

Using Benchmarks to Develop Local Food System Businesses



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Steve Warshawer, La Montañita/Wallace Center
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AGRICULTURAL AND
RESOURCE ECONOMICS
COLORADO STATE UNIVERSITY

<http://www.localfoodeconomics.com/benchmarks/>

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Advisory Board

- On our panel
 - Steve Warshawer- La Montañita
 - Longstanding CSA farm operator
 - Wallace Center "Food LINC" *Leveraging Investment for Network Coordinator*
 - Julia Laughlin-Bella Verde Farms, Prairie Earth Gardens
 - Formerly Oklahoma State Extension-Urban IPM
 - Local radio personality
 - Blake Angelo-Denver Food Systems Manager
 - Formerly of CSU Extension and Community and Economic Development Center
 - Jeffrey O'Hara-USDA Ag Marketing Service
 - Formerly with Union of Concerned Scientists
- Mary Ahearn-formerly of USDA-AMS
- Phil Watson-University of Idaho/Alward Institute



Introductions

- Introduce yourself
- Experience with Local and Regional Food Systems
- What challenge would you pose to the audience....what research or outreach could they do to make a positive contribution to challenges food systems currently face?

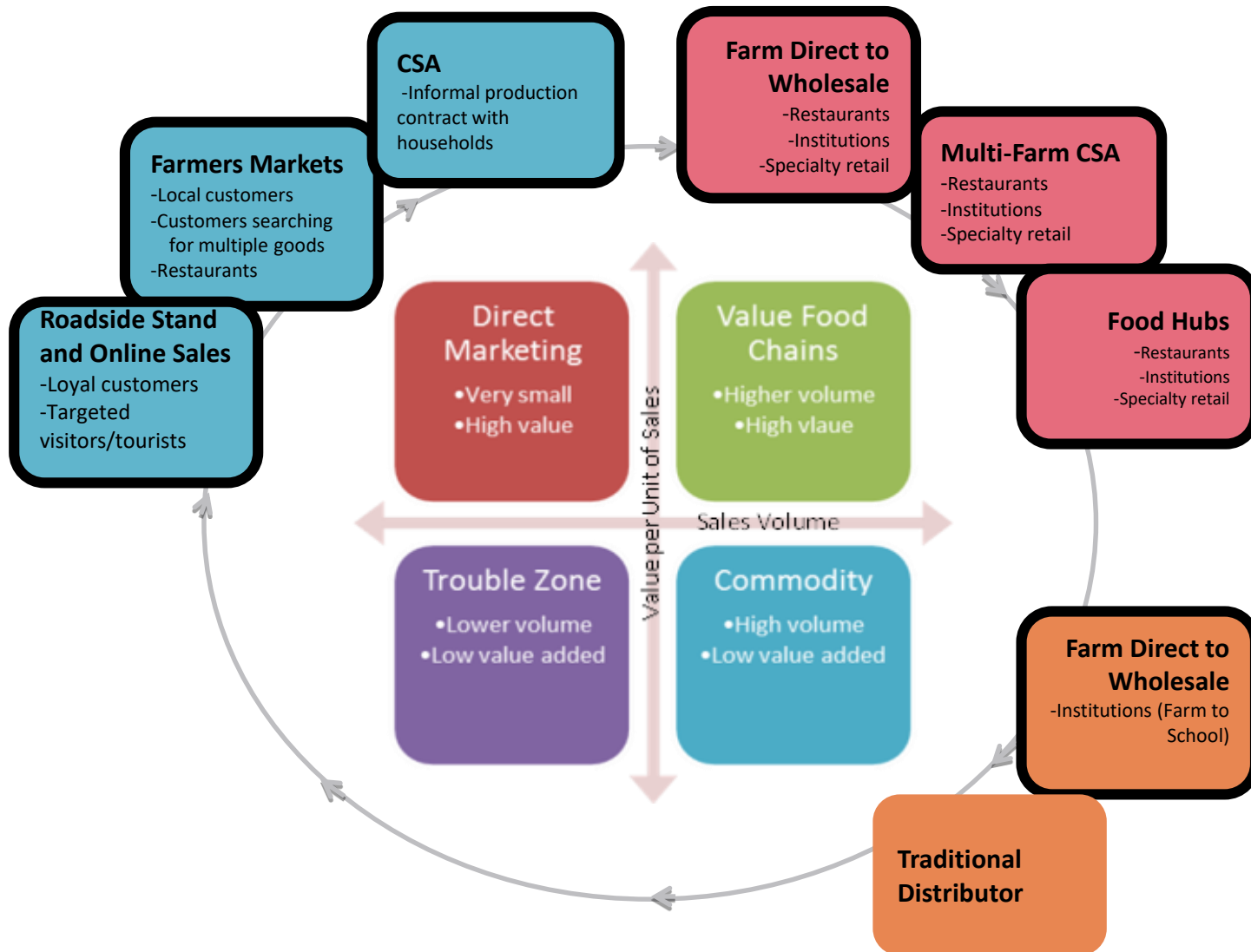


Growth in the Local Food Systems

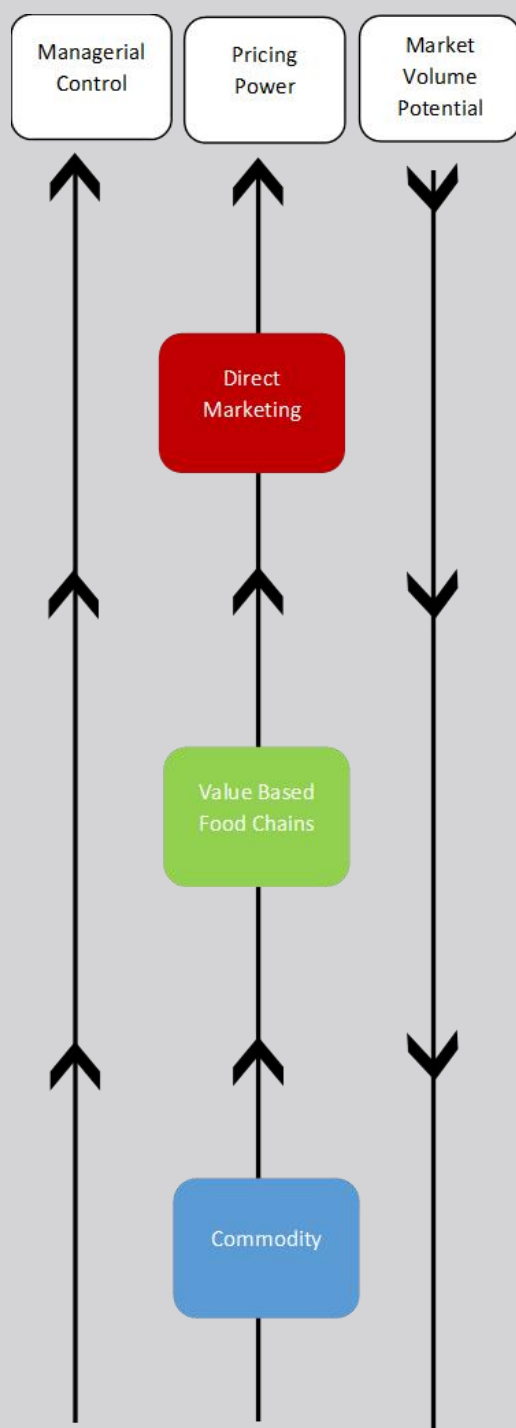
- In 2012, 7.8% of all U.S. farms participated in local food systems with total sales of \$6.1 billion
(Low et al., 2015)
- Significant growth, since 2006
 - Farmers' markets have grown 180% (Low et al., 2015)
 - Food hubs have increased by 288% (Low et al., 2015)
 - Farm-to-school programs increased by 430% (USDA Farm to School Census, 2015)
- Between 2009 and 2015...
 - USDA invested over \$1 billion in > 40,000 local & regional food businesses & infrastructure projects¹

¹see: <https://medium.com/usda-results/new-markets-new-opportunities-strengthening-local-food-systems-and-organic-agriculture-17b529c5ea90#.queo3drgy>

Typology-USDA ARMS Data



Create benchmarks to evaluate producers selling through the following marketing channels



Focus on the tradeoff between volume of sales and two key management factors:

1) Managerial control/independence retained by producers

2) Pricing power of producers

Is there an “optimal” place on continuum for producers? Intermediated marketing partners? Public investments?

