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Meta-analysis of US intermediated food markets: measuring what matters

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Abstract

Purpose – The purpose of this paper is to develop a body of literature and case studies as part of the reporting, outreach, and evaluation of the local and regional food system projects supported by grants and other funders. There is concern that food value chains are promoted without adequately evaluating the viability of these businesses, or how these markets affect the performance and welfare of key stakeholders: farm vendors and local communities/economies.

Design/methodology/approach – This paper reviews and summarizes a comprehensive set of US-based case studies focussed on food value chains. The authors conduct a meta-analysis to systematically capture what available case studies find about: first, trends in the viability of food value chain businesses; second, the impact of these businesses on participating farm vendors; and third, the associated community economic development outcomes (framed in terms of “wealth creation”).

Findings – In addition to sharing findings from the meta-analysis, the authors demonstrate how the lack of standardized protocols for case study development is a barrier to learning about metric comparisons, best practices, and what impacts these food value chain businesses may have. The authors conclude with some recommendations of how the field can move forward to evaluate and share lessons learned using more uniform, project-driven case study development.

Originality/value – This is the first study to conduct a systematic meta-analysis of US food value chain businesses.

Keywords Case studies, Competitive advantage, Distribution channels and markets, Food value chain, Wealth creation

Paper type Literature review

Introduction

The role of small- and medium-scale producers in developing local and regional food systems has attracted renewed attention as their importance in supplying local food markets gains recognition (Low and Vogel, 2011). Despite local food systems’ purported potential to increase farm sales and achieve positive regional community economic development outcomes, the US Department of Agriculture (USDA) acknowledges the “lack of distribution systems for moving local foods into mainstream markets” as a barrier to “scaling up” local foods and meeting consumer demand (Martinez *et al.*, 2010, p. iv). And, despite increasing investments in innovative, regional food supply chain initiatives, there is little systematic consideration of the outcomes of these efforts.

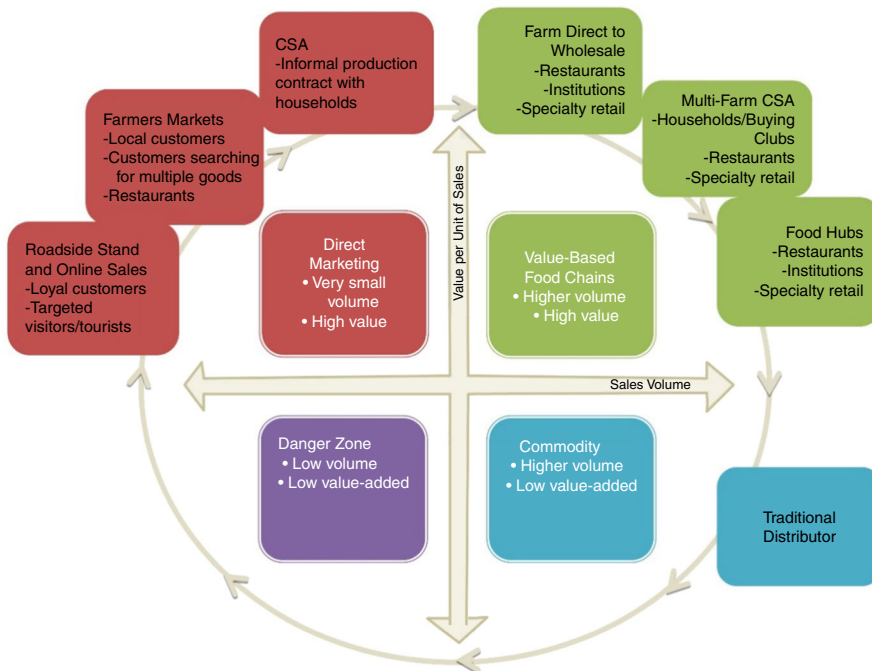
Accessing markets that may provide adequate returns on investment is difficult for small- and mid-sized farms as supply chains become more vertically integrated and consolidated. Large-scale supermarket retail and wholesale operations demand large



volumes, low prices, and consistent quantities and qualities that meet increasingly strict safety standards. The procurement systems in such markets are often vertically and horizontally integrated, global in scale, and aim to maximize efficiency, thus limiting the access for farms of limited scale (King *et al.*, 2010; Richards and Pofahl, 2010; Sexton, 2010; Tropp *et al.*, 2008).

In order to facilitate market access for small- and mid-scale farms, public agencies and private foundations are increasingly financing and promoting local food market intermediation models that operate post-farmgate. We define intermediation models as those business relationships that facilitate market arrangements for farms that are not direct to consumer (e.g. direct to restaurant, institutions, or to regional food aggregators) (Low *et al.*, 2015)[1].

