenue stream, investment, event, policy, or program may have on a given locale. Typically, these EIA studies use mathematical models to suggest what would happen if a new source of revenue created a change from current conditions. EIAs may also be used to pose future "what if" scenarios for a specific area.

These estimated impacts are quantified as new economic outputs, typically jobs and personal income. For example, an EIA of a proposed tax increase to support the local school system might predict a loss of jobs in the private sector, and a gain of jobs in the public sector. In the context of this project, a common use of EIA would be for policy makers who are interested in estimating the number of new jobs or new personal income (outputs) that would be gained if a certain amount of money were invested (inputs) in purchasing food from nearby farms.

The term "economic impacts" is often misused in common discourse. Often the term is misleadingly used to identify "spending" (an expense to the school, and revenue for the producer) rather than the "impact of spending" (outputs). For example, one might hear a school nutrition director describing the economic impact of a farm to school program in terms like this: "We made an impact of $200,000 in new food purchases." A more technical definition of "impacts" would focus on how this expenditure rippled

through the local economy to create new jobs or personal income, as in: "Our investment of $200,000 to buy local foods created an additional $63,000 of income for local residents." In this example, the $200,000 initial input is considered the direct impact, whereas the $63,000 additional income is an indirect and/or induced impact, and the total impact is $263,000.

Economic Multipliers and Community Connectivity

Impact calculations are often posed as an economic "multiplier." The multiplier is a measure of how many times a dollar earned in a given geographic area cycles through that locale before it leaves. For example, if an EIA focuses on jobs, it might estimate the ratio of new jobs that will be created by an investment of a certain amount, compared to employment found under prevailing economic conditions. To use a more abstract way of thinking about this, a multiplier is the ratio of new outputs to new inputs.

At minimum, a multiplier must be 1.0. This would mean that each dollar of new revenue leaves the community immediately. Tribal reservations often have multipliers close to one since residents typically have so few choices for buying locally produced goods and services. If the multiplier were 2.0, this would mean that for each dollar of new revenue one additional dollar is spent at another local business — a total of two dollars. In the example above, if $200,000 of new spending created $63,000 of new local payroll income, one could say that the value of each dollar spent on local food purchases was "multiplied" 1.31 times ($263,000/$200,000) as it rippled through the community — after which that dollar was likely to flow outside the region.

A region of small farms and businesses that buy many of their essential goods and services from each other, and are closely connected socially, might enjoy multipliers as high as 2.6.[88] Some rural advocates claim that a dollar earned by a farm cycles as many as 7 times through the overall economy. This may have once been true (definitive studies of this are lacking), but if this were true, it has not been since 1950, when increased use of mechanization and purchased inputs created dependence on external suppliers, reducing local multipliers.

In a very real way, a multiplier is a measure of the local economic context and its level of connectivity, more than a measure of the change in income itself. The more local firms and residents are interconnected, and trading goods and services with each other, the longer a dollar is likely to cycle through the region, and the higher the multiplier. The same business (or investment) placed in two different settings may yield quite different multipliers.

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[88] Interview with economics professor Larry Swain, former community development specialist for the University of Wisconsin Extension Service and director of the Survey Research Center at UW-River Falls, February 12, 2001. See Swain, L.B. (1999). "A Study of the Economic Contribution of Small Farms to Communities – Completed 1996 to 1999." Unpublished manuscript; and Swain, L. B., & Kabes, D. (1998). "1996 Community Supported Agriculture Report." Unpublished manuscript.

Strictly speaking, a multiplier only applies to a specific firm doing business in a specific context, but its use has been expanded (with some justification) to include broader uses. So, many economists talk of measuring the multiplier of an investment in an entire economic sector such as local foods or construction.

Yet the emphasis on measuring economic multipliers is often misplaced. If increasing the local multiplier is the goal, then the path toward achieving that goal is to nurture the growth of dozens of independent, yet interconnected small businesses owned by local residents, and to foster local purchasing of locally produced goods and services. This path may run counter to hopes that many food leaders have of "going to scale." In general, when firms are larger, multipliers (positive local economic impacts) will decrease.

Economic approaches that measure economic progress strictly from the perspective of the firm, or of the national economy, often overlook this reality. Attempting to create greater efficiencies – when viewed strictly from these perspectives – may indeed generate considerable surplus value that can be diverted to what is often considered a "higher use." Yet from the perspective of those communities, or their business networks, that have contributed to the creation of this surplus value without gaining financial reward, such a shift in resources amounts to an extraction of potential wealth.

Thus, agricultural regions have adopted labor-saving technology in a devoted effort to promote national efficiencies – when what was needed was employment; rural youth have become "exports" to metropolitan areas. Moreover, while farmers have doubled total-factor productivity since 1969, net cash income from farming nationally has remained constant at best, when inflation is taken into account.[89]

Moreover, declining multipliers also represent a diminishing of the potential to create local wealth, since resources are so efficiently moved to what have been considered "higher" uses. This not only has consequences for the locale, but also for the national economy. When local economic engines are weakened, labor availability and productive skills decline, and stored capital may be diverted to maintaining an income flow, rather than toward new productive capacity. Tax contributions decline relative to financial centers. This creates a downward spiral in which resources increasingly flow to metropolitan areas, while abandoning inner-city and rural communities. In recent years, political resentment toward financial centers has erupted in regions that felt undervalued compared to metro centers, leading to legislative stasis.

Our approach, then, takes into account multiple perspectives when viewing the national economy, but errs on the side of adopting local points of view, since these perspectives have been so undervalued in recent economic discourse.

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[89] Source: USDA Economic Research Service, Farm Productivity series. Table 1. Indices of farm output, input, and total factor productivity for the United States, 1948-2009 [website unavailable at this writing]. USDA Economic Research Service, Farm Balance Sheet series. Part 1: Farm income and balance sheet indicators, 1929 - 2012F, expressed in constant (2005 = 100) dollars.
http://www.ers.usda.gov/data/farmincome/finfidmu.htm

Summary of Common Themes and Considerations

As mentioned above, all studies reviewed project positive economic impacts of varying degrees from investments in the local food system. Where the practitioners pause for reflection, they converge on several ideas. First and foremost, it is widely accepted that any one model without modification is inadequate for modeling local, small-scale agriculture and the associated food system. Secondly, it is recognized that the quality of local data sets is critical to the enterprise, and that many existing data sets are inadequate for representing small and rapidly changing food system initiatives. Third, modeling software poses difficult questions of interpretation since it returns precise values for calculations that are limited by data sets that fail to accurately reflect local conditions, or to account for emerging new industries. Fourth, scenario planning, while not as rigorous in intent, may nevertheless prove valuable in helping understand critical paths and points of potential strategic importance.

The first three concerns listed above are closely related. As one example, consider a rural county in the Midwest that grows and sells $125 million of cash grains in a given year. Data compiled to depict the agricultural industry in such a county for a typical software package would reflect the intensive fertilizer applications, professional advice, 32-row combines, and unit-train grain elevators that were required to grow these grains and convey them to market.

Asking the question in such a case, "What is the economic impact of local food purchases by a school district?" is fraught with difficulty. For example, a local aggregator may bring 100 caseloads of organic cucumbers to the school building in a refrigerated truck. Very little of the infrastructure listed above is used by the farmers who supply this aggregator. Since the truck would not convey grain, its use is essentially invisible to the software model. If the modeler asks, "What is the impact on the farm economy when the first $50,000 of cucumbers is sold to local schools?" a number could be generated from prevailing software data, but it is meaningless, since increased purchases of cucumbers do not result in either increased or decreased income to the farm sectors that are actually represented in the modeling software. Moreover, any emergent new industry is too small and too new to be meaningfully modeled, so it would not be reflected in the impact analysis since the modeling software would not have picked up its economic activity (the third concern listed above).

Looking at the first concern listed above, if one's software model assumes that producers can expand to meet new demand without limit, the limited ability of local grain-oriented farms to shift to producing cucumbers (or another produce item) given their farming expertise, goals as farmers, and available labor and technology (including harvesting equipment, refrigerated trucks, storage areas, and more) would not be captured. A model that assumed prices were constant would not pick up the fact that the school might have paid 5% more (or 5% less) to purchase this product.

Models could be run using all three of the main approaches outlined above, yet each is likely to give a different answer – and given prevailing data sets, none of the answers is likely to accurately reflect local conditions.

The difficulties are compounded, when, as is common, modeling software uses national data (whether for production of grain or production of specialty produce) and divides that by population or farm sales to estimate local food trade in a given county. This is one basis for the second concern listed above. Such data may be useful when projecting the impacts of, for example, siting a new grain elevator in this county. Even if not totally accurate it may yield a general sense of potential impacts. Yet it holds little relevance to the question of produce farming, especially in a county where such a "sector" has not operated in recent years. Even an astute modeler who adapts the data sets for local use may be called upon to input data from, say, California or Michigan, reflecting a mechanized cucumber industry that is not being introduced into this fictitious Midwestern county. Income data covering small-scale organic production may simply not be available.