Table 1: Market Typology Advantages & Disadvantages

Market Orientation	Customers	Managerial Control	Pricing Power	Market Volume Potential
Roadside Stand and Online Sales	Local, traveling and national households	Full control	High	Low to high
Farmers Markets	Local households, travelers	Full control	High	Low to medium
CSA	Local households	Full control	Medium	Low
Farm Direct to Wholesale	Local, independent businesses, institutions	Full control	Medium	Medium
Multi-Farm CSA	Local households and businesses	Shared control	Medium	Medium to High
Food Hubs	Local businesses and institutions	Shared to limited control	Medium	Medium to High
Traditional Distributor	All buyers	Limited control and pricing power		



Research and Data Used for Evaluation

- Case studies provided an overview of many different business models (Angelo, Jablonski, and Thilmany, 2015)
 - Informed the typology
- USDA Agricultural Resource Management Survey (ARMS)
 - Nationally representative sample of farmers and ranchers
 - Data used to
 - Evaluate the financial performance of farmer and ranchers that participate in local food systems
 - Develop multipliers used to estimate economic impacts of local food systems
- Wallace Center's 2015 National Food Hub Survey
 - National survey of food hubs
 - Data used to evaluate the financial performance of food hubs



Benchmarks



Evaluating Local Food System Participants using Benchmarks

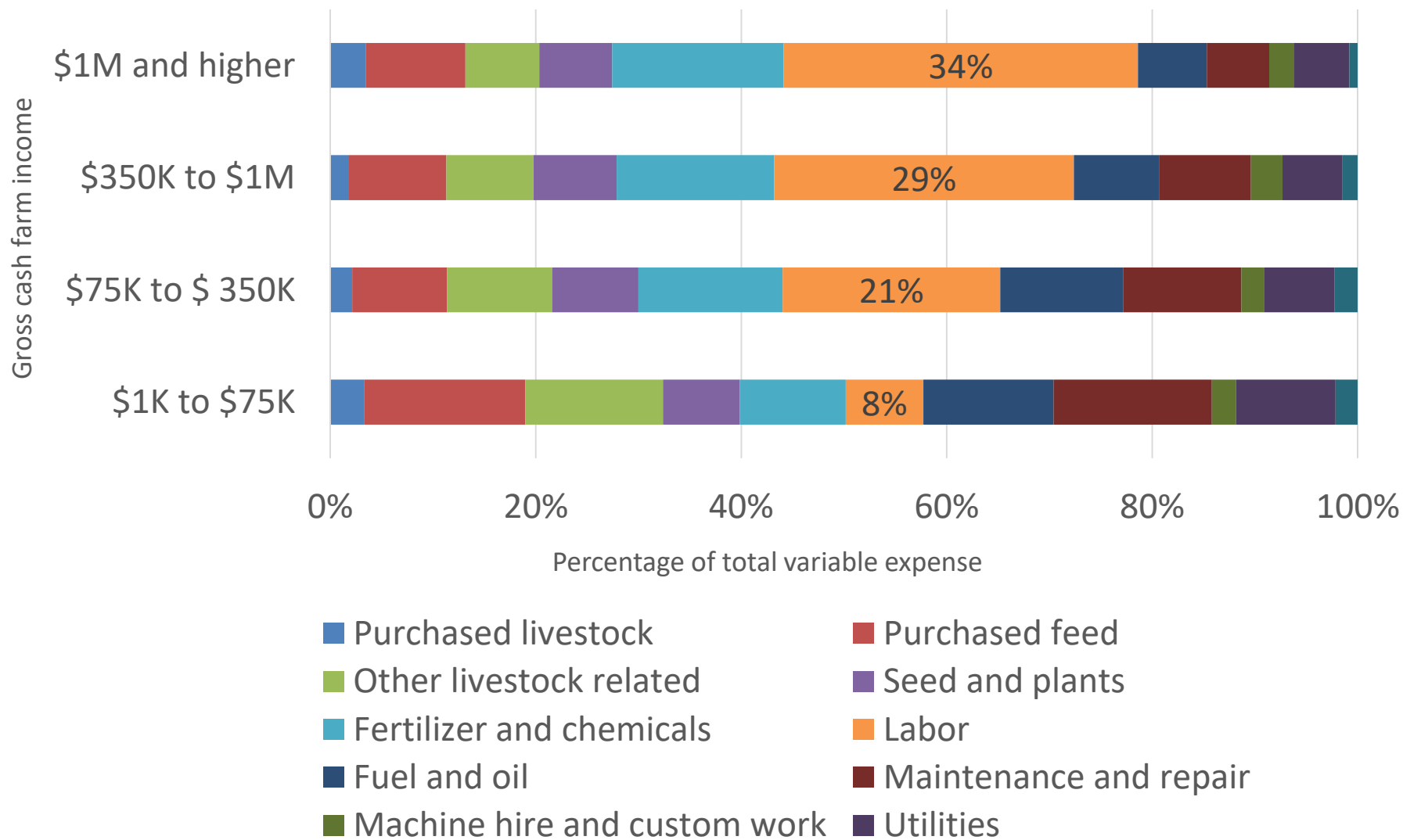
- What are benchmarks?
 - A point of reference from which measurements may be made
 - Something that serves as a standard by which others may be measured or judged
- To create benchmarks
 - Divide our sample of local and regional food marketers into high and low performing quartiles by profitability
 - Profitability is defined as return on assets



