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Local Food Systems Markets and Supply Chains

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Interest has increased in locally grown food (LGF), but the product definition has remained, understandably, rather vague. U.S. Congress defined a locally grown food product as a product sold within 400 miles of its origin, or within the state of its origin (Hand and Martinez, 2010), but in practice the concept varies widely both by product and region. Supermarket retailers, seeking to establish their own merchandising standards, have adopted their own definition of LGF. Definitions continue to vary widely across retailers and consumers, and can include a variety of values-based characteristics in addition to geographic proximity. Wal-Mart, for example, defines local produce as produce sold within the state in which it was grown in contrast to Earth Fare's definition as no further than 100 miles away from an Earth Fare store (Clifford, 2010; and Earth Fare, 2013). Supermarkets across the United States, including the South, recognize the increasing interest in LGF and have tried to capitalize with their own "buy local" programs. Consumer and retailer interests are further bolstered by state-funded programs which support and develop markets for state-grown products. State branding programs are widely used across the South.

Coordinating marketing functions with production represents one of the greatest challenges for local food, particularly concerning efficiently managing distribution and promotion. Mansfield and others (2003) noted the substantial level of public investment in physical marketing infrastructure put in place across the South, primarily for aggregation and distribution. Such public investments can perhaps be considered as regional efforts to improve supply coordination, but more localized private networks are also emerging. Business and market structures are rapidly

changing all along the local food supply chain, with farmers' markets, community supported agriculture (CSAs), food hubs, and other business models evolving across the South in an effort to shorten the food supply chain and increase LGF supply and quality. These organizations and structures are a diverse combination of public and private initiative. Much of the business structure innovation involves collaboration and integration that is both horizontal (wider scope of products and aggregation for scale) and vertical (assuming more downstream supply-chain functions).

Technology is rapidly changing conventional food supply chains. Innovations are connected to traceability, distribution efficiency, quality assurances, market information management, and product development, while larger-volume supply chains are implementing other technology-centered changes. These innovations are also being adapted to smaller-scale, shorter, localized food chains. There are interesting cases, particularly among some of the food hubs, where the supply chain information technology (IT) solutions were developed specifically to meet unique and

Table 1. Food Hub Distribution Nationally

Region	No. of Food Hubs	% of total
Southeast	64	27%
Southwest	16	7%
Northeast	63	27%
Midwest	50	21%
West	42	18%

Source: Barham et al, 2012, National Food Hub Resource Guide, National Good Food Network

specific needs of the group (Barham et al., p.13, 2012; and Matteson and Hunt, 2012). In some cases, LGF supply chains have become more integrated; in other cases, technology has contributed to the emergence of more specialized (local) chains.

Aggregation and Distribution Models for Local Food Systems

There is much to learn about the many innovative supply chain systems related to LGF. A host of research questions is raised in light of the diversity of these short supply chain approaches that more directly link producers and consumers, including replicability. Relative costs associated with efficiency are only part of the question. Economies of scale and standardization don't play the same role in markets where consumers are specifically looking for uniqueness and small size. Small- and mid-sized producers have taken advantage of the increased interest in LGFs mainly by forging direct-marketing channels to consumers, such as farmer's markets, roadside stands, and CSAs. Producers are also selling through intermediate marketing channels, such as sales to local retail, restaurant, and retail distribution outlets. Despite growth in consumer interest in geographic proximity of production, 97% of food still travels through conventional market structures (Low and Vogel, 2011) dominated by established and increasingly concentrated systems of nationally and globally organized wholesalers, processors, distributors, and retailers (Martinez, 2007). Small- and mid-sized producers' ability to access large wholesale and retail outlets through traditional supply chain systems given the volume, consistency, and quality requirements, as well as third-party liability insurance and food safety certification requisites demanded by these channels, remains limited.

Scale economies associated with distribution are significant and have been a major driver for food retailing

consolidation. Similar concentrations of distribution have occurred with food processing, particularly in meat and dairy products (James, Hendrickson, and Howard, 2013). Much of the smaller scale, local food production is disaggregated and not vertically integrated. Diminishing access to independent processors may be one barrier to LGF system growth. The ability to reach a larger share of consumers looking for LGF generally requires other business models to be considered by small- and mid-sized producers, and some interesting innovations have emerged that make short supply chain distribution more tractable. Season extending technologies and cooperative planning with a wholesale distributor looking to add a LGF line, for example, have the potential to expand the market presence of local produce

Local food system (LFS) supply chains place significant attention on preserving product identity throughout the supply chain, with the assumption that consumers will seek out and potentially pay more for foods that have a local identifier at point of sale. "Local" is inherently a positive credence attribute, but one that has been subject to ambiguous verification. Certifications and other tools used to authenticate products distributed through these channels have been explored, but are in their infancy. There has been growing interest in branding—state brands, regional brands, and farm-estate brands. Many retail outlets are trying to help consumers know where their food comes from by using producer profiles to more accurately identify locally grown products (e.g., a photo and short biography of the sweet corn producer at the point of sale). However, as product volumes increase and are derived from a greater number of local sources, accurately associating particular farmers with specific products may be more difficult and prove intractable as a long-term marketing strategy. There are clearly scale

diseconomies to local promotion providing an advantage to smaller locally based retailers.