Multiple Ways to Model an Economy

If EIAs intend to measure the ratio of new outputs to new inputs, this is tricky, because very little of the data that would be required to make such an estimation is public. Most business records are held confidentially. Moreover, the economy of even a small locale can be so complicated that making any effective measurement of outputs and inputs would prove physically impossible.

So, experts have come up with several ways of simplifying calculations using economic models. One common approach is to develop an input-output (I-O) model. The basis of I-O modeling is understanding that sectors of an economy are linked — an output from one sector may be an input in another sector (for example, a farm may produce carrots that are washed, diced, frozen, and packaged in a nearby firm, and these may in turn be purchased by a school lunch program). Therefore, any change in an economy will have both direct (the farm sells carrots) and indirect (new jobs are created at the food processor) effects. Furthermore, new jobs at the processing facility will lead to increases in household income, which in turn may lead to additional jobs in a service sector (medical personnel, for example).

No economy can be fully modeled. Simplifying assumptions must be made to make any calculations at all. For example, I-O models assume perfect supply and demand.[90] That is to say, for example, that it is assumed that when demand for fresh fruits and vegetables increases, supply increases to meet this demand without prices changing. Our case-example research shows that this is often a faulty assumption. Furthermore, I-O models assume that unlimited supplies of inputs (e.g., raw materials, fuel, or

[90] The technical term for this assumption is "market clearing conditions."

subcomponents) are available. Real-life constraints on input supplies mean that actual impacts may be smaller than standard I-O projects.

IMPLAN[91], an I-O model developed at the University of Minnesota and commercially provided by MIG, Inc., is by far the most commonly used model for EIA. This is because it is relatively affordable and relatively straightforward to use. It is the model most likely to be taught in academic settings. Moreover, advanced users are able to alter the underlying structure of the modeled economy, the data, and the manner in which impacts are calculated (Deller, Hoyt, Hueth, & Sundaram-Stukel, 2009). Accordingly, many consulting firms have adapted IMPLAN to create proprietary models.

Other common methodologies are more complex, and inolve simulating the workings of an economy that is changing over time (economic simulation models, or ESMs). These models include computable general equilibrium (CGE) models and others.

ESMs include most aspects of linear I-O models and add even more features. They try to account for complexity, rather than being limited to simpler (linear) relationships. They can be used to estimate changes over a longer period of time, and allow for more dynamic aspects of an economy to also change (such as prices). They are necessarily more complicated, requiring more time and resources to build, and sophisticated computer software programs to execute. As such, these are not as readily available or financially accessible as stand-alone I-O models. Regional Economic Modeling, Inc. (REMI) does provide a commercial model and data for United States counties.

CGE models, on the other hand, allow both price and quantity of goods and services to change within the model. They incorporate simplifying assumptions of their own. For instance, they assume that firms will do anything needed to maximize profits, and that consumers will be "economically rational:" they will do whatever is needed to gain the maximum possible use (The State of Queensland, 2012).

Overall, I-O models are not only easier to use and construct, but they are also more likely to provide larger impact estimates than CGE or econometric models. This means they are preferred by practitioners and politicians alike.

As a rebuttal to these I-O models, an econometric model for evaluating the impacts of community-focused agriculture on per capita income and total farm sales was recently put forth. Although this econometric model also falls short of accounting for inherent differences between small-scale specialty crop production for local markets and large-scale commodity production for export markets, it does highlight the potential for I-O models to over calculate impacts (Brown et. al., 2014). Interestingly, the proposed model is considered valid nationally, but when applied regionally, the model only holds up in some regions. This could reflect the structural differences in agriculture and mixes of farm type in various regions, thus validating the notion that different types of farm

[91] The acronym represents "Impact Analysis for Planning."

enterprises affect the local economy differently. Overall, this application of econometric modeling is too preliminary for drawing widespread conclusions.

One potential alternative – the "Local Multiplier 3" methodology (LM3) devised by the New Economics Foundation in England – is a simpler version of an input/output model, geared for use in a civic setting, rather than strictly by professional economists. Rather than drawing upon secondary data sources that are already internalized by a software model, LM3 calls for compiling local data sets that trace financial flows through the local networks through which institutions actually trade.

The number "3" in the name LM3 stands for three cycles of economic impact: one cycle of direct impact, and two cycles of indirect impacts. (1) The *first* cycle of economic impact would be the amount of "local" food purchased by the institution of interest within the geographic region they define as "local." This initial spending is the *direct* impact of local food purchasing. (2) The *second* cycle would be local purchases made by those firms that supplied the institutions with local foods (for example, labor, machinery, and supplies that were locally sourced). (3) The *third* cycle would be local spending by the employees of those supplier firms, as they bought life essentials that were sourced locally. These final two cycles include both indirect and induced impacts. The overall economic multiplier is a calculated combination of all three cycles of economic activity.

LM3 developers propose that these three cycles account for over 90% of the economic impact effects approximated by traditional economic impact software. Since the LM3 model draws upon primary data that could in theory be generated within the community, it seemed like an interesting alternative to proprietary software that relies on secondary data.

Unfortunately, since the impacts of a policy change, program, or event can never be fully quantified, there is no way of assessing the accuracy of these models in the first place, let alone their modifications. They have become the industry standard and are based on prevailing economic theory; developers do ground test the results in real-life settings. Yet at best they are approximations.

The Measure of an Economy – Data Collection

To simplify calculations, I-O models make simplifying assumptions[92] and use relatively straightforward equations,[93] however, the data required to feed these systems of equations is enormous. Many countries use I-O models to estimate gross domestic product (GDP). In the United States, data is available for nearly any county, metro area,

[92] For example, that prices for goods and services are constant during the analysis.
[93] E.g., using linear algebra to calculate a matrix of modeled economic relationships. This may sound complicated, but these equations assume that most relationships are stable, and assume that interrelationships are straightforward. This is of course not true in real life, but makes the process of making calculations far easier.

state, or municipality through MIG, Inc. (IMPLAN) and the US Bureau of Economic Analysis (RIMS-II).[94,95]

These commercial models largely rely on data that is available through national sources, which may or may not be collected at a local level. Thus, a "local" data set showing the agricultural economy may be a calculated value based on the county's share of national commodity sales. In a highly standardized economy, this can be a legitimate assumption (buying grain in Iowa may be very similar to buying grain in New York State), but this assumption frequently breaks down when small amounts of local food trade are being modeled.

In addition, these commodity flows are inherently different than local produce flows. In modeling the agricultural input sector of a Midwestern county, the inputs that are being modeled constitute the large-scale machinery, pesticides, and mechanics services that make the industrial economy possible; few data sets express the actual farm inputs that a small-scale vegetable producer might require (beneficial insects, manure, compost, etc.).

For example, some state-level data could show that most producers mostly sell commodities wholesale, while local knowledge of a given county or city would suggest that many fruit and vegetable growers sell retail quantities directly to residents.

Because of this, Gunter and Thilmany (2012) collected primary data from local producers and school food directors to determine the economic potential of a farm to school program in one rural community. When examining a hyper-local and unique issue such as food systems, the agriculture data feeding the model must be locally derived. Yet this can also make it difficult to make valid comparisons across sites.

In addition to ensuring that the underlying data is relevant, local food systems data must be handled separately from aggregated sector data. This typically takes the form of constructing new economic sectors within the model. While IMPLAN allows accomplished practitioners to do this quite readily, inserting accurate data can still be challenging. The methodology involves making the use of an industry sector that is inactive according to local data sets (for example, in northern states, the "cotton" production sector is an array of zeros in county data sets, but is still linked to agricultural input and commodity sales sectors through the EIA model itself). Scholars can make use of such "empty" sectors, inserting data that express the economic linkage of, say, the local vegetable sector. Technically, this creates a small economic model that estimates how much local value is added when a hundredweight of produce is grown and sold. This is called "modifying the production function."

For example, both Gunter (2012) and Hayes (2010) customized several unused agricultural sectors within an IMPLAN model (e.g. cotton) to represent what would

[94] The acronym represents "regional input-output modeling system."
[95] At this writing, BEA has announced that it is reducing public access to its RIMS data

happen if fruit and vegetable producers sold produce directly to schools. Hayes modified the technical coefficients in the production function of the new sectors to better match the increased transportation and processing needs of farmers selling to a school district (2010). While this modification is valuable given that previous studies suggest that inaccurate production functions are one of IMPLAN's weakest links, it is not always done (Lazarus, Platas, & Morse, 2002). Swenson (2006) notes the importance of accurate production functions, however he does not alter those in this particular model due to a lack of cost-of-production data. His 2007 study relied upon production data from local farms collected by Meter and Enshayan (2008), but a formal paper covering this research is not available; these findings were reported only in a PowerPoint presentation (Swenson, 2007).