Baseline Economic Activity

- How do local and regionally oriented producers spend the revenues they earn?
 - Drives economic multipliers
 - Suggests different business models
 - Rethink the business network and infrastructure needs for these enterprises

Average expense for local food market producers by scale, U.S.



Source: Jablonski, Bauman, and Thilmany McFadden (2016)



Return on Assets as a Measure of Profitability

- ROA measures how efficiency a firm can create profit using their assets in a given year.
 - Net profit/total farm financial assets¹
 - ROA accounts for the opportunity cost of money
- The use of a “standardized” measure like ROA, may allow some expected and interesting cases
 - Lean farms with few owned assets that are aggressively pursuing high end produce and product markets

¹ net profit=net farm income income-charge to management - charge to principal operator and unpaid labor+ interest expense

Profitability by Scale

Return on Assets by Scale Class and ROA Quartile

	\$1K-\$75K	\$75K-\$350K	\$350K to \$1M	\$1M plus	All
Quartile 1	-208	-20	-16	-8	-123
Quartile 2	-10	-3	-1	6	-7
Quartile 3	-4	1	6	17	-1
Quartile 4	5	30	42	68	24

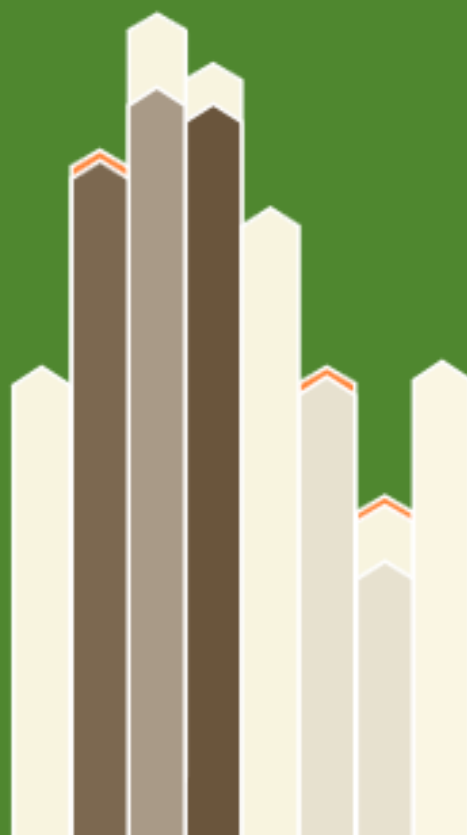
Note: ROA was multiplied by 100 for interpretation and was found to be statistically significantly different across all quartiles for all sales classes