A USDA Regional Research Committee, commonly referred to as the Agriculture of the Middle initiative, first developed a scheme to categorize local food business models in the early 2000's that helped to justify the need to further explore how new marketing initiatives may intersect with scale and financial sustainability (Stevenson and Pirog, 2008). Bauman *et al.* (2015) integrated these models among a larger, generalized typology of marketing channels that represent strategic market choices or decisions small- and medium-sized farmers would choose from depending on the best fit for their local/regional food landscape (see Figure 1).



Notes: CSA stands for Community Supported Agriculture, marketing programs used by farms to secure membership shares from a season-long customer base to secure operating capital early in the season, mitigate risk and balance their marketing portfolio with less certain direct market sales, such as farmers markets and roadside stands

Figure 1.
A classification
scheme of local food
business models

The typology can be divided into four quadrants using the sales volume as the horizontal dimension and the value-added (operating profit margin) per unit of sales as the vertical dimension. The types of models are ordered, and connected by arrows, to represent common evolutionary steps that operations may take if their current marketing choice or portfolio evolves with plans to expand or decrease in scale, as new marketing opportunities appear or financial challenges arise. The business models in the top two quadrants that operate post-farmgate are the focus of this paper, as they correspond most directly to the market intermediation models found in local and regional food systems. Importantly, as reported by Low *et al.* (2015), these intermediary businesses are likely to represent future growth in these markets.

Between 2009 and 2014, the USDA supported over 4,185 local food projects nationwide (investing > \$574 million), mostly through farm bill appropriations (US Department of Agriculture, 2015). Some examples of these USDA programs include the local food promotion program, farmers' market promotion program, and community food projects. As a result, the US has seen tremendous growth in the number of these market intermediation businesses. For example, since 2006-2007 the number of food hubs (local food aggregation and distribution businesses) increased by 288 percent. Likewise, the number of school districts with farm-to-school programs increased by 430 percent and now totals 4,322. Perhaps due to the expansion of these food value chains, Low *et al.* (2015) reported that the largest area of growth in local food sales is attributed to sales through intermediated marketing channels (\$3.349 billion of \$6.113 billion as of 2012, augmented by an additional \$1.612 billion if one includes farms that sell through both direct to consumer and intermediated marketing channels). Yet, there is concern that market intermediation businesses are promoted without adequately evaluating how they affect the performance and welfare of key stakeholders, especially the farmers that many consumers of these products may perceive they are supporting with their dollars (Onozaka *et al.*, 2010).

One of the major challenges in evaluating the impacts that result from these market intermediation models is the lack of available data for business planning and for public decision making on policy/investments. Tropp (2008), for example, writes that official tracking of local food system activity has not kept pace with the sector's growing importance in the US food system. Matteson and Hunt (2012) similarly note that "agricultural data collection efforts usually focus on farm production issues, not [...] marketing practices" (p. 10). Accordingly, most research on local food systems uses a qualitative case study approach, making comparisons or drawing overarching conclusions difficult (Lerman, 2012; Low *et al.*, 2015). These dynamics and the call for standardized approaches to evaluate local food market intermediation models are the motivation for this meta-analysis, and help to frame the recommendations for future research and evaluation of this emerging sector.

Case study research

A common perception of the case study approach is that they are only of value in the exploratory and descriptive phases of research, while surveys and the analysis of quantitative data are more appropriate for hypothesis testing, program evaluation, and explanatory purposes. Yin (2003) notes, however, that case study methods may be involved in all three roles: exploratory/descriptive, evaluation, and hypothesis testing. For example, a common use of the case study research methodology is the evaluation of businesses and government programs with the goal of identifying potential explanations for their successes or failures. Yet, without clear statements about the

outcomes to be evaluated, little may be learned to guide the case study at hand or to evaluate broader trends.

Yin proposes that the phenomena and its context may not be readily distinguishable. He suggests that the case study definition include characteristics stipulating data collection and analysis requirements. Specifically, he states that “the case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points; [...] relies on multiple sources of evidence, with data needing to converge in a triangulating fashion; and [...] benefits from the prior development of theoretical propositions to guide data collection and analysis” (pp. 13-14).