A Signal in the Noise – Considerations for Interpreting the Value of Results

All models and estimations are based on assumptions. To properly interpret a model's projections, it is important to understand and evaluate the accuracy of these assumptions every step of the way. The test of a good model is often not its accuracy but its utility. When a report does not state its assumptions upfront with justification based in research, it loses validity and damages the reputation of practice. In his 2006 paper, Crompton discusses how the practice of analyzing tourism events has lost its integrity since assumptions are not stated up front or based on reality. Often the projected impacts are not realized. He further wonders if tourism events themselves have any credibility in the eyes of community leaders after a decade of these questionable practices.

While not stating assumptions up front may threaten the credibility of a report and its findings, explicitly outlining research assumptions may invite criticism. One example of this is a study by private consulting firm, Civic Economics (2008), that attempts to quantify the impacts of shopping at locally owned businesses versus big box stores. The report states an assumption that locally-owned businesses' rental payments stay in the local economy. While this may actually be true in some cases, one example indicates the dilemma this argument poses: many downtown businesses rent their storefront from an external investor; that investor's loan is typically held by a larger bank owned outside the community, so interest payments from this loan, though paid locally, may not be reinvested locally, nor add any value to local economic exchange. Similarly, Civic Economics has also claimed that any local expenditure be counted as adding local value even if the purchased good or service was produced elsewhere. Thus, a purchase of a book from a local store could be counted as a "local" purchase, even if it were printed in Singapore for a New York publisher and distributed from a California wholesaler.

Conversely, a justified assumption may garner respect. One criticism of EIA of agriculture and food systems has been that projected numbers of jobs created are inflated by several software packages. Jobs or livelihoods created directly by

agriculture tend to be low-wage, seasonal positions, filled by underpaid young entrepreneurs, migrant workers, or even Amish families, so to say that a certain number of jobs were created in agriculture, without estimating actual income earned, does not do the goal of job creation justice. For example, one recent evaluation of Connecticut's agriculture industry was able to enhance its own credibility by clearly stating the assumptions it made, and by avoiding strong claims. This study used three different models (IMPLAN, RIMS II, and REMI) to assess economic impacts, and compared the results each model generated. Researchers clearly stated their assumption that the REMI model returned job creation numbers that were likely to be lower than the other models, since REMI allows for the possibility that workers might transfer to other industries, or migrate to other locations. Since the researchers also omitted jobs created by agriculture, and the value added by food processing industries in the region, their study added that overall job estimates were conservative, and likely to fall below actual levels (Lopez, Joglekar, Zhu, Gunther, & Carstensen, 2010).

The fact that locally produced food items can often be substituted by easily available produce (grapes may come from the farm next door, California, or Chile, or may be replaced by eating bananas from Costa Rica). This represents a critical obstacle to effective modeling, especially in I-O models where supply is assumed to be equal to demand and prices constant. A similar issue involves price differentials: if local farmers charge a premium for their products, consumers are free to turn to grocery stores for cheaper alternatives. This is a situation in which a CGE model is much better for modeling a food system since it accommodates dynamic forces such as pricing. Very few studies discuss the importance of price in their evaluation of food systems impacts, however some studies account for it directly. Tuck, Haynes, King, & Resch (2010) specifically address the issue of prices in their modeling of several farm to school scenarios, in which they adjust the model by raising tax rates as one way to account for increased food prices due to buying locally.

Perhaps the most significant limitation of EIA models, however, with respect to community-based foods work, is that the relatively small changes currently being made by emerging businesses and initiatives do not show up as highly significant in existing data sets, which convey the nature of the prevailing industrial commodity economy, not localized food trade. Advanced practitioners can devise workarounds that allow models to be used with considerable integrity, but they still fall short of serving as accurate portrayals of the workings of local economies. For example, CGE models have traditionally been constructed for states or countries, though economic researchers, Cutler and Davies, created one for Fort Collins, Colorado. In order to model shifts in consumer demand for local products, Phillips, Thilmany-McFadden, & Cutler (2010) collected evaluation data for a regional purchasing campaign. Using Cutler's data, they found that while the estimated financial impact was significant for many reasons, it was infinitesimal as a percentage of the gross city product. Even a city model was not sensitive enough to evaluate small investments in the economy.

A more elegant use of a modeled economy involved comparing two hypothetical situations (for example, a business that buys locally with a similar business that does not) where much of the modeling error is at least constant across both examples(Swenson, 2007). In such a case, *relative* multiplier estimates may be more meaningful than *absolute* values.

When models do not accurately reflect the reality local practitioners face, this leads to heightened concern (once again from the perspective of local firms or community members) that the money spent modeling might be better spent in actually building the local food system until its size justifies specific modeling.

Scenario Planning and Looking into the Future

The fourth concern listed above was the potential for scenario planning. Economic impact models may also be used to construct scenarios for future development. This is a realm in which a CGE model is more appropriate than an I-O model, since a thoughtfully designed CGE model will account for changing constraints on supplies and resources, such as land.

Yet there is a limit to the efficacy of existing models for predicting larger scale scenario shifts. The most critical limitation for the community-based foods discussion is that existing data sets assume relatively small shifts in economic activity; while to many food system practitioners, the opportunity represented by community-based food systems is to create new and dramatically different types and patterns of infrastructure. Models intended to create a potentially very different future can hardly be based primarily upon prevailing industry averages, especially given the large-scale nature of broadline distribution, and the relatively small-scale enterprises that community practitioners have so far built.

For example, one study used IMPLAN to model a 20% increase in consumer demand for locally grown foods. This resulted in large estimated impact calculations (Shuman, 2007), which have been highlighted in various media accounts. Yet this projection was not sensitive enough to account for the changes in distribution channels, farm inputs, or production practices that would be required to realize such a shift. It could not address whether there was sufficient land to meet such expanded consumer demand.

Conversely, Tuck and Nelson (2009) modeled a 5% substitution of imported commodities with locally produced commodities. In preparation for this study, the researchers evaluated which commodities were already being locally produced and whether or not they could be produced in enough quantity to support the modeled shift. Yet they were still limited by data sets that expressed economic impacts in terms of prevailing economic infrastructure, not the changes that would be realized if numerous local firms were formed to meet this shift in demand.

It is important to realize that sustainable economic and food systems development is long-term work. No model will accurately predict future impacts, and that is even more

true in this current, changing economy. It is unwise to assume that the models and data of the past will predict the future given the recent economic crisis, particularly in agriculture, where the current Ag Census data was collected in 2007. One should assume that long held notions about economic development may not hold up in the current or future economy.

Considerations for Local Food System Assessments

Local Matters

The geographic boundary of the region of interest and evaluation must also be defined carefully. In some cases, this will coincide with municipal or state boundaries, but in all likelihood will be strongly shaped by freeway, rail, or water access, or even watershed boundaries. Existing EIA data sets may have limited applicability in this context. Typical data sets, defined by municipal boundaries, may not accurately reflect choices faced by community food system practitioners. As fossil fuel resources become more scarce, natural boundaries, alternate means of travel, and non-municipal factors are likely to weigh more heavily. For example, in the case of Colorado, producers on the west side of the state find it easier to sell to wholesalers and processes in Utah than to truck product across the Rocky Mountains into Denver. Michigan producers may have closer access to Chicago markets due to freeway access and historical purchasing loyalties than do farmers in central Illinois. Water transportation may become increasingly important as energy becomes more expensive.

If EIA models are used, it is typically critical to refine the model using data that is sensitive to local conditions, and evolving approaches to farming. This may include a wealth of factors including locally generated inputs, increased manual labor, seasonal variations in input costs, labor, and prices, smaller-scale technology, competing distribution channels, alternate transportation costs, smaller-scale processing costs, or recycling of wastes. In addition, direct-to-consumer market transactions inherently take place outside of conventional data collection mechanisms. Local data is difficult to gather due to limited recordkeeping, confidentiality concerns, and cost considerations.

The greatest gains in economic impacts are realized through local purchasing of intermediate inputs such as feed, seeds, and equipment. These are often the most difficult purchases to change due to the fact that feed, seed, and equipment sources are rarely local. Instead, most of these purchases are made nationally, regionally, or over the internet. The more that community-based food systems take root, the more likely that intermediate input suppliers will locate in a given community.

The Value of Community Connectivity

Even if complete data could be compiled, no software program can accurately model the complete workings of a regional economy. Often the test of an economic model is its educational value rather than the actual numbers it generates. As is common in

community-based research, it is the *process* of assessing that has the greatest impact on the community due to the creation and enhancement of partnerships and networks.

The driving force in community-based food systems is relational trading, that is, commerce based on mutual loyalties (community supported agriculture models that reduce risk, slow money investments that change cost patterns, the strong desire among farmers and consumers to connect with each other, the possibility of building differentiation and branding based upon personal, regional, mode of production (e.g., fair trade, organic, or sustainable), cooperative ownership, or other loyalties). Such "sticky" transactions are not accounted for by conventional economic modeling, which assume consumers are isolated and determined to increase individual utility.