Food Hubs as Supply Chain Solutions

Food hubs have been explored as a business model allowing for small- and mid-sized producers to reach a large volume of consumers seeking locally grown foods (Barham et al., 2012; and Matson, Sullins, and Cook, 2013). These aggregation and distribution centers help address the scale efficiency and other supply chain disadvantages faced by smaller producers seeking to link with conventional retail and food service markets. The U.S. Department of Agriculture defines a food hub as "a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional producers to strengthen their ability to satisfy wholesale, retail, and institutional demand" (Barham et al., 2012). There are six characteristics that define a food hub: 1) they organize aggregation, distribution, and marketing of mainly LGF from multiple producers to multiple markets; 2) they have a commitment to buy from small- and mid-sized local growers; 3) they work with producers to build their capacity to access wholesale and retail channels through facilitating their ability to meet requirements in these channels; 4) they try to guarantee good prices for their producers by using product differentiation market strategies; 5) they perceive producers as partners rather than suppliers; and 6) they want to have positive economic, social, and environmental impacts on the local communities while trying to maintain financial viability.

Food hubs can also address other challenges faced by small- and mid-sized agricultural producers. Undercapitalization and lack of access to capital to support marketing and

processing needs are major hindrances to the new breed of “retail agriculturists” seeking to reach new markets (Matteson and Hunt, 2012). Local food hubs can supply marketing services and processing infrastructure, as well as an opportunity to overcome food safety compliance issues and product liability concerns by providing group certifications or group insurance policies. They may also reduce market participation costs for small- and mid-sized producers, thereby attracting wholesalers to purchase local products from food hub participants as opposed to individual farmers.

Recent reports estimate that over 230 local food hubs are distributed across the nation (Barham, Tropp, and Dimitri, 2012). Although food hubs have been a marketing mechanism used with less intensity in Southeastern states when compared to the northeastern states, it is still widely used with 52 hubs across the Southeastern states. Evidence is mixed, however, in terms of demonstrated evidence of sustainable business models. Such food hub arrangements are structured to satisfy consumer demand for LGFs and illustrate how actors within the local food system supply chain are continuously searching for the most effective and efficient ways to do business. Public and private roles, business structures, grower involvement, and targeted consumer segments are being sorted out in different ways.

Public Agency Support for Local Food System Development

Public agencies can provide research and training support to develop local food systems in many ways, such as supporting season-extending trials; estimating the feasibility of alternative processing and distribution networks; identifying ways to minimize food safety risks and reduce the costs of complying with food safety regulations; and identifying best management practices across market structures. Establishing public-private

partnerships that link retail and food service companies to producers and university research and Extension support could enable small-local and large-conventional distribution systems to be brought together to reach the shared objective of bringing locally grown foods to local consumers, such as with ncgrowingtogether.org. Research can also identify supply chain innovations that appeal to and increase access to different consumer segments (e.g., “value shopper,” “foodie”), and evaluate the social, economic, and environmental externalities associated with new types of supply-chain relationships. Increased involvement in LFS of non-traditional and part-time producers, non-governmental organizations with urban renewal or other economic development objectives, and public agencies focused on outcomes such as employment can create further complexities around developing sustainable local food supply chains.

LFS supply chains must be examined as a network of strategic partners working locally on shared management issues. A two-part question needing to be answered is: Can strategic management in the food safety arena be adapted to local food systems in general, and can the idea of vertical strategic alliances be adapted to LFS supply chains? The local food supply chain need not be considered as separate local/non-local choice or even as a rival value chain. Indeed, the concept of supply chain management in food has always been about vertical partners working together to identify efficiencies and value creation through data, resources, and rules shared by the value chain. Both academics and food industry professionals have wrestled with ways to deal with markets and technological changes related to food supply chains. A rich tradition of supply chain research and management tools has emerged largely in the business literature, but also in the efficient consumer response practices in the

food industry with direct application to LFS organization and performance and therefore may be used to answer questions such as the one formulated above.

Adapting management information systems for marketing at a smaller scale, providing producer education on emerging buyer needs, and evaluating the feasibility of modern supply chain tools—including information exchange, quality assurance, and inventory management to short supply chains—are opportunities for developing LFS-focused education and capacity-building programs. Best practices templates for local food supply chains need to be assembled and shared among public agencies working with producers and other local food partners. Many LFS aggregation models have been explored to discover more cost-efficient distribution systems. Much work is needed to document LFS system cases, successes and failures, typologies, and planning- and concept-transfer tools for LFS development practitioners.

Marketing functions supporting local food need not be at odds with marketing functions supporting existing systems. Most local food will necessarily go through existing market channels; wholesalers, grocers, restaurants, and schools are willing partners with existing infrastructure. Public agency initiatives can work within the existing “conventional” food supply chain to identify solutions and opportunities for local foods.

Structure, Conduct, and Performance Revisited

The history of industrial organization is characterized among academics by observations and theories about how firms and industries are organized. Economists within these traditions looked at the relationships between supply chain structures and industry concentration, rules and organizations, and, ultimately, their impact on performance. Earlier academics

focused on issues like market power and firm behavior, public goods, and market failure, and examined the linkages of how supply chains were organized to overall industry performance. The emergence of innovative supply chains connected to local food systems raises a need for both academics and food industry professionals to look more closely at the relationships between how supply chains are organized and consumers' various considerations of what constitutes a high performing food system. Consumers increasingly place a value on where their food comes from, creating an opportunity for certain producers to take advantage of segmented markets and differentiate their products. There are certainly many innovative supply-chain strategies, but performance—including outcomes impacting local producers and consumers looking for local products—needs to be carefully thought out, along with the identification of meaningful measures for all participants in the system. Producers need to be able to identify viable distribution strategies either through their own dedicated supply systems or in tandem with existing conventional distribution partners.

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