Case studies, however, may have shortcomings that limit their usefulness in understanding a situation or evaluating a program (Flyvbjerg, 2006). The more complicated the research issue, the greater the amount of time and resources required for research design and case study selection. In addition, complicated situations generally require a multiple case study research design with several sources of information per case. Without standardized data collection, these meta-analyses are not possible. As one example, case studies are sometimes used as justification for adopting a particular entrepreneurship development program, e.g., a business incubator, without consideration of the assets in a region and the relevance of the program to the needs of the entrepreneurs. These types of misuses may be reduced if the case study research is guided by questions and analysis clearly linked to the priorities, mission or intended outcomes of the grant program, broader community initiative, or core business stakeholders.

Framing of literature review/meta-analysis

Given that these market intermediation businesses are purported to support farms and rural community economic development (Jablonski *et al.*, 2016; US Department of Agriculture, 2013), this meta-analysis seeks to systematically capture what available case study evidence tells us about: first, trends in the viability of market intermediation businesses; second, the impact of these businesses on participating farm vendors; and third, the associated community economic development outcomes.

Whereas discerning the viability of market intermediation models and resulting impacts on farm vendors is fairly straightforward, the literature on evaluating broader community economic development outcomes is more nebulous. Yet, we believe evaluating the longer term impacts resulting from these businesses is particularly important. Herein we utilize a wealth creation framework, promoted by the USDA and Ford Foundation, and defined as a community’s assets (net of liabilities) that contribute to the well-being of an individual or group (Pender and Ratner, 2015). This framework guides the community wealth variables we would hope to capture in the meta-analysis. The challenge is that although it is a promising framework for assessing local food market intermediation models, efforts to empiricize a wealth creation approach are just starting to emerge (e.g. Jablonski, 2015; Pender *et al.*, 2012; Pender and Ratner, 2015; World Bank, 2011).

Methods

An initial search for subject case studies was conducted on March 4, 2015 with an EBSCOHost search of “EconLit” and “Agricola” databases. Results were limited to articles published after 1985 and used the following query syntax: “food system” and

“case study”; “food system case studies”; “local food case study”; “local food case studies”; “local food economy”; “food system economy”; “local food economics”; “food system economics”; “food system economic impact”; and “local food economic impact.” This search yielded an initial list of 362 relevant works. This initial list was further reduced to 242 records when articles not published by peer-reviewed academic journals or by the US Government were excluded. Articles published by the US Government, most commonly USDA agencies, were included due to their transparent and rigorous peer review process that is similar to that of academic journals[2]. Lastly, article titles and abstracts were reviewed and articles regarding locations and/or businesses outside of the USA were eliminated, as were duplicates. After applying these initial exclusion criteria 114 articles remained.

Individual articles were then collected through online databases and through inter-library loans, as needed. The references cited in these 114 articles were then reviewed and the same process was used to acquire additional relevant articles. The full set of articles was reviewed and a final set of exclusion criteria was applied. Articles were excluded under this final set of exclusion criteria if they: did not have individual, firm-level quantitative data; were published before or during the year 2005 (further reduced from initial search of 1985 to ensure only the most recent literature was included in final analysis); did not focus on business types described in the top right quadrant of the typology described by Bauman *et al.* (2015).

Only 37 articles remained after applying final exclusion criteria, however, many articles featured multiple case studies. Each case study was analyzed using a common rubric and a unique record was created for each individual business detailed in every article. In total the 37 articles yielded 145 case study records. Of these, six articles came from US Government sources representing 40 case study records. Then the same exclusion criterion were applied to the records and two additional records were excluded, leaving 141 total case study records representing 103 unique businesses. In cases where a business or organization was profiled in multiple articles, the most recent study was utilized. Figure 2 details the frequency of article publication dates of the articles included in the analysis. Lastly, comparative analysis was conducted where possible by frequency of records containing information, as well as percent of “viable businesses,” defined as greater than or equal to 0 percent net profit. Where appropriate, pairwise *t*-tests were used to test significant differences across some factors (revenues, paid staff, number of products offered) for the subgroup of viable businesses. In other cases, where there may be interesting inferences on frequency of responses across a set

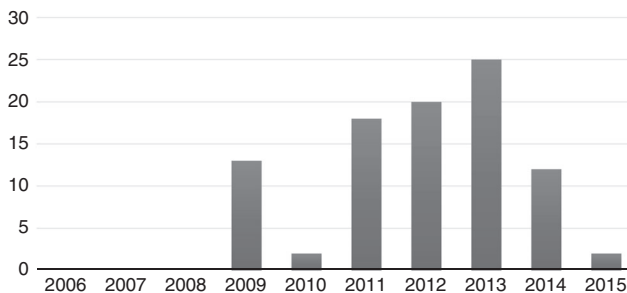


Figure 2.
Case study business records by year of article published

Note: 11 case study records did not include the date of publication

of categories (e.g. geography of scale, community capital strategies and types of market outlets), χ^2 -tests were used to assess if the subgroup of viable businesses reported results that were significantly different from the other sample. Each table reports the significance of these tests, depending on the nature of the variables.