The economic impacts of locally owned businesses increase as they do business with each other. This suggests that local economic development is correlated with community development and social connectivity (social capital) yet little research is available to document this possibility. Instead, the two areas are usually studied in isolation. The next section examines social capital and networks as an attempt to bring these two subjects together.

Conclusions

The limitations and costs of performing comprehensive economic modeling, and the lack of transparency inherent in software-generated calculations, suggest that alternative approaches that are more easy to measure, comprehend, and communicate will be highly valuable to the economic impact discussion.

This is especially true since in these early stages of development, any dollar allocated to performing economic impact measurements may be a dollar that could have been equally well spent either launching local foods initiatives, or establishing economic strategies that actively create higher economic multipliers.

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The Role of Networks and Social Capital in Economic Development and Community Health

By Ken Meter, Megan Phillips Goldenberg and Grisel Robles-Schrader

Introduction to Network Analysis and Social Capital

Social Capital

Although the definition of social capital may vary depending on the application, for the purposes of this study, social capital is defined as resources accessed by individuals and groups within a social structure that facilitate cooperation, collective action, and maintenance of norms (Fujiwara & Kawachi 2008).

Social Networks

Leban (2011) found that social capital is characterized by trust, reciprocity, norms, and connectivity between and among groups of people, commonly referred to as networks. In bringing together networks of people with a common interest, social capital can facilitate collective action by fostering cooperation and, reducing barriers associated with working together. For example, two people with a history of trust and reciprocity may choose to become business partners with far less hesitation then two strangers. Relationships between friends would be considered to contain a stronger element of social capital than relationships between strangers, because some degree of mutual benefit has already been established. Similarly, Flora (1993) found that communities with high levels of social capital have strong social networks characterized by a strong quality of reciprocity and trust. In a community setting, connections built among one or more pairs of members may implicitly create benefit for others in the same community who are less connected by virtue of their social position.

Network Analysis

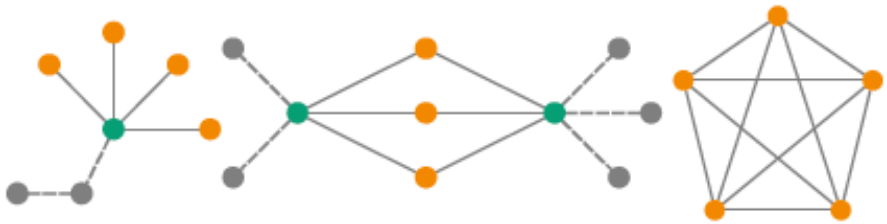
The first known attempt to document and quantify social relations in a population and correlate it with individual behavior occurred in 1932. At the time, this practice became known as "sociometry,"[96] and it involved making detailed sketches of social networks (Moreno, 1934).

Although the idea of understanding community linkages was not a new one, the methodology was, and the field of study evolved rapidly. This line of study is now referred to as social network analysis (SNA). The primary components of network analysis are linkages and nodes, where nodes represent individual people or entities (such as a business or a website) and linkages are the relationships between any two nodes. Focusing on nodes, how they are connected to each other, and the relative

[96] Sociometry is defined as a quantitative method for measuring social relationships.

strength of those connections gives rise to network charts where nodes are represented by points, and lines represent linkages as in Figure 6.

Figure 6. Node-link diagrams used to construct social network analysis [97]



The construction of these network charts, typically with the aid of a computer, allows researchers to determine network structure. The number of connections a node has and the types and/or qualities of those connections largely determine this structure. People tend to associate with those people they feel are most similar to them (termed homophily or bonding) and with people who are geographically close (termed propinquity). "Bridging" connections or linkages are made across a gap, such as from one ethnic group to another, or from one town to another. Multiple linkages can form across any two nodes, such as friends who also work together, and this is usually viewed as a measure of relationship strength (multiplexity). Nodes with multiple strong links may be centrally located in close proximity to other "popular" nodes in a network chart, while less connected individuals may be located nearer to the edge. The overall structure of these network portrayals can indicate where connections and gaps exist in a given network.

Social capital theorists are divided in their analysis of how social capital is produced, to whom it belongs, and how to measure it. For example, some argue that nodes possess social capital as a function of their role as a connection point, or their essential character (being very trustworthy, etc.), while others state that a network, or community, possesses social capital primarily through the cultural norms it establishes. Furthermore, there is debate around whether social capital has an intrinsic value (a value that is inherently present) or the value is something that can be created.

Unlike other forms of capital, which can be consumed or exhausted, social capital is typically considered regenerative in that the use of and reliance upon social relationships typically strengthens social bonds (Pretty, Ward, 2001). A community with a long heritage of social capital may find itself able to form collaborative initiatives far more readily than one where such social connectivity is less present.

Just as there is not consensus on the definition of social capital, there is not consensus on how to measure it. By its very nature, it is difficult to quantify, as our informant Paula

[97] Dunne, C., & Shneiderman, B. (2013, April). Motif simplification: improving network visualization readability with fan, connector, and clique glyphs. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 3247-3256). ACM.

Ross, retired researcher from the University of Toledo, pointed out in an interview (Ross 2013). Some studies focus on self-described feelings of trust by one node for another node, while other studies rely on group memberships as a proxy measure for connectivity. These measurements must be done with great care, since one member of a partnership may experience deep feelings of trust while the other experiences little. One person may belong to many groups without feeling deep trust in members of any.

Some social network analysis focuses on the quality and strength of interactions, more than upon the number of interactions. One common approach used in business network analysis is to survey a particular group's network members to learn how they view the strength of their connectivity. Three dimensions are typically the focus: (1) Does this social connection involve monetary exchange? (2) Does the respondent routinely share information with this connection? Finally, (3) Would the respondent turn to this connection when advice or support are desired? If questions are well crafted, researchers may learn a great deal about the degree to which feelings of trust and respect are reciprocated in the network. One may learn that a seemingly well-connected person is only weakly trusted, or vice versa. One may view patterns that show when competition and/or collaboration become possible.

Economic Value of Social Connectivity

While many community members recoil at having their social interactions typified as a form of "capital," as if their lives could be monetized, many researchers believe that placing social interaction within a resource framework helps certain audiences, in particular businesspeople, understand the importance of social connections that are difficult to monetize. Cornelia Flora, in particular, has popularized a "resource capital paradigm" that lists human connectivity as one of seven forms of "capital" including natural, human, cultural, financial, built, and political capital (2004).

Economically speaking, the productive benefits of social capital are enormous. Research attributes reductions in transaction costs (Putnam, 2000; Rydin & Holman, 2004; Sabatini, 2009), career success, product innovation, reduced turnover rates, entrepreneurship, and learning (Adler & Kwon, 2002), and reduced high school dropout rates (Coleman, 1998) to social capital. An individual or firm's place within a network can predict rate of innovation (Powell, Koput, & Smith-Doerr, 1996), financial success (Shipilow & Li, 2008), better jobs and faster promotions (Burt, 1992), and overall power and influence (Brass, 1984). Indeed, Putnam posits that the culmination of economic development research points to the development of social networks among workers and entrepreneurs as the precursor to industry clusters such as Silicon Valley (1995).

At a community development level, civic engagement is strongly correlated with economic development. In fact, Putman argues, by way of his study of Italy, that civic engagement is not a function of wealth, but that instead, economic development and effective government are consequences of social connectivity and capital (1993). Since an economic multiplier is a measure of how many times a dollar "turns over"

inside a given geography before leaving (See Critical Analysis of Economic Impact Methodologies on p. 111), one would expect that the stronger the sense of community connectedness, the greater the likelihood that financial transactions will cycle money among community members (Meter, 2011). For example, in a situation where an economic multiplier would equal one (all money spent immediately leaves the community), one could say that either the object of the expense does not exist in the community, or that there is a lack of trust associated with its existence. A multiplier of two (all money spent is spent again) would indicate both economic resiliency and community connectedness.

Social Capital and Health

In health research, social capital has implications for individual and community level health outcomes (Fujiwara & Kawachi, 2008). Social participation influences individual health outcomes through several pathways. It can be a source of social support (reducing stress), social influence (i.e. peer pressure), and can create a sense of belonging (Bartley, 2004; Berkman & Glass, 2000). Additionally, social participation offers opportunities to develop new skills; provides access to resources and services; and impacts individual status within a group (Berkman & Glass, 2000; Erikkson, 2011; Marmot, 2005). Ultimately, social capital produces benefits (i.e., support, information, skills, etc.) for the individual through their participation within social networks (Erikkson, 2011).

