



locally grown
fruits and vegetables

Economic impacts of local food system initiatives

Becca Jablonski

Assistant Professor | Food Systems Extension Economist

Dept. of Agricultural and Resource Economics

Colorado State University

Our Farms, Our Future Conference

April 3, 2018

Local Food

Est. \$8.7B in local food sales in 2015 (USDA NASS 2016)

- 167,009 U.S. farms and ranches

Farms sell directly to:

Consumers *(35 percent of direct sales in 2015)*

Includes sales through farmers markets, onsite farm stores, roadside stands, CSA (Community Supported Agriculture) arrangements, online sales, pick-your-own operations, mobile markets, and other means.

Retailers *(27 percent of direct sales in 2015)*

Includes supermarkets, supercenters, restaurants, caterers, independent grocery stores, and food cooperatives.

Institutions and Intermediary Businesses *(39 percent of direct sales in 2015)*

Includes institutions such as schools, colleges, universities, and hospitals as well as intermediary businesses such as wholesalers, distributors, processors, etc., that market locally or regionally branded products.

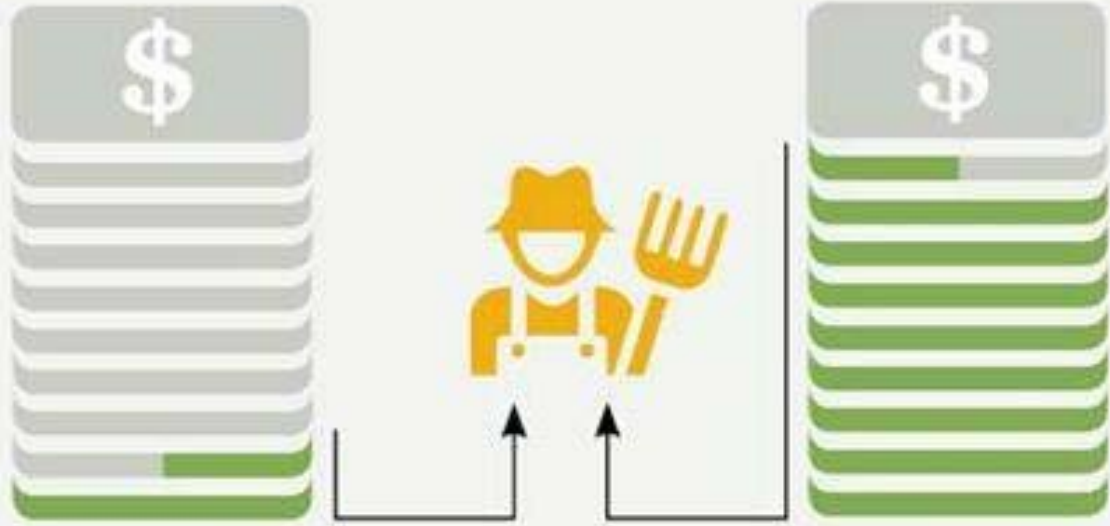
Local Food

Substantial investments made via Farm Bill to support local and regional food systems:

- >\$1Billion 2008-2014
- >40,000 local and regional food business infrastructure projects
- 2014 Farm Bill tripled funding for marketing and promotion of local foods
- >\$500M in 2015



① Farmers win.



In general, farmers and ranchers only receive **\$1.55** of **\$10** spent on food. The rest goes to marketers, processors, wholesalers, distributors and retailers.

For every \$10 spent on local food, farmers get closer to **\$8-9**.

② Your community wins.



For every \$10 spent at a farmers market, studies show that as much as **\$7.80** is re-spent in your community, supporting local jobs and businesses.



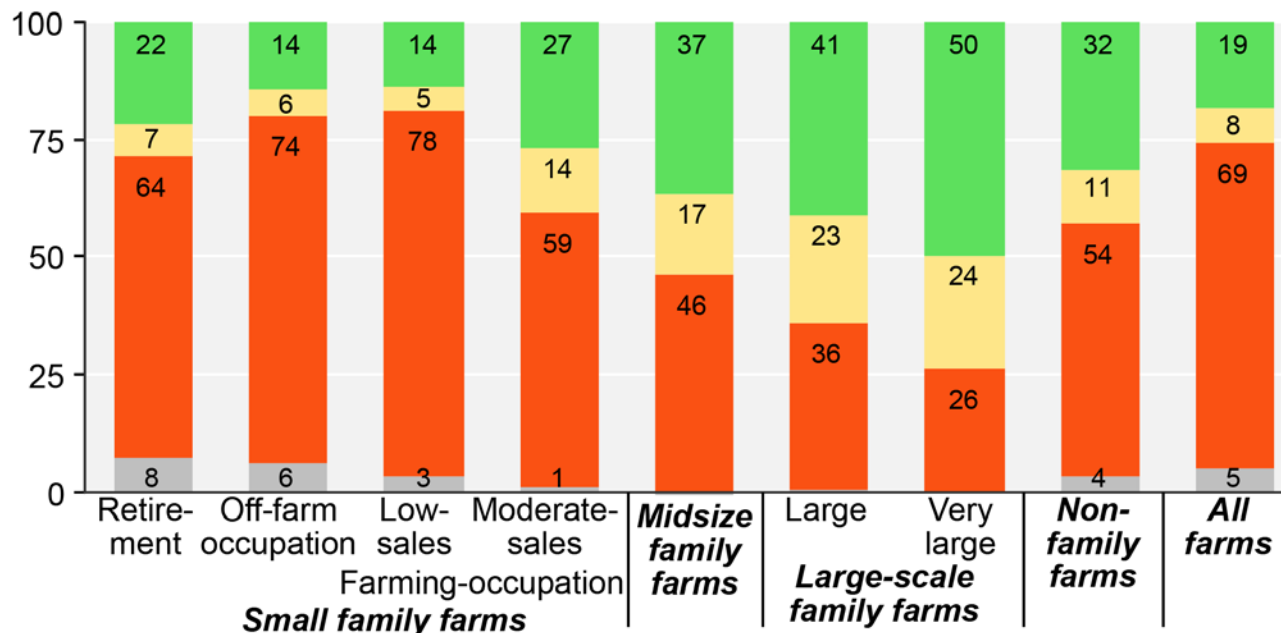
FARM/ RANCH VIABILITY

Profit Margin Increases with Farm Size

Farms by operating profit margin (OPM) and farm type, 2015

■ Green zone: low risk level (OPM > 25%) ■ Red zone: high risk level (OPM < 10%)
■ Yellow zone: medium risk level (OPM 10-25%) ■ Not calculated

Percent of farms in each group

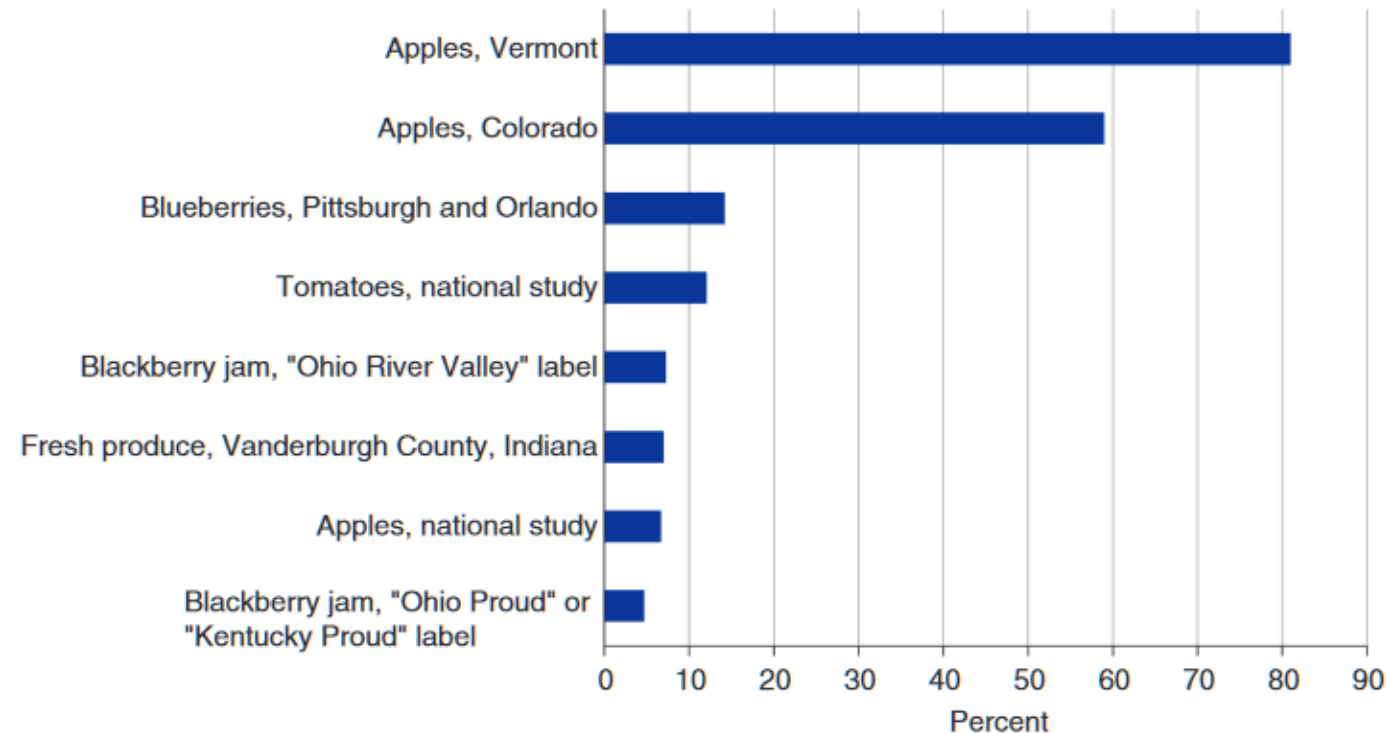


Notes: Operating profit margin (OPM) = 100% x (net farm income + interest paid – charge for operator and unpaid labor – charge for management) ÷ gross farm income. Small family farms have annual gross cash farm income (GCFI) < \$350,000. Midsize family farms have GCFI of \$350,000-\$999,999. Large-scale family farms have GCFI of \$1,000,000 or more.

Source: USDA, Economic Research Service and National Agricultural Statistics Service, 2015 Agricultural Resource Management Survey (data as of December 2016).

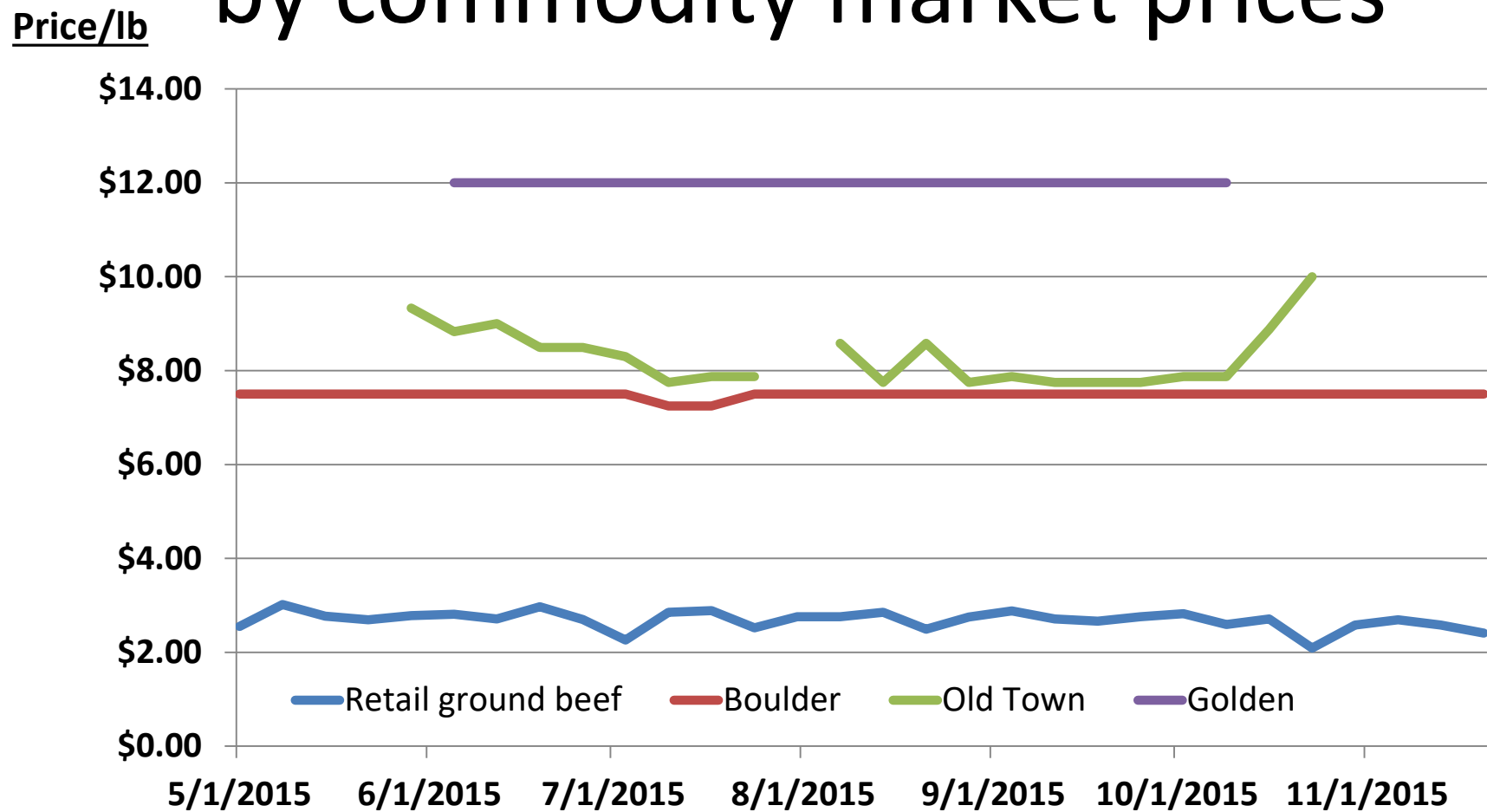
Documented consumer willingness to pay a premium for local food

Willingness to pay for local food (percent premium)



Source: Willingness to pay as a percent of base price calculated from reported results from the following: Apples/Vermont from Wang et al., 2010, averaged over respondents that had and had not purchased organic food. Apples/Colorado from Costanigro et al., 2011. Blueberries from Shi et al., 2013. Tomatoes/national and Apples/national from Onozaka and Thilmany, 2012. Blackberry jam from Hu et al., 2012. Fresh produce/Vanderburgh County from Burnett et al., 2011.

Ground beef prices at farmers markets not impacted by commodity market prices



Non-significant, but negative relationship between USDA retail ground beef prices and Larimer (Old Town) market prices; $r(20) = -.415, p < .05$

Note: Weekly average retail ground beef prices from <https://www.marketnews.usda.gov>.

In local food channels do farmers retain more of the food dollar? New pricing reports!



- ### Market News
- [Cotton](#)
 - [Dairy](#)
 - [Livestock, Poultry & Grain](#)
 - [Specialty Crops](#)
 - [Tobacco](#)
 - [Local & Regional Food Marketing](#)
 - [Retail](#)

- [Run a Custom Report](#)
- [Subscribe to Standard Reports](#)
- [Search Market News](#)
- [Contacts](#)

- ### Related Websites
- [Foreign Agricultural Service \(FAS\)](#)
 - [National Agricultural Statistics Service \(NASS\)](#)
 - [Economic Research Service \(ERS\)](#)
 - [Farm Service Agency \(FSA\)](#)
 - [Market Information Organization of the Americas](#)



Local & Regional Food Market News

USDA Market News works with State Departments of Agriculture and local and regional food systems to provide prices, volume, and other information on agricultural commodities sold at local and regional markets throughout the United States.

Information gathered from Farmers Markets, Farmers Auctions, Food Hubs, Direct to Consumer sales, Retail advertisements, and Farm-To-School programs is currently available for select locations. More reports and locations will be added in the future.

Farmers Markets

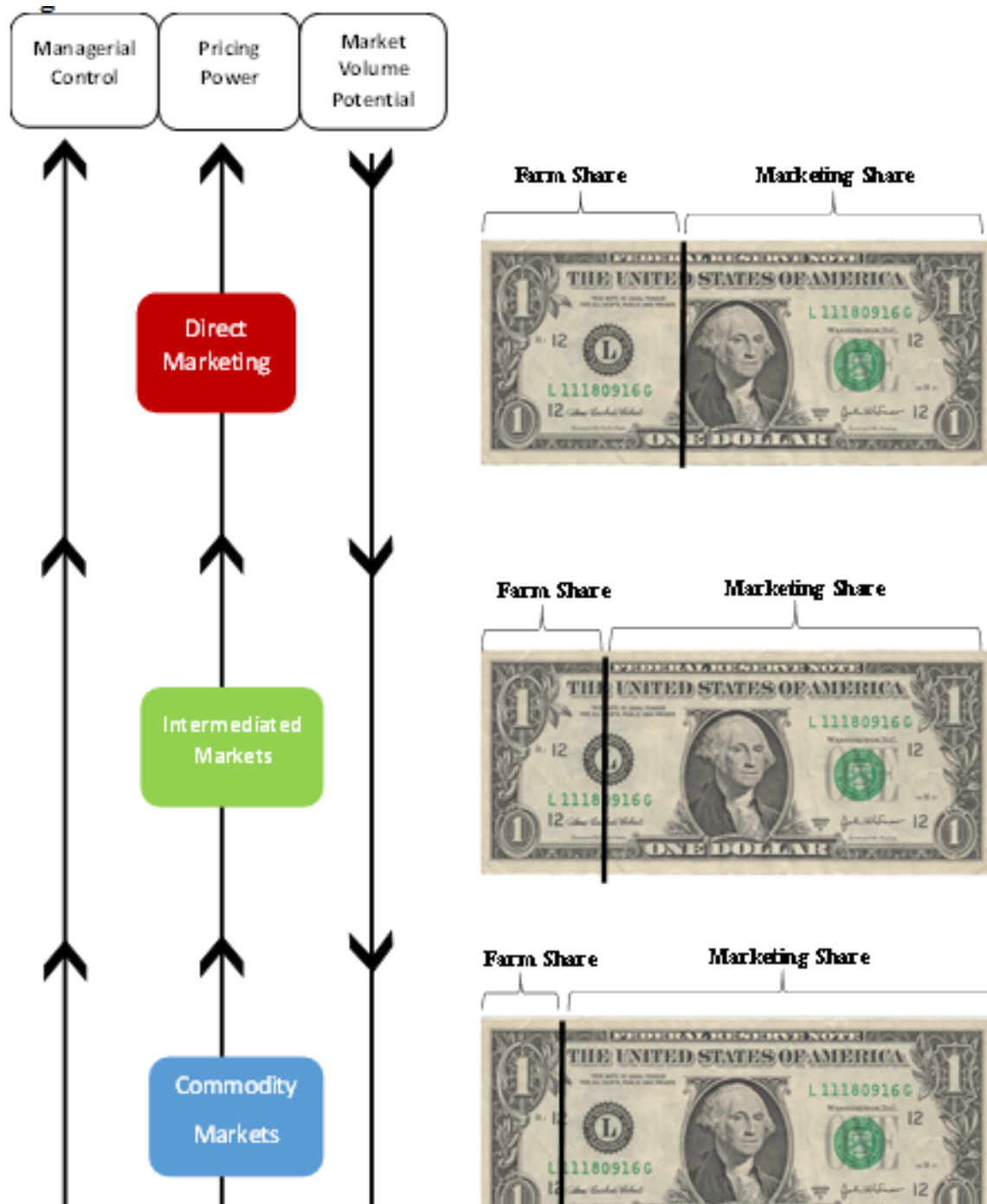
- [Alabama](#)
- [Colorado](#)
- [Illinois](#)
- [Iowa](#)
 - [Iowa Farmers Market](#)



News & Announcements

- [11/19 USDA Sets Deadline for Proposals for the 2015 Specialty Crop Multi-State Program](#)
- [10/05 USDA Awards \\$113 Million to Support Specialty Crop Production, Grow Opportunities for Rural Communities](#)
- [10/02 USDA Awards \\$34.3 Million to Support Communities' Local Foods Infrastructure, Increase Access to Fruits and Vegetables Funding Supports Local Food Systems, Farmers Markets and Healthier](#)





There is a likely tradeoff between volume of sales and two key management factors:

- 1) Managerial control retained by producers
- 2) Pricing power of producers

Is there an “optimal” place on continuum for an operation?

Mixed Evidence of Farm Performance:

Local food producers grew less between 2007 and 2012, but more likely to have ‘survived’

Percent change in sales 2007-12 by initial farm size and marketing arrangement

2007 sales category	All operations		Beginning farmer in 2007	
	No direct sales in 2007	Direct sales in 2007	No direct sales in 2007	Direct sales in 2007
\$1-9,999				
Arc percent change, 2007-12	36.9	31.8***	41.5	35.4***
Observations	225,862	28,981	76,121	11,521
\$10,000-49,999				
Arc percent change, 2007-12	2.8	-12.1***	2.1	-16.7***
Observations	158,367	16,057	35,902	4,736
\$50,000-249,999				
Arc percent change, 2007-12	12.1	-3.3***	14.6	-6.5***
Observations	128,175	8,350	20,941	1,736
\$250,000+				
Arc percent change, 2007-12	12.3	3.9***	11.5	-9.8***
Observations	130,434	4,336	17,936	559
All				
Arc percent change, 2007-12	19.3	13.5***	25.6	17.9***
Observations	642,838	57,724	150,900	18,552

Notes: Asterisks denote rejection of the null hypothesis that the difference in means is zero at the (*) 10%; (**) 1%; and (***) 0.1% statistical significance levels. Sample includes all operations with positive sales in 2007. The percent change for farm i is defined: $100 \cdot (x_{it+1} - x_{it}) / 0.5 \cdot (x_{it+1} + x_{it})$.

Source: USDA, NASS, Census of Agriculture, 2007, 2012.

Business survival rates 2007-12 by initial farm size and marketing arrangement

2007 sales category	All operations		Beginning farmer in 2007	
	No direct sales in 2007	Direct sales in 2007	No direct sales in 2007	Direct sales in 2007
\$1-9,999				
Survival rate, 2007-12	0.453	0.549***	0.416	0.507***
Observations	484,211	51,535	177,392	22,170
\$10,000-49,999				
Survival rate, 2007-12	0.581	0.667***	0.521	0.611***
Observations	268,758	23,729	68,053	7,647
\$50,000-249,999				
Survival rate, 2007-12	0.656	0.738***	0.593	0.649***
Observations	194,563	11,270	35,364	2,661
\$250,000+				
Survival rate, 2007-12	0.728	0.791***	0.66	0.704***
Observations	178,515	5,450	27,115	800
All				
Survival rate, 2007-12	0.553	0.609***	0.474	0.543***
Observations	1,126,047	91,984	307,924	33,278

Notes: Asterisks denote rejection of the null hypothesis that the difference in means is zero at the (*) 10%; (**) 1%; and (***) 0.1% statistical significance levels. Sample includes all operations with positive sales in 2007. The survival rate is defined as the share of 2007 Census respondents with positive sales who reported positive sales in the Census in 2012.

Source: USDA, NASS, Census of Agriculture, 2007, 2012.



Matt LeRoux, Cornell Cooperative Extension of Tompkins County

Market Channel Assessments