Based on the limited results elicited from the case study searches, exclusion criteria, and missing variables, we extended our research goals to include developing a framework to guide the development of future case studies so comparative analyses such as what is attempted here can be more informative.

Findings

The case study records were coded into binomial (yes/no) variables and then analyzed using basic descriptive statistics for each response category in the rubric. The rubric contained the following domains: basic business information, business structure, business function, geographic scope, market outlets, product mix, value propositions (e.g. value proposition to farmers/input suppliers and value proposition to customers), competition (e.g. competitive environment, product differentiation) operational data, and financial data. Each domain contains multiple rubric categories. The proportion of records containing information in each rubric category is summarized in Table I. Viewed alone, this table highlights the disparities in content across case studies. The only rubric category which was included in 100 percent of case studies was business name – even business location, typically provided as city and/or state, was only included in 87.2 percent of case studies.

One of the greatest challenges in assessing the case studies is the relative lack of specific quantitative values for key financial data. While 54.37 percent of case study records include information on revenues, only 24.27 percent include information on profitability and even fewer include key information on cost of goods sold (3.88 percent), or key expenditure items such as labor (1.94 percent) or rent (0.97 percent). Perhaps, this is not surprising given the confidential nature of this data, and concerns about how this may affect the competitive strategies of the enterprises. However, it is worth a discussion about public information that is appropriate to share when public investments are being made in some of these enterprises.

For those case studies that provided the requisite information, we divide the profitability results into a continuum of profitability (from unsustainable loss to highly profitable) in order to evaluate the financial viability of case study businesses. The proportion of case study records in each part of the range is detailed in Table II. Only 5.83 percent of the case study businesses reported being profitable (between 2-5 percent net profit), and none of the case studies reported being highly profitable (> 5 percent net profit). An additional 10.68 percent reported operating at a breakeven level (0-2 percent net profit).

Trends in the viability of food value chain businesses

We begin by exploring how various aspects of market intermediation models vary when comparing the economically viable subsample of enterprises to those that are not profitable or with unknown information. Given a well-developed literature on what factors matter for business success (Porter, 1998, 2008), we include the following variables in our examination: age of business, competitive advantage, market orientation, scale (by revenue and work force), well-defined mission, and other organizational characteristics.

BFJ 118,5	This includes all entries	Rubric category	% of records containing information
1152	Basic business information	Business name	100.00
		Business location	88.35
		Year founded	79.61
	Business structure	Legal structure	75.73
		Ownership	58.25
		Governance	38.83
	Business function	Aggregation/distribution	59.22
		Producer	24.27
		Producer cooperative	14.56
		Value-added processor	17.48
		Worker/consumer cooperative	8.74
		Farmers' market	5.83
		Retail store	6.80
		Geographic scope	Location of markets
	Market outlets	Location of producers	70.87
		Direct market outlets	53.40
	Product mix	Intermediated market outlets	74.76
		Types of products/services	71.84
		Number of products/services	17.48
		Pricing strategy	36.89
	Value propositions	Volume strategy	7.77
		Sales mix	28.16
		Value proposition to producers	51.46
	Competition	Value proposition to customers	33.01
		Competitive environment	16.50
	Operational data	Position in marketplace	47.57
		Product differentiation strategy	53.40
		Number of vendors	57.28
	Financial data	Assets and asset ownership	38.83
		Land/facility size	28.16
		Revenues	54.37
		Profitability	24.27
Cost of goods sold (COGS)		3.88	
	Labor expenses	1.94	
	Rent expenses	0.97	

Table I.
Prevalence of case study results for each rubric category by key business domain

	Profitability	% records
Table II. Profitability continuum, by case study	Highly profitable (over 5% net profit)	0.00
	Profitable (between 2 and 5% net profit)	5.83
	Breakeven (between 0 and 2% net profit)	10.68
	Cash flow neutral (total expenses equal revenues)	0.97
	Net loss (total expenses exceed revenues)	5.83
	Unsustainable loss (variable expenses exceed revenues)	0.97
	Unknown	75.73

The viability of local food market intermediation businesses is defined in terms of profitability. Despite the fact that 80.1 percent of case study records are missing the requisite data to understand profitability, we were able to identify a limited subsample of case study businesses that are economically viable (profitable or breakeven).

This subsample includes 17 viable businesses. Differences between the subsample of viable businesses and the full sample of records for each rubric category are detailed in Table III. Depending on the nature of the factor, statistical test results (pairwise *t*-tests or χ^2 -tests) are presented for each table.