At the community level, social capital is thought to produce collective action, which can improve the social determinants of health in a community, and thus health outcomes (see Considerations for Health Impact Analysis on p. 135) through factors such as income and employment opportunities, access to housing, health care, and quality foods. Characteristics of collective social capital include: relationships based on trust; reciprocity and exchanges; solidarity; network and group development, and connectedness (Pretty, 2003). Communities that are characterized by high levels of trust, participation and mutual support are believed to be "health-enabling communities," (Kawachi, Kennedy, Glass, 1999; Kim, Subramanian, Kawachi, 2008; Campbell and Jovchelovitch, 2000). These communities are thought to foster community health outcomes, as there is more investment in the greater good of the community. Researchers believe community social capital stimulates health promotion by: increasing public investment; spreading healthy norms; and facilitating rapid and far-reaching diffusion of health information and knowledge (Erikkson, 2011; Rogers, 1986). People within these communities are more willing to invest in collective action because they are confident others will as well (Pretty, 2003). These groups or networks invest in community capacity building in order for members to identify solutions to their own community problems.

Increased social connectivity is associated with overall better health and life expectancy (Bolin et al, 2003; Pretty, 2003; Fukuyama, 2000) and higher incomes and educational achievement (Narayan and Pritchett, 1996; Krishna, 2002; Wu and Pretty 2003).

Researchers also point out that social networks can result in negative health outcomes by influencing the adoption of healthy or unhealthy behaviors. And, as a group becomes more cohesive, social capital can also result in exclusionary behavior towards those considered "outsiders;" this can result in unequal distribution of work, which can overload specific group members, and participation may place restrictions on individual freedoms (Erikkson, 2011).

Just as researchers have not come to a consensus on one definition of social capital, they have not determined one approach to evaluate the link between social capital and health. Additional exploration is needed to improve research approaches that are multi-level (include individual and community-wide indicators) and examine existing power dynamics within social structure based on gender, sexual orientation, race, age, etc.

Social Capital Considerations for Local Food System Assessments

- Strong sense of social connectivity
- Built around productive capacities, mutual exchange of ideas, and trust
- Multiple players in diverse settings hold a common vision for success
- A wide range of stakeholders are part of the decision-making process, thus eliminating a top-down approach
- A systemic view of their foods initiatives, recognizing that each issue is connected to others, and that emergent change is iterative and requires adaptation

Agriculture in Flux, Communities in Flux

"For as long as people have managed natural resources they have engaged in forms of collective action which has resulted in resource management rules and norms embedded into many cultures and societies," (Pretty 2003). Historically in the US, networked food production/distribution/consumption was an instrumental foundation for community cohesion and civic engagement. Voluntary association was praised as the single most potent factor driving democracy in the emergent United States (Tocqueville, 1835-1840). Moreover, a citizenry of farmers quite naturally engages in regular productive activity. As the nature of agriculture and the US economy changed over the last century, however, the decline of rural communities became the center of much social and community research. One of the original sociological studies of the impact of the changing agricultural economy on rural community life, by Walter Goldschmidt, documented that communities marked by large, absentee-owner farms

are less economically and socially developed[98] than communities based on small- to medium-sized family farms (1978).

These findings have been supported by a variety of studies, which find that a shift towards large-scale, industrial agriculture in rural communities is correlated with declining population (Heady & Sonka, 1974), lower incomes, lower standards of living (Gilles & Dalecki, 1988), gaps in community services (Poole, 1981), a lack of community integration (Heffernan 1972; Heffernan and Lasely 1978; Martinson, Wilkening, and Rodefeld, 1976), a lack of diversity of economy and employment (Marousek, 1979), and is correlated with increasing high school drop-out rates, higher teen pregnancy rates, and larger rates of eligibility for free or reduced-price lunch in school nutrition programs (Peters, 2004).

The decline of traditional family-owned agriculture and the rise of large-scale industrial agriculture is often blamed for the degradation of rural communities and social structures, and many have argued that the localization of food systems is central to building community wealth and well-being. Although research to date on the extent to which local food systems can rebuild a community is limited, studies are emerging that link communities with high degrees of social capital and strong networks with the ability to capitalize on resources necessary to restore the food system (Flora & Flora, 1993; Smith, 2009; Courtney, 2010). Indeed, some communities that suffered in the wake of farm consolidation are now experiencing a revival alongside the rise of their local food system (Courtney, 2010; Hewitt, 2010).

Building Social Capital While Building Soil

Since local food systems are inherently place-based, they are strongly associated with place-based networks. A true chicken and egg story, it's hard to tell if local food systems build community or if communities build local food systems. One study's attempt to understand the mechanism for which community gardening improves health outcomes discovered that more than anything, community gardens provide social connectivity and support. The study concludes that community gardens encourage social connections, reciprocity, mutual trust, collective decision-making, civic engagement, and community building. In particular, where gardens are located in diverse neighborhoods, bridging connections are likely to form and that, theoretically, strengthens an entire network (Teig, et al., 2007).

Flora and Flora suggest that community connectivity gives rise to local food systems, and that the mere presence of farmers is not enough to build a local food movement. (1993) Instead, community organizations engaged in food and agriculture work, such as food policy councils and agriculture working groups, form a strong foundation for food systems to further develop (Koc & Dahlberg, 1999; Lacy, 2000). Indeed, Feenstra's

[98] In part because workers feel less rootedness, have less discretionary income, and have fewer reasons to invest time in voluntary community activities.

case study analysis led her to conclude that social capital creation is necessary for developing and sustaining local food systems (2002).

Engaging a wide range of stakeholders through effective community action, where community members set priorities, plan strategies and implement them, can have the net effect of achieving better economic and health outcomes (WHO, 1984).

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Considerations for Health Impact Analysis

By Grisel Robles-Schrader and Jess Lynch

Defining Health

The World Health Organization (WHO) defines health as a state of complete physical, mental, and social well-being and not merely the absence of disease. (WHO, 1948) This definition encourages health practitioners to examine and understand health from a multidimensional perspective, exploring factors influencing health beyond individual behavior. Individual well-being and community health is influenced by the complex and interactive forces of the economic, social, and physical environment. (Leban, 2011) *Healthy People 2020* created the diagram below to demonstrate the interaction between five critical components of individual and community health known as the social determinants of health (SDOH). (Healthy People 2020)

Healthy People 2020

The social determinants of health are the conditions in which people are born, raised, work, and socialize that affect a wide range of health, functioning, quality-of-life, and risk factors. (*Healthy People 2020*, 2010) Physical conditions within a community that affect health include factors such as livable wages, affordable housing, and access to nutritious foods. Transportation, community engagement, cultural norms, and "sense of security" are examples of social conditions that influence health. (*Healthy People 2020*, 2010)

Communities that are "continually creating and improving their physical and social environments and expanding community resources that enable people to mutually support each other in performing all the functions of life and in developing to their

maximum potential" are defined as healthy communities. (*Healthy People 2020*, 2010) According to Erikkson (2010), communities with fewer economic disparities have better health outcomes as community members tackle issues with the broader community in mind, trying to seek solutions to community problems that are beneficial to the broader community rather than just the individual.

According to Neff, Palmer, McKenzie, and Lawrence (2009) health disparities occur when there exist "gaps in health status among different populations, due to differences in factors such as socioeconomic status, gender, race, ethnicity, sexual orientation, education, immigration status, environmental exposures, disability, geographic location." In the past three decades, the United States has experienced an emergence of health issues due to health disparities stemming from food-access issues. Lack of healthy, nutritious, affordable, accessible foods contributes to increased rates of obesity and diet-related diseases such as diabetes, heart disease, high blood pressure, and high cholesterol.

Health and the Local Food Environment

Over the past three decades, there have been a wealth of studies specifically focused on dietary intake and its role in causing or preventing disease. Story, Kaphingst, Robinson-O'Brien, and Glanz (2008) and Willet (1994) have established a clear relationship between individual diet and health. To understand the connection between diet and health, we need to examine the local food environment.

The food environment of a community is defined by the availability, affordability, accessibility, and marketing of food. (Ahern, Brown, Dukas, 2011; Mikkelson, Erickson, Nestle, 2007) Communities need access to a wide variety of healthy and nutritious foods, however, research has indicated that the food environment does not provide communities' access to these types of foods. Unfortunately, the US food environment has been largely shaped by the business practices of corporations that dominate the US food industry and the ways in which these practices interact with consumer preferences. Mikkelsen, Erickson, and Nestle (2007), and Brownell and Horgan (2004) concluded that as a result, "there is an overabundance of foods formulated to our biological preferences for foods high in calories, especially fat and sugars." Excessive consumption of food high in calories, high in fat content, and low nutritional value can lead to obesity, which is directly linked to increased risk for heart disease, high blood pressure, stroke, some cancers, diabetes, and arthritis. (NPLAN, 2013) Heart disease, cancer, diabetes, and stroke are leading causes of premature death in the United States. (CDC, 2013) The food environment in the United States has had a negative impact on individual health and well-being.