Profitability comes in many forms

- Top performers are profitable at all scales
- Once above \$75,000, over half those marketing directly are profitable
- Evidence of lean management models
 - Minimize overhead
- Debt can be good or bad
- Not afraid to invest in labor!

FINDINGS OF THE 2015 NATIONAL FOOD HUB SURVEY



APRIL 2016

MICHIGAN STATE
UNIVERSITY

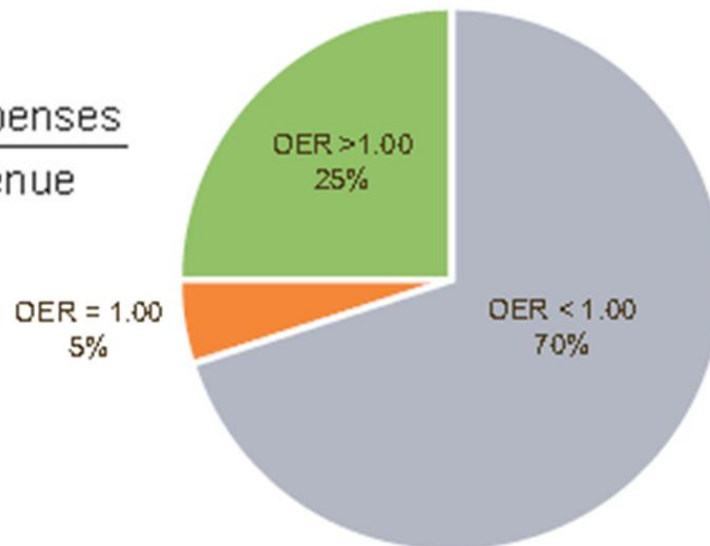
Center for
Regional Food Systems

W WALLACE CENTER
WINFOCK INTERNATIONAL

Food Hubs Exhibit patterns too!

- Most have positive operating profits
 - Scale of business matters, but length of time in business may be a key factor!

$$\text{Operating Expense Ratio (OER)} = \frac{\text{Total Operating Expenses}}{\text{Total Gross Revenue}}$$



Operating Expense Ratio by Years in Operation

	<i>n</i>	Mean	Median	Range
All hubs	86	0.88	0.94	0.01–3.10
0–2 years	27	0.99	0.82	0.27–3.10
3–5 years	25	0.89	0.98	0.18–1.53
6–10 years	17	0.83	0.94	0.01–1.50
11–15 years	4	1.00	0.99	0.96–1.06
16–20 years	4	0.77	0.95	0.17–0.99
21+ years	9	0.66	0.83	0.04–1.00

Info Gaps in Case Studies

Percent of Records Containing Key Metrics

Financial data

Revenues	54.37
Profitability	24.27
Cost of goods sold (COGS)	3.88
Labor expenses	1.94
Rent expenses	0.97



Angelo, B, B. Jablonski and D. Thilmany. 2016. Meta-analysis of U.S. intermediated food markets: Measuring what matters. British Food Journal. 118(5):



Case Studies

114 Case studies from over 200 when criteria to filter used

Profitability	% Records
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%

Case Studies (continued)

Table 4. Specific market outlets reported in case studies, sorted by prevalence

Variable		% of viable businesses	% of nonviable businesses (or unknown)
Direct market outlets***			
	Farmers' market	11.76%	23.26%
	Community Supported Agriculture (CSA)	5.88%	5.88%
	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%
Intermediated market outlets**			
	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%

Note: Asterisks indicate respective significance levels: * $\alpha = 0.10$; ** $\alpha = 0.05$; *** $\alpha = 0.01$. Chi squared tests were performed to test differences among samples for reported use of direct market outlets and intermediated market outlets categories.