Viable businesses have a different market orientation when compared with nonviable businesses or those with unknown profitability. Market orientation is defined as the market outlets used by the business and the competitive advantage of the business in its given market.

In line with national food system trends, a greater proportion of profitable businesses utilize intermediated outlets compared to direct market outlets (Low *et al.*, 2015). Table IV provides more detail on the specific market outlets used by businesses in the case study sample compared to those businesses that are viable, as well as the χ^2 -test results showing significant differences across these two samples.

The subsample of viable businesses was also evaluated to determine likely sources of competitive advantage for each firm compared to nonviable businesses or those with

Variable	% of viable businesses	% unviable or unknown records
<i>Year founded</i>		
2005 or later	5.88	31.03
After 1990, before 2005	17.65	26.44
1990 or earlier	70.59	18.39
Unknown	5.88	22.99
<i>Leadership**</i>		
Visionary founders/leader(s)	13.40	47.06
<i>Governance</i>		
Innovative	41.18	8.05
Traditional	47.06	56.32
Unknown	34.48	34.48
<i>Legal structure</i>		
Non profit	5.88	27.91
For profit	35.29	33.72
Cooperative	52.94	10.47
Unknown	5.88	27.91
<i>Revenue levels</i>		
Annual sales > \$1,500,000	70.59	20.93
Annual sales ≤ \$1,500,000	23.53	25.58
<i>Labor expenditures</i>		
> 20 hired staff members*	58.82	15.12
≤ 20 hired staff members	35.29	24.42

Notes: χ^2 -tests were performed to test for differences among the samples related to year founded, governance, and legal structure categories. Pairwise *t*-tests were run on individual subcategories for leadership revenue levels and labor utilization; We divide governance into three typologies: innovative, traditional, unknown. Innovative governance refers to more consumer and/or producer engagement in governance than expected by legal structure (e.g. farmer advisory board as part of a for-profit organizations). Traditional governance is a governance approach appropriate or expected given the organization's legal structure. Unknown indicates that no indication of governance structure or legal structure information was provided. **,***Significant at $\alpha=0.10$, $\alpha=0.05$, $\alpha=0.01$ levels, respectively

Table III.
Comparative
descriptive statistics,
by viable businesses
and full sample

BFJ 118,5	Variable	% of viable businesses	% of nonviable businesses (or unknown)
	<i>Direct market outlets***</i>		
	Farmers' market	11.76	23.26
	Community Supported Agriculture (CSA)	5.88	5.88
1154	Internet/mail order sales	11.76	17.44
	Buying clubs	11.76	9.30
	Farm stand/store	11.76	10.47
	Delivery to customers	5.88	11.63
	<i>Intermediated market outlets**</i>		
	Grocery retail	76.47	46.51
	Restaurant	41.18	46.51
	Institution	5.88	37.21
	Distributors	29.41	20.93
	Other	5.88	11.63
	Value-added processing	11.76	5.81

Table IV.
Specific market outlets reported in case studies, sorted by prevalence

Notes: χ^2 -tests were performed to test differences among samples for reported use of direct market outlets and intermediated market outlets categories. *, **, ***Significant at $\alpha = 0.10$, $\alpha = 0.05$, $\alpha = 0.01$ levels, respectively

unknown profitability. Competitive advantage theory traditionally outlines economies of scope, economies of scale, vertical integration, investments in technology/infrastructure, and brand differentiation as the key sources of advantage in a given marketplace (Porter, 2008). Food systems are known to contain other potential types of advantage; including: selling local or regional source-identified products, as well as alignment with broader public or societal goals (Stevenson and Pirog, 2008; Diamond *et al.*, 2014). Table V presents potential competitive advantages for food market intermediation businesses in terms of: brand differentiation, economies of scale, place-based attributes, strategic partnerships across the value chain, economies of scope, vertical integration, quality differentiation via supply chain technology or infrastructure, unique skills or experience of staff/board. Interestingly, over half of the cases studying viable businesses, and over 30 percent of all other case studies,

Variable	% of viable businesses	% of nonviable businesses (or unknown)
Brand differentiation	64.71	33.72
Economies of scale	58.82	36.05
Place-based attributes	23.53	36.05
Strategic partnerships across value chain	29.41	25.58
Economies of scope	47.06	23.26
Vertical integration	35.29	17.44
Quality differentiation via supply chain technology or infrastructure	17.65	15.12
Unique skills/experience of staff/board	0.00	2.33

Table V.
Possible sources of competitive advantage in case studies, sorted by prevalence

Notes: A χ^2 -test was performed to test differences among the samples on the possible sources of competitive advantage category. The test was significant at the 0.01 level

mentioned brand differentiation and economies of scale as a source of competitive advantage of market intermediation models. These two aspects seem prevalent and communicated well. Overall, the viable businesses used a significantly different frequency of competitive strategies than nonviable or unknown businesses, as indicated by the significance of the χ^2 -test.