Berning (2010) concluded that "Food access in the United States specifically entails distinguishing between low- and high- quality foods, where quality is generally defined by nutritional content." These factors are shaped by the social, cultural, and economic context of a community. (Mikkelson, Erickson, Nestle, 2007) Ultimately, this context

influences individual food purchases and consumption. Factors contributing to Americans' unhealthy eating habits include, but are not limited to:

Availability of Food

- Federal farm policies that drive down the prices of farm commodities, specifically corn and soybeans. These products are used to make high-fructose corn syrup and hydrogenated vegetable oil—which are the base ingredients for many junk food items including soda, fried foods, and pastries. (Mikkelson, Erickson, Nestle, 2007)
- Increased availability of fast food restaurants…
    - per capita in rural and urban areas, coinciding with a decreased availability of grocery stores. (Ahern, Brown, Dukas, 2011)
    - with 24-hour service.
- Fast food options are appealing because of their convenience. (Mikkelsen, Erickson, Nestle, 2007)
- Dual income households and households where one or more adult may be working more than one job.
- Individuals working farther away from home, having longer commutes, and/or longer work hours.
- Increased food and drink sizes that exceed recommendations for healthy consumption and diet.
- Agricultural practices that promote…
    - "Use of synthetic pesticides, herbicides, and fertilizers which has resulted in the destruction of wildlife and contributes to cancer, birth defects, asthma and other health issues." (Cohen, Chavez, Chehimi, 2007)
    - "Use of antibiotics in breeding animals (animal husbandry). 70 percent of all antibiotic use in the United States is for animal husbandry, which is linked to the rise in antibiotic resistance in therapeutic settings." (Mellon, Benbrook, and Lutz-Benbrook, 2001)

Affordability

- Given that junk foods' key ingredients are typically made with farm commodities that are subsidized and available at artificially reduced prices, they tend to be mass-produced cheaply, which makes them widely available and marketed inexpensively.
- At the same time, healthy, low-caloric, and nutritious foods may be a less affordable option, especially for institutional purchasers, because of the additional time, people/staff, and equipment that may be required to process them into meals.

Accessibility

- Insufficient and/or lack of available fitness, recreation centers, and safe parks. The number of available organizations and spaces per capita dedicated to physical activity is linked to opportunities to exercise and maintain an active lifestyle. (Ahern, Brown, Dukas, 2011)

- Access to a car and or proximity to grocery stories, particularly in rural areas, has been directly linked to the types of food consumed. (Ahern, Brown, Dukas, 2011)
- "Agricultural practices that promote long-distance transportation of produce (average of 1,500 to 2,100 miles) contributes to excessive truck traffic on our highway systems and pollution linking diesel exhaust fumes to cancer, asthma, and other respiratory illnesses." (Pirog, Van Pelt, Enshayan, and Cook, 2001)

Marketing

- Marketers use television, billboards, and social media to market foods throughout all hours of the day.
- Companies promote inexpensive junk food items by appealing to individual sentiments of maximizing their hard-earned dollar (that is, "getting more for their money").

Studies have found that "metropolitan communities with access to an abundance of fast food restaurants are associated with poorer health outcomes." (Ahern, Brown, Dukas, 2011; Berning, 2010; Dunn, 2010) These factors are compounded by communities that have few or no available biking paths, walking paths, or parks, communities designed to encourage driving as a primary mode of transportation, and/or communities where high rates of violence discourage people from engaging in outdoor activities.

Ahern, Brown, and Dukas (2011) and Morland, Wing, and Roux (2002) have shown that communities with available grocery stores and supermarkets have better health outcomes than communities that only have convenience stores available. Morland and her colleagues also found a link between an increase in supermarkets per census tract with an increase in fruit and vegetable consumption. Further, Berning (2010) showed that direct farm-to-consumer sales have positive health impacts, as well-- "Metropolitan communities with high rates of direct farm sales per capita have decreased rates of mortality and diabetes and in non-metropolitan areas it's associated with lower rates of mortality and obesity."

The food environment has been heavily influenced by food industry practices and government policies, which is why public health practitioners are increasingly extending their work beyond nutrition education and looking at changes in the broader environment and structural factors that will increase community access to healthful, nutritious, and sustainably grown food. Sustainable agriculture is "the production of food, fiber, or other plant or animal products using farming techniques that protect the environment, public health, human communities, and animal welfare. This form of agriculture enables us to produce healthful food without compromising future generations' ability to do the same." (Grace Communications Foundation, 2013)

Association Between Community Health and Economic Development

Poverty and Health

The United States Department of Agriculture defines food security as "access by all people, at all times, to enough food for an active, healthy life." According to Feeding America, 49 million Americans lived in food insecure households in 2012, including 16 million children. Populations that were overrepresented among food insecure households included children (20%), single parent households headed by single women (35.4%) or single men (23.6%), and African American (24.6%) and Latino(23.3%) households. (Feed America, 2013) "In 2011, 8.4% of all seniors (4.8 million seniors) over age 60 were food insecure." (Ziliak and Gundersen, 2013)

However, poverty also affects other factors related to health. In 2012, 46.5 million people lived in poverty. (Feeding America, 2013) There are strong correlations between health and factors such as economic conditions, including income level, employment, and education level. The socio-economic status of a household also influences access to and use of preventive care and healthcare treatment services, education, and stable housing. Research has indicated people in households with higher incomes have better health outcomes and live longer than those with low incomes. (Wolfe, 2011)

Evaluating the Health Impact of Local Food Activities

Measuring the impact of health programs aimed at addressing obesity and malnutrition (in this case, the overeating of foods high in fat and calories and low in nutritional value) presents several challenges. First, many programs do not build in evaluation as part of program implementation from the start/inception of program activities. (Azuma, Fisher, 2001) This occurs for a variety of reasons. Most programs tend to be funded without an evaluation plan in place, they do not have funding specifically designated for evaluation, and/or there are no designated staff hired to lead and complete evaluation activities. Additionally, it is difficult to create a comprehensive evaluation plan involving all the key stakeholders because each is interested in different outcomes. For instance, farmers, public health practitioners, and food service staff may have different goals and outcomes for farm to school programs. (Joshi and Azuma, 2009) Overall lack of familiarity with program evaluation in general can also be a challenge.

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Appendix A–Business Network and Social Capital Analysis Methodology

Researchers sought to devise a simple measurement of social networks in each region that might help distinguish the quality of social capital from one case example site to another.

With the assistance of Paula Ross of the University of Toledo's Urban Affairs Center, who has worked extensively with social network analysis and serves as the primary coordinator of local foods initiatives in Northwest Ohio, a basic measurement instrument was devised. This incorporated three qualities of social networks that Ross had found critical to business networks: (1) information sharing, (2) economic exchanges, and (3) advice and support. A one-page matrix was developed by the IPHI team based on this draft survey instrument. The target audience was food service directors (or other institutional food purchasers), but the research team decided to extend its application to all interviewees, both as a test of the responses given by each food purchaser and to learn how highly networked the other interview respondents were.

In this measurement tool, each respondent was asked to list up to five organizations that their organization considered a key partner, in each of the three dimensions named in the paragraph above. The number was limited to five for the sake of brevity. Note also that this survey instrument focused on organizational and business networks, rather than personal networks.

For each of the partners listed, respondents were asked to list: (1) how many years this organization had served as a partner; (2) what type of organization it was (e.g., for-profit firm or citizen's network); (3) the role this partner played in the local food system (e.g., farmer, wholesaler, or waste recycler). Following these initial questions, respondents were asked more substantive questions about the quality of each connection. (4) How often do you share professional information? (5) How frequently do you engage in economic exchange? (6) Is this partner a source of new ideas for your organization? (7) Would you share privileged information with this partner, with respect to local food trade? Then, finally, (8) Do your organizations engage in operational collaboration (such as sharing delivery space on the same truck or marketing collaboratively)?

The ultimate aim of this survey was to input responses into social-network software that could show a map of the interconnections among local foods practitioners in each site, but it was also to provide a measure of the strength of the connection in each regional business network. In an ideal world, responses would be solicited by one single interviewer to ensure consistent application of the survey instrument and a relatively consistent set of codes. However, this was not possible, since at least five different people were involved in conducting interviews, and no one researcher was able to participate in all interviews. Moreover, several interviewees stated that they felt the questions did not apply to them or that they were uncomfortable naming some partners and not others. Due to time constraints our timeline only allowed a single one-hour telephone interview per site. It was further decided that the survey instrument

should be sent out in advance of the interview, both to reduce the time required to ask network questions in the allotted 60 minutes but also to give each interviewee a more clear introduction to the network concept. This introduced further sampling error into the survey process, even while it provided us more information than we would have gained by administering the survey within the time constraints of the telephone interview itself.

All in all, the social network survey instrument could not be uniformly applied, so results were not subjected to computer analysis. Thus, actual strength of business networks related to local purchasing programs could not be meaningfully measured within the time frame of this study. Still, posing the questions did help lead researchers to identify additional partners for in-depth interviews and additional avenues for future research and program development. Furthermore, on a qualitative basis, it became clear that some regions were more effectively networked than others.