Table 6. Location and number of farm vendors

Variable		% of viable businesses	% of nonviable businesses (or unknown)
Geography of farm vendors**	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 US)	5.88%	3.49%
	Unknown	23.53%	9.30%

Table 7. Location of markets and number of products

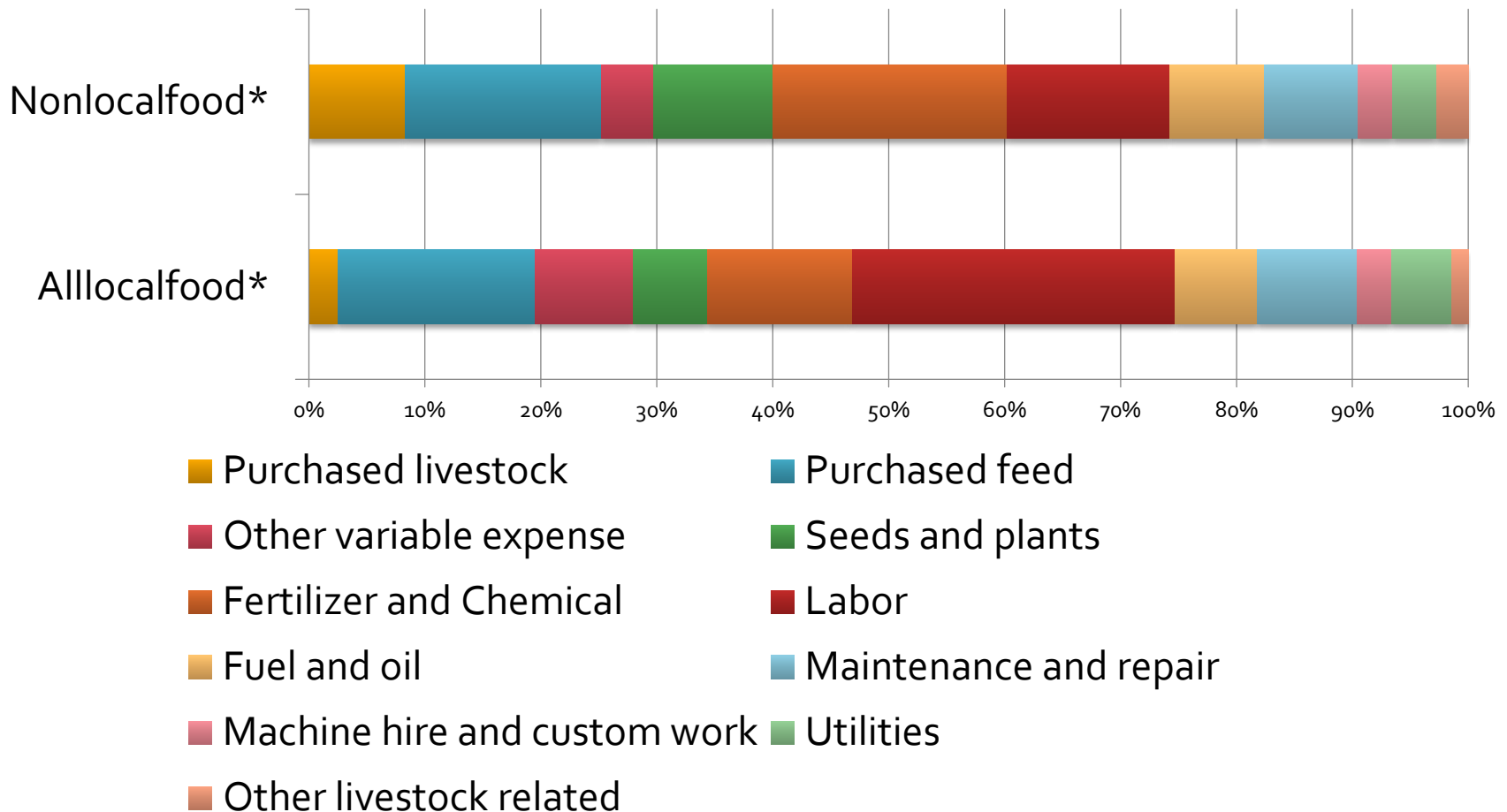
Variable		% of viable businesses	% of nonviable businesses (or unknown)
Geography of Markets**	Local (≤ 50 miles)	5.88%	23.26%
	Near Regional (>50 - <250 miles)	11.76%	6.98%
	Far Regional (250-400 miles, or within state)	11.76%	9.30%
	Multi-state (> 400 miles or outside of state)	47.06%	32.56%
	International (outside of US)	5.88%	1.16%
	Unknown	5.88%	23.26%