Impact of food value chain businesses on participating farm vendors

Most public investments in food value chains are at least partially driven by the intention to support the participating farm vendors who would benefit from improved market access. Thus, we captured key variables that would help to define farm-level impacts, with a particular focus on geographic scope of purchases.

Table VI shares the scope and range of farm vendors who sell through the case study food value chains, as well as the average number of farm vendors participating in viable market intermediation businesses compared to those that were not viable or of unknown profitability. Table VII presents results of the geographic coverage of the food value chain businesses' sales, as well as detail about the diversity in number of products offered by the food value chains.

Community economic development outcomes resulting from food value chain businesses

As discussed above, the wealth creation literature is still developing. In contrast to the first two sections where business norms suggest clear metrics to compile, in order to evaluate wealth creation, the metrics are less well defined. Accordingly, we allowed the case study narratives to partially define variables included in four key domains of wealth creation: social capital, entrepreneurial capital, human capital, and political

Variable

*Geography of farm vendors***

	% of viable businesses	% of nonviable businesses (or unknown)
Local (≤ 50 miles)	23.53	9.30
Near regional (> 50 - < 250 miles)	23.53	19.77
Far regional (250-400 miles, or within state)	11.76	18.60
Multi-state (> 400 miles or outside of state)	23.53	16.28
International (outside of USA)	5.88	3.49
Unknown	23.53	9.30

Number of farm vendors

	No. of viable businesses	No. of nonviable businesses (or unknown)
Minimum	5	9
Maximum	1,412	401
Mean	250	86
Median	46	45
Unknown	7	37

Notes: χ^2 -tests were performed across samples on the geography of farm vendor categories. Additionally, a pairwise *t*-test was run on the mean number of farm vendors, but was not significant; this analysis did not include geography of farm for those cases that did not provide sufficient evidence for classification. *, **, ***Significant at $\alpha = 0.10$, $\alpha = 0.05$, $\alpha = 0.01$ levels, respectively

Table VI.
Location and
number of
farm vendors

BFJ 118,5	Variable		
	<i>Geography of markets**</i>	% of viable businesses	% of nonviable businesses (or unknown)
	Local (≤ 50 miles)	5.88	23.26
	Near regional (> 50 - < 250 miles)	11.76	6.98
	Far Regional (250-400 miles, or within state)	11.76	9.30
	Multi-state (> 400 miles or outside of state)	47.06	32.56
	International (outside of USA)	5.88	1.16
	Unknown	5.88	23.26
	<i>Number of products</i>	No. of viable businesses	No. of nonviable businesses (or unknown)
	Minimum	200	6
	Maximum	3,400	6,001
	Mean	1,567	1,336.6
	Median	1,101	308
	Unknown	14	71

Table VII. Location of markets and number of products

Notes: A χ^2 -tests was performed across samples on the geography of markets. Additionally, a pairwise *t*-test was run on the mean number of products, but was not significant. The study did not include geography of markets in those cases that did not provide sufficient evidence for classification. *, **, ***Significant at $\alpha = 0.10$, $\alpha = 0.05$, $\alpha = 0.01$ levels, respectively

capital. Table VIII details differences between the subsample of viable businesses and the full sample of records for four types of community capital that are key to wealth building, and the χ^2 -test shows that as a whole, there are significant differences between the two samples. Interestingly, social and entrepreneurial capital are the most common community capital investments among the viable businesses and nonviable or unknown businesses, although at significantly different frequencies.

Discussion

Despite the frequency of missing variables among the case studies, we felt there were enough case studies with information on profitability to loosely benchmark those that were viable against a broader sample, and perhaps begin to understand industry best practices for viability. For the remaining discussion on enterprise characteristics, these viable business will be compared to the larger sample. There is a range of legal structures operating these food value chain businesses; not surprisingly, nonprofits appear to be the least likely to be viable. Over half of the viable businesses in our sample are cooperatives.

Community capital*	% of viable businesses	% of nonviable businesses (or unknown)
Social capital	41.18	26.74
Entrepreneurial capital	41.18	22.09
Human capital	23.53	11.63
Political capital	23.53	11.63

Table VIII. Community capital described in case studies, sorted by prevalence

Notes: A χ^2 -tests was performed across samples on reported attention related to the community capital categories. *, **, ***Significant at $\alpha = 0.10$, $\alpha = 0.05$, $\alpha = 0.01$ levels, respectively

Interestingly, almost half of the unviable or unknown businesses reported visionary founders or leaders compared to just over 13 percent of viable businesses. Over 70 percent of viable businesses had annual sales over \$1,500,000, compared to over 20 percent of unviable or unknown businesses. Viable businesses were significantly more likely to invest in their work force (as indicated by number of businesses with more than 20 hired employees) that is likely needed for these types of customer-and-vendor service intensive enterprises.

Table IV demonstrates that there are significant differences in market channel utilization between viable and nonviable or unknown businesses. Over 76 percent of viable businesses, for example, sell to grocery retail stores, compared to 46.51 percent of nonviable or unknown businesses. Similarly, nonviable or unknown businesses were more likely to sell to farmers' markets or to do delivery to customers compared to viable businesses (22.26 and 11.63 percent compared to 11.76 and 5.88 percent, respectively).

There are a number of strategies mentioned as potential competitive advantages among the case studies in Table V. But, the lack of detail in how these were defined within cases requires caution in how these differences are interpreted. That stated, it is not surprising that vertical integration may be key to viability as one would expect given the multi-faceted food system. In short, partnering with enterprises established in the food system (retailers, processors, existing distributors), may lessen the risk of gaining a foothold in a highly competitive industry. Additionally, a relative reliance on marketing of place-based attributes by nonviable or unknown businesses compared to viable businesses (36.05 percent compared to 23.53 percent) may suggest that there are other, more successful competitive advantage strategies.

Much attention is given to the "local" definition of these market intermediation businesses. But, to be careful, we chose to define locality in two ways relative to the business: proximity of the farm vendors; and geographic scope of the customer base. In terms of the geography of farmers, it appears that a closer proximity of the vendor base may benefit the chances for food value chain viability (Table VI). We do not find any significant differences in the number of producers served, but the wide range of the number of vendors is interesting to note and may again suggest the bi-modal nature of viable organizations.

In terms of the geographic scope of the customer base (markets), there are significant differences between the viable and other cohort of cases. Digging into specific numbers, it may be that being too local may actually be a detriment to viability (Table VII). Though we did not find significant differences in the number of products offered by the case study businesses, this may be due to the large number of case studies where this information was unknown. Indeed, we hypothesize that diversity of products helps viability, but an overly diverse product scope may over-stretch resources or dilute the core marketing strategy of a food intermediation business.

Finally, the community capital data were compiled in fairly broad categories, but the differences in the sample of viable business and the whole sample is interesting to note. This can be interpreted in one of two ways: first, viable businesses have adopted shared values that may help coalesce vendors and buyers in their mission; and second, attaining an economically viable status allows these businesses to reinvest in their communities as they mature past the start-up phase.

Upon undertaking this research project, we were pleased to see the volume of case studies that have been completed on market intermediation models given the nascent nature of that sector. However, upon closer examination, the ability to meta-analyze these studies was severely limited by the exclusion of variables one would expect a

case study of a strategic business to include. So, we will summarize the limitations of this effort, and use those limitations to frame how the use of case studies in the local food system field could move forward so that future comparative analyses are more fruitful.

Limitations

Very few case studies look at the full range of impacts comprehensively. Perhaps this is due, in part, to the fact that no consistent framework for these case studies, reports, or evaluations of value chains has been developed. These limitations can be grouped into primary categories: the number of useful metrics being reported; and, the lack of standardization in how some metrics and outcomes are reported.

Major case study limitations include the lack of information about:

- promotional strategies (e.g. outreach, packing, communications);
- balance sheet ratios;
- capital/fundraising strategies and ratios (as well as access to credit);
- risk management strategies;
- operating models;
- written business plan;
- developed financial plans and financial projections; and
- operator/staff background and experience.

From a research perspective these limitations fundamentally impede meta-analyses or comparative analyses. But, perhaps more importantly, this lack of critical information may limit interest by entrepreneurs, opportunities for business development and public investment, as well as the ability of technical assistance providers to clearly articulate best practices/best promise for impacts and outcomes in a rapidly evolving sector.

It is clear that some of these operational details may not be shared because of the proprietary nature of the information. However, there are some cases where sharing key data and outcomes should be a prerequisite or align with the nature of the enterprise (cooperatives) or willingness to accept public support in the form of grants and foundational monies. In cases where cases do have to be developed with enterprises who choose to keep some data private, the cases goals and objectives should be framed in a way that communicate the focus is on aspects other than the economic viability and competitive nature of the organization. To that end, the recommendations for case study development that follow are differentiated to account for the various types of lessons one might learn from case studies.

Recommendations for future research

The recommendations we put forward as part of our contribution from this study are what we consider key metrics that evaluative or descriptive case studies should encompass. Hardesty *et al.* (2014) began formulating a framework that is worth revisiting and utilizing as a template for future work. They report that financial, policy and entrepreneurship factors are all affecting the development of value chains. Moreover, they conclude many producers involved in value chains became aware of the value of communicating their values. They conclude that, to enhance the viability of value chains and the producers involved, market development, market access, and

consumer and institutional buyer education are key. Given what is summarized in our meta-analysis, what factors appear to matter to viability, and business strategy factors that are seminal to competitiveness in all industries, the following framework is offered for consideration.

Table IX is a summary of elements and information that should be included in a case study of value chains. In the first column, we include essential elements that one would typically expect in any business-oriented case study. The second two columns provide additional possible phases of data and variable collection, which could be added depending on the research goal of the case study.

The middle column offers guidance to authors on data and information that would be key for the analysis of economic viability of a food value chain, partially driven by our own desire of what metrics would have allowed us to compare case studies more fully. We did our best to compare viable enterprises to the broader sample, but know that more than a net profit margin should be used to frame such entities. Finally, the column at the far right of Table IX shows some data and information that would be key to understanding on a value chain enterprise may be evaluated in the context of rural wealth creation (as framed above). Again, we had limited success in defining that in our

	Essential elements	Key data for economic viability analysis	Key metrics for wealth creation analysis
Enterprise business scope, size and organizational factors	Name, revenues, product/service portfolio, employees, legal structure, governance model, year of establishment	Gross margin, net income, asset value, debt level (or ratio), labor expenditures, portfolio shares of key product lines	Mission statement, commitments to community partners (environmental, cultural, political, education)
Competitive advantage	Market orientation, differentiation scheme, key alliances, networks and partners, scale relative to industry average	Sales attributed to partners/alliances, financial ratios benchmarked to industry averages	Specific evidence of business alliances or partnerships that are aligned with mission or strategic position
Marketing strategy, channels and pricing strategies	Number of market channels, share through major channels, relative price points (broadly defined)	Price premia (actual or goals with specific number for key products), returns to promotions or differentiation strategies	Sales driven by key partners or alliances, share of sales pledged to community orgs, price discounts or allowances for allied businesses
Sustainability and/or growth strategy	Intended expansion in geographic markets (vendors or markets), new initiatives to differentiate product lines or coordinate in new market channels	Year over year sales growth, planned investments in capital or work force, payback period expectations on market expansion plans or investments	Evidence that linkages generate specific social and political capital (lower transaction costs, access to new markets, favorable zoning)
Challenges and potential threats	Number of new competitors, regulatory compliance issues, loss of market channels/partners, cost pressures	Evidence of lower prices or margins, cost inflation, estimates of costs to comply with regulations (food safety, liability, environmental impacts)	Negative spillovers. Unintended over competition from proliferation in certain regions. Regulatory scrutiny (food safety or zoning concerns)

Table IX.
Broad guidelines for case study template for food value chains

meta-analysis, so this guidance is offered to authors who may write about food value chains in the future and may want their studies to aid in the evaluation of how such enterprises contribute to community development outcomes.

Overall, it may even be of value for those that conduct research and evaluate food value chain projects to develop a template of interview questions, and spreadsheet of data to collect, that would guide a more uniform set of case study methods for this field. Although not every investigator may find the full set of prompts necessary, it may assure more comparability across studies, and allow some generalizable results to be shared with the sector as it matures and refines the business strategies that emerge as best practices and promising opportunities for growth.

Notes

1. Though we classify these businesses as market intermediation models in this paper, some literature defines these businesses more narrowly as values-based supply chains (Hardesty *et al.*, 2014): specialized structures that are purported to “enhance small and mid-scale farmers’ financial viability by capturing price premiums in the marketplace for the environmental, economic, and social benefits (values) embedded in the products” (Feenstra *et al.*, 2011, p. 71). In other literature, these businesses are defined as short supply chains, reducing the number of businesses involved in supply chains in order to increase the share of the final price received by the farm (European Commission, 2014).
2. For more information on the USDA’s peer review process, including the Office of Management and Budget’s guidelines, available at: www.ocio.usda.gov/sites/default/files/docs/2012/FINAL_Peer_Review_Guidelines.doc

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Further reading

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