Findings of the Social Network Survey

Despite the lack of complete data for strict computer analysis, the survey offered a preliminary sense that stronger social connectivity does appear to correlate with local food purchasing that does the most to transform local attitudes and the local economy, and indeed, a more geographically focused definition of the word "local."

Our interviews also showed that building networks and coalitions are often a precursor to institutional procurement of local foods. These networks are more encompassing than mere business partners, involving nonprofits, agencies, farmers, food buyers, and other stakeholders. Yet the most frequently cited impact of local food purchasing was that strong local food networks were both the cause and the effect of local food purchasing, since networks enable local economic exchanges and are strengthened by them. This reinforces the analysis that transformation is co-created, rather than imposed; what might be called development "from the inside out." It further suggests that social network analysis may play a critical role in advancing our understanding of the economic impacts of institutional food purchases.

Appendix B – Summary description of categorical impacts

A description of specific community successes and the health and economic impacts of their work is included at the end of the respective case studies. This appendix provides a summary description of the categorical impacts.

Building Social Capital and Community Connectivity

- Increased, multi-sectoral coordination and collaboration in communities
    - Strengthened or new collaborations based on productive economic exchange, mutual trust, and joint work toward a common vision that enable sharing of information about potential market opportunities, gaps in supply, and openings for collaboration (e.g., Fifth Season Co-Op, Just Local Foods in WI; farm to school collaboration in VT)
    - Increased coordination among farmers, food services, food buyers, and policy makers, facilitated by a staff position (e.g., KY Farm to School)
    - Increased coordination within and across geographic boundaries (e.g., city, county, and state lines in KY)
    - Cultivation of strong leadership teams that helped foster and lead change aligned with local priorities (e.g., VT Farm to School collaborative leadership team)
    - Distribution firms began to coordinate activities, reducing duplication of effort (e.g., Grasshoppers and Piazza in KY)
- Bilateral partnerships between organizations that enable sharing of capital resources and personnel/volunteer time (e.g., City Market/Onion River Co-op member program; sharing of school coolers with farmers in VT)
- Local food initiatives that are inclusive of, and responsive to, low-income residents' interests and that engage them in the process of creating the local food system (e.g., AZ food bank work)
- Increased local brand recognition, as well as awareness of, and connection to, local growers, building increased loyalty to local products
- Creation of a climate in schools in which students, staff, and parents have stronger ties to each other and a stronger commitment to the school (e.g., Manzo Elementary, AZ)

Increasing Economic Activity and Developing Resources

- Increased institutional purchasing of local foods directly from farmers (e.g., schools in VT; food bank in AZ)
- Increased institutional purchasing of local foods through local intermediaries (e.g., Gunderson Health System purchasing through Fifth Season Co-op in WI)
- Increased donations of local food to a food bank, and purchasing local foods by that food bank (AZ only)
- Leveraging of aggregated institutional purchasing power to increase purchasing of local foods (e.g., VT Food Service Directors Association)
- Increased institutional allocation of funds for local foods, while minimizing cost increases or holding overall costs neutral (e.g., VT schools purchased surplus

products and found additional buyers to create volume shipments at lower prices; a WI hospital modified recipes to accommodate higher prices for certain items)
- Investment of additional resources to improve school food services' kitchen capacity to prepare fresh foods (e.g., VT school board allocation)
- Local value-added products were integrated into school menus (e.g., VT schools)
- Increased participation by low-income populations in the local food workforce
- Low-income farmers gained reliable markets for produce (e.g., AZ farmers' market)
- New business opportunities (e.g., a firm processes local food products for KY schools)
- Material and technical support for local growers (e.g., conferences in KY; an AZ food bank trained and supported several school gardens, which produced a combined 25,000 pounds of produce in the first year)
- Revenue-generation for schools through sales of excess produce (e.g., Manzo Elementary in AZ sold approximately $3,700 of foods harvested from its garden to local restaurants, grocers, and parents; the revenue supported continued educational programming)
- The emergence of multiple distribution channels created new flexibility for schools to meet produce needs (e.g., sourcing from Reinhart Foods, Just Local Foods, and direct from farmers in WI)
- Formation of new business relationships and networks (e.g., Fifth Season Co-op in WI; Manzo Elementary, AZ, sold produce grown on school grounds to restaurants, grocers, and communities)

Creating Jobs and Generating Income
- Marketing strategies increased demand for and access to local foods (e.g., Kentucky Proud Program contributed to a 10% increase in Piazza Produce sales)
- Award of grant resources from both local and outside funders (e.g., a local church provided a $35,000 grant to Manzo Elementary in AZ for its garden)

Environmental Stewardship
- Work to decrease food waste (e.g., through food preparation practices and school composting activities in WI schools)
- Students were taught how food choices affect the environment

Improving Diet and Nutrition
- Increased student participation in school meals programs; with increased school procurement of local, fresh foods, these students will have increased access to those healthy food options (e.g., KY schools; in VT, elimination of the reduced-price school lunch category, instead providing free meals to all students who qualify under either the free or reduced-price federal categories)
- Participation by farmers' markets in the WIC Farmers Market Nutrition Program (FMNP) and acceptance of payment via Electronic Benefit Transfer (EBT) for SNAP program participants (e.g., Nogales Farmer's Market in AZ)
- Increased individual knowledge and skills about growing healthy foods (e.g., AZ's Community Food Resource Center provide gardening classes and teach community members how to grow their own foods; school-based programming)

- Nutrition education paired with access to fresh, local produce, which seemed to foster acceptance and consumption of fruits and vegetables (e.g., as implemented and observed in KY's Fresh Fruit and Vegetable snack program and Farm to School)
- Increased number of vendors selling at farmers' markets and the number of customers returning to the market (e.g., farmers' market organized by Mariposa Community Health Center)
- School wellness policies requiring sourcing of local foods and other nutrition-supporting components like healthier, school food-service catered classroom celebrations (e.g., La Crosse School District, WI)
- Community nutrition education and outreach programs in tandem with increased access to healthy foods (e.g., La Crosse school district and health department's parent cooking classes and Harvest of the Month in schools and grocery stores)
- Institutional commitments to improve health (e.g., WI's Just Local Foods, Fifth Season Co-Op, Gundersen Lutheran Hospital adopted missions of advancing health among their customers)

Improving Mental Health

- Use of horticulture and gardening as a social/emotional development strategy for students (documented for AZ at Manzo Elementary School)

Enhancing Student Academic Achievement

- Integration of food production and food literacy knowledge/skills into curricula (e.g., Manzo Elementary in AZ integrated topics into math and science classes)
- Experiential learning through food production (e.g., engagement in school garden, greenhouse, animal habitat in AZ; gardening, worm composting, student-led evaluations of the food waste stream, and passing along new foods and skills to younger students in WI)

Appendix C – Partnership Matrix

Procurement of Local Foods – Partnerships and Networks *Please name up to five key organizational partners that are important in your local food purchasing work, for each of the following three realms: Information sharing, Economic exchanges, Advice & support.*

Name of Organization	**Years as partners**	**Type of Org.** *For-profit* *Nonprofit* *Institutional foodservice* *Public agency* *Citizens' network, local-foods coalition etc.* *Other (please name)*	**Partners Role** *1. Farm or Garden* *2. Aggregator* *3. Food distributor* *4. Wholesaler or broker* *5. Processor* *6. Retailer* *7. Restaurant or other meal provider* *8. Institutional buyer* *9. Waste recycler / composter* *10. Other (please name)* *List number for any roles this partner plays*	**Share professional information** *Weekly* *Monthly* *Several times a year* *Yearly*	**Engage in Economic Exchange** *Weekly* *Monthly* *Several times a year* *Yearly*	**This partner is a source of new ideas** *(Yes/no)*	**This partner shares privileged information with respect to distributing local foods** *(Yes/no)*	**We engage this partner in operational collaboration to procure or distribute food?** (e.g., *jointly use space on the same delivery trucks, share cooler space, cross-dock, or other*) *(Yes/no)*
Information Sharing 1								
2								
3								
4								
5								
Economic Exchanges 1								
2								
3								
4								
5								
Advice and Support 1								
2								
3								
4								
5								

Appendix D – Interview Instruments

Participant name & title: _____
Institution: _____
City and State: _____
Case Study Site: _____

Interviewer(s) initials:

Institutional/Organizational Interview

Interview Purpose:

- **Collect information about the organization** (operations, facilities, staff, budgets)
- **Learn about the "local story"** (context, motivation, desire/capacity to track information, environmental impacts, social capital impacts, unique local character)
- **Collect data on:**
  - Economic impact measures
  - Health impact measures
- **Learn about barriers and facilitators in implementing LFP activities**
- **Learn about the F2I activities from the organizational/institutional perspective**

SECTION I. CONSENT LANGUAGE

We are conducting a national study about the procurement of local foods by institutions. This study is funded by the Centers for Disease Control and Prevention (CDC). The purpose of this study is to examine the **economic and health benefits associated with institutional procurement of locally grown foods**. We will conduct interviews in June and July, analyze information and write up a final report in August. The report will be written for public health practitioners, food service directors, growers, and community members interested in establishing local food procurement activities in their communities.

_____ recommended we reach out to you because your institution is involved with the aggregation and distribution of local foods. We would like to ask you some questions about what it took to establish local food procurement activities at your institution. This interview is not anonymous. We will summarize the interview themes within the report. We may pull pertinent quotes from today's conversation.

This call will take approximately 1 hour. With your permission, I would like to audio-record this conversation. The recording will only be used to help with transcribing the interview. The audio will be destroyed immediately after the study (in September).

This study is completely voluntary. You can choose to skip any question that you prefer not to answer. You can choose to stop or withdraw from participating in this interview at any time. There are no negative consequences if you choose to stop participating in this study.

Do you have any questions about the interview or the study?

Are you willing to participate in this interview?

Do I have your permission to audio-record this call? _____ (*If the participants **does not agree** to be recorded state,* "Okay, I can take handwritten notes during this call." *If the participant agrees to be recorded state,* "Okay I will ask you this question again, when I turn on the recorder.")

Interviewer initials: _____

INTERVIEWER NOTES: Prior to the interview, please fill out any information already collected through screener #2 and/or skip the question. Share this information with IPHI and CRC team members participating in the call.

All questions in green font are in the screener #2 instrument.

SECTION II: Information about the institution & the "local story"

History & Local Context:

1) What initiated your institution's involvement with local food procurement?
   Probing questions…Was there a desire to:
   - support the economic development of the surrounding community?
   - promote the health of its students/customers?)
2) How does the institution define "local" when purchasing "locally" sourced foods?

Structural/Systems Changes: [Health Impact]

3) Have institutional policies or practices been created to promote access to locally grown foods?
4) Have programs been created to promote awareness about the benefits of locally grown foods (i.e. nutrition programs, farm field trips, etc., school gardens)?

Administration:

5) Who is involved in decisions regarding purchasing locally grown foods?

Facilities & Operations:

6) Does your food service operate at a single site, or at multiple sites?
7) How many paid staff work within food service across all of your sites?
8) Who is involved in decisions regarding food preparation?
9) Do your food service sites have working kitchens where food is prepared?
   a. What percentage of meals served by the food service department are prepared from scratch on site?
   b. Are the meals you serve typically prepared off-site by a central kitchen or outside vendor?
   c. What percentage of food service kitchen staff are experienced in cooking from scratch?
10) Does your institution keep financial records about local food purchases? If so, what types of records does your institution keep?

Environmental Impacts: [Health Impact]

11) Has your organization changed the way it deals with food waste materials as a result of increased local food purchasing activities?

Context, Social Capital & Social Networks

We would like to know a bit more about partnerships developed to achieve local food procurement goals.

12) Who were the most important partners in achieving local food procurement activities? What was the outcome of that partnership?

Please name up to five key organizational partners that are important in your local food purchasing work, for each of the following three realms: **Information sharing, Economic exchanges, Advice & support**.

SECTION III: Barriers and facilitators in implementing LFP activities

13) In implementing local food procurement activities, what has worked well? What has not worked so well?
14) What resources do you think are needed to continue serving local foods at your institution, over time?

Participant name & title: _____
Institution: _____
City and State: _____
Case Study Site: _____

Interviewer(s) initials:

Co-op/Food Aggregator Interview

Interview Purpose:

- **Collect information about the co-op/food aggregator or aggregator** (operations, facilities, staff)
- **Learn about the "local story"** (motivation for becoming involved in local food procurement activities, environmental impacts, social capital impacts,)
- **Learn about barriers and facilitators in implementing LFP activities**
- **Collect data on:**
  - Economic impact measures
  - Health impact measures
- **Learn about the F2I activities from the co-op/food aggregator and aggregator perspective**

SECTION I. CONSENT LANGUAGE

We are conducting a national study about the procurement of local foods by institutions. This study is funded by the Centers for Disease Control and Prevention (CDC). The purpose of this study is to examine the **economic and health benefits associated with institutional procurement of locally grown foods**. We will conduct interviews in June and July, analyze information and write up a final report in August. The report will be written for public health practitioners, food service directors, growers, and community members interested in establishing local food procurement activities in their communities.

_____ recommended we reach out to you because your institution is involved with the aggregation and distribution of local foods. We would like to ask you some questions about what it took to establish local food procurement activities at your institution. This interview is not anonymous. We will summarize the interview themes within the report. We may pull pertinent quotes from today's conversation.

This call will take approximately 1 hour. With your permission, I would like to audio-record this conversation. The recording will only be used to help with transcribing the interview. The audio will be destroyed immediately after the study (in September).

This study is completely voluntary. You can choose to skip any question that you prefer not to answer. You can choose to stop or withdraw from participating in this interview at any time. There are no negative consequences if you choose to stop participating in this study.

Do you have any questions about the interview or the study?

Are you willing to participate in this interview?

Do I have your permission to audio-record this call? _____ (*If the participants **does not agree** to be recorded state,* "Okay, I can take handwritten notes during this call." *If the participant agrees to be recorded state,* "Okay I will ask you this question again, when I turn on the recorder.")

Interviewer initials: _____

INTERVIEWER NOTES: Prior to the interview, please fill out any information already collected through screener #2 and/or skip the question. Share this information with IPHI and CRC team members participating in the call.

All questions in green font are in the screener #2 instrument.

Section II: About the Co-op/food aggregator/Food Aggregator& the "local story"

1) When was the co-op/food aggregator established?

2) Why was the co-op/food aggregator formed?

3) What are the co-op/food aggregator goals?

4) How many members participate in the co-op/food aggregator?

5) What is the business model the co-op/food aggregator utilizes?

6) What is your role in the co-op/food aggregator?

7) Do the members represent…(choose all that apply)

□ small,
□ mid-size
□ large farm

8) Do members come from a…
□ specific county or counties
□ region of the state
□ state
□ several states…
□ other:_____

9) How does the co-op/food aggregator define local distribution (e.g. by state(s), miles)?

10) For each market channel listed below, what percentage of produce does the co-op/food aggregator sell through each channel?

_____ Institutions (e.g., hospitals, schools, colleges)
_____ Farm stand
_____ U-pick
_____ Farmers' market
_____ Other direct sales to consumers

_____ Community Supported Agriculture (CSA)
_____ Restaurants/caterers
_____ Cooperative grocers
_____ Natural foods stores (__independent; ___ national chains)
_____ Broker
_____ Distributor
_____ Repacker
_____ Wholesaler/Aggregator
_____ Growers' cooperative
_____ Sales to other farm operations

_____ Processor, mill, or packer

____ Conventional supermarkets (__independent; __ regional; __national chain)
____ Other direct-to-retail

11) What local institutions do you distribute food to?

□ School food service providers
□ Colleges/Universities
□ Healthcare facilities
□ Government agency food service providers
□ Prisons
□ Other (please specify below)

12) Do clients place orders through a:
___ internet site
___ faxed order form
___ telephone
___ other (please specify)

13) Does the co-op/food aggregator deliver the foods or does someone else?

14) How frequently is produce delivered to local schools and institutions? (Daily, weekly, etc.)
□ Daily
□ Weekly
□ Monthly
□ Several times a year
□ Yearly

15) How important are the sales of food to local institutions to the overall business plan?

16) How have business outcomes been affected by purchases from local institutions?

17) Has the amount of food produced changed as a result of increased demand for local food procurement in your area?

Context, Social Capital & Social Networks

We would like to know a bit more about partnerships developed to achieve local food procurement goals.

18) Who were the most important partners in achieving local food procurement activities? (For each partner) What types of activities did you collaborate with each partner on? (Probe for policy (institutional and governmental), practice and program created/modified as a result of these partnerships)

19) Please name up to five key organizational partners that are important in your local food purchasing work, for each of the following three realms: **Information sharing, Economic exchanges, Advice & support.** (See table next page.)

Environmental Impacts:

20) Have farmers change/modified the methods used for growing food as a result of increased demand for local food procurement in your area?
    Yes ___ NO __

21) Have farmers *diversified the products* they grow on their farm as a result of selling local foods?

    YES ____ NO ____

    a. **If YES,** please describe any benefits to your operation due to this diversification below:

22) Does the co-op/food aggregator participate in any federal conservation programs?

    YES____ NO____

    a. **If YES,** please indicate below which program(s) and how many acres are in each program:

Section III. Barriers and facilitators in implementing LFP activities

23) What challenges has the co-op/food aggregator encountered in providing foods for local distribution? How did/is the co-op/food aggregator overcoming these challenges?

24) What successes has the co-op/food aggregator identified in providing foods for local distribution?

25) What is needed to ensure the sustainability of local food distribution efforts?