Source: Angelo, Jablonski and Thilmany (2016)



Multipliers

Average Expense for Local and Non-Local Market Users, US




Source: Jablonski, Bauman, and Thilmany McFadden (2016)



Multipliers (continued)

Example multipliers calculated from USDA ARMS data

Region	Market Channel			
	Intermediated	Direct to Consumer	Intermediated & Direct to Consumer	Conventional Agriculture
Northeast			1.900	1.959
CA	2.494	2.422	2.612	2.540
WI		1.819		1.725



Multipliers (continued)

- What factors affect multipliers?
 - Expenditure patterns, business networks
 - Number, quality and nature of jobs
- In what ways can communities affect the size of their multipliers?
 - Number and depth of linkages
 - Presence of key infrastructure to reconnect with as firms grow and have revenues to reinvest



	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 workforce, Payback period expectations on market expansion plans or investments	Evidence that linkages generate specific social & 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)

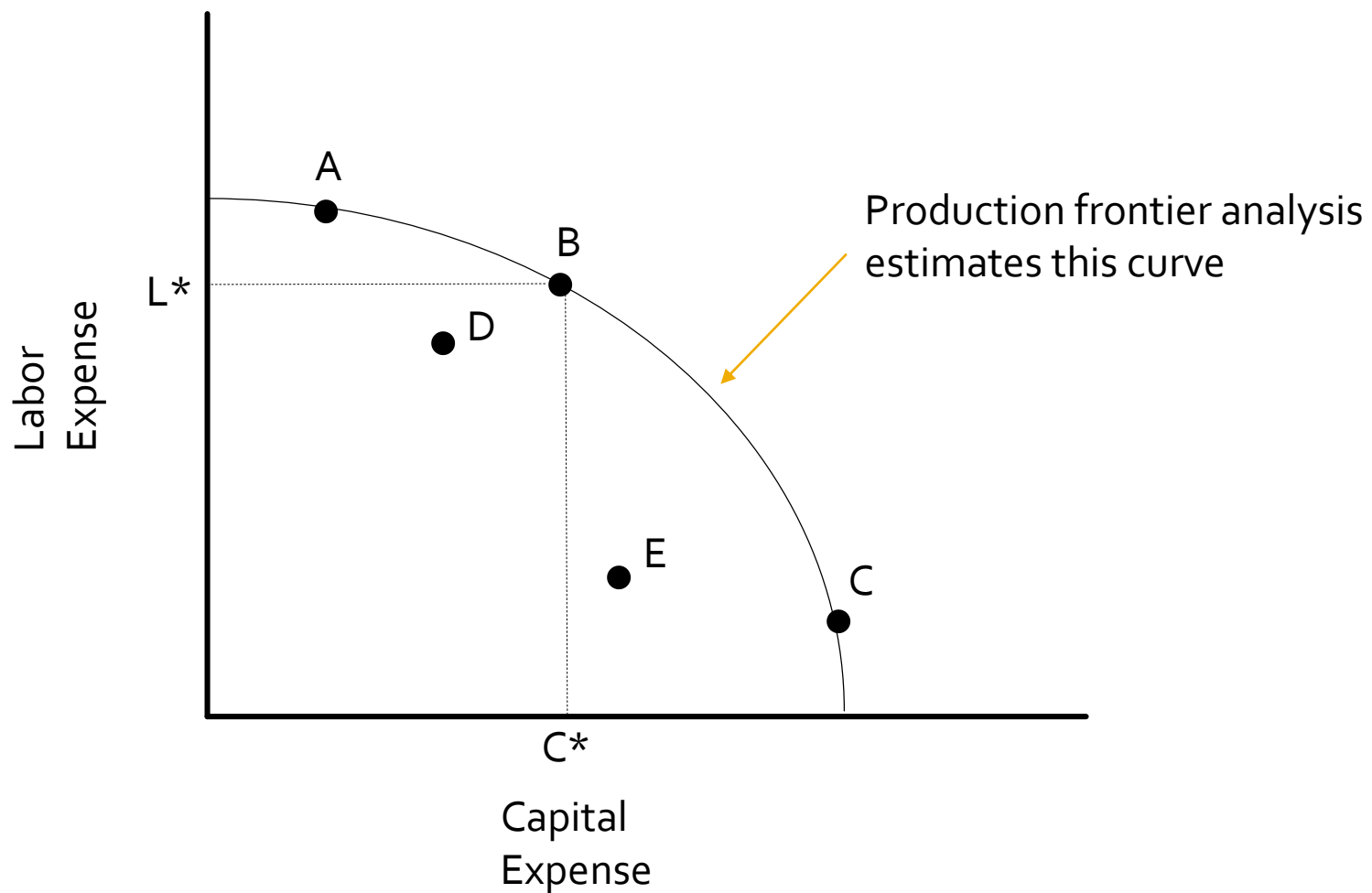


Where can this work and Benchmarks be applied/improved?

- Steve Warshawer-
 - Wallace Center Local Food Coordinator Network
- Blake Angelo
 - Cities and regions exploring strategic food plans
- Julia Laughlin and Dave Shideler-
 - eXtension Horticulture and Community Development Communities of Practice
- Jeffrey O'Hara and Dawn Thilmany-
 - USDA AMS Toolkit on the Economics of Local Food systems

Questions?

What is Production Frontier Analysis?



Results from Production Frontier Analysis

ROA as the dependent variable	Results from stochastic frontier analysis Mean (St. Err.)
Total fixed expense	-0.31*** (0.09)
Total variable expense (minus labor expense)	-0.44*** (0.11)
Labor expense	-0.09 (0.07)
Age class	-0.12** (0.06)
Operator education	-0.02 (0.08)
Portion of total acres farmed that are owned	-0.20*** (0.06)

Statistically significant at 10% (*), at 5% (**), and 1% (***)

Source: Bauman, Thilmany McFadden, Jablonski (2016)

Results from Production Frontier Analysis

ROA as the dependent variable	Results from stochastic frontier analysis Mean (St. Err.)
Gross cash farm income	1.11*** (0.13)
Direct-to-consumer sales only (0/1)	-0.51*** (0.18)
Intermediated sales only (0/1)	0.19 (0.20)
Primary commodity: fruit and/or vegetable (0/1)	0.26 (0.18)
Primary commodity: livestock and/or dairy (0/1)	0.61*** (0.19)
Technical efficiency	0.42

Statistically significant at 10% (*), at 5% (**), and 1% (***)

Source: Bauman, Thilmany McFadden, Jablonski (2016)

Summary Statistics for Local Food Producers by Scale

	\$1K-\$75K	\$75K-\$350K	\$350K to \$1M	\$1M and higher	All
Return on Assets (ROA)	-55%	2%	7%	20%	-27%
Operating profit (\$)	-\$28,000	-\$14,000	\$39,000	\$1,134,000	\$127,000
Fixed expense as % of total expense	28%	16%	14%	10%	11%
Variable expense as % of total expense	72%	84%	86%	90%	89%
Labor expense as % of total expense	10%	21%	26%	36%	17%
Portion of total acres owned to farmed	114%	90%	54%	84%	99%
Observations	534	213	104	107	1,013

Source: Bauman, Jablonski, and Thilmany McFadden (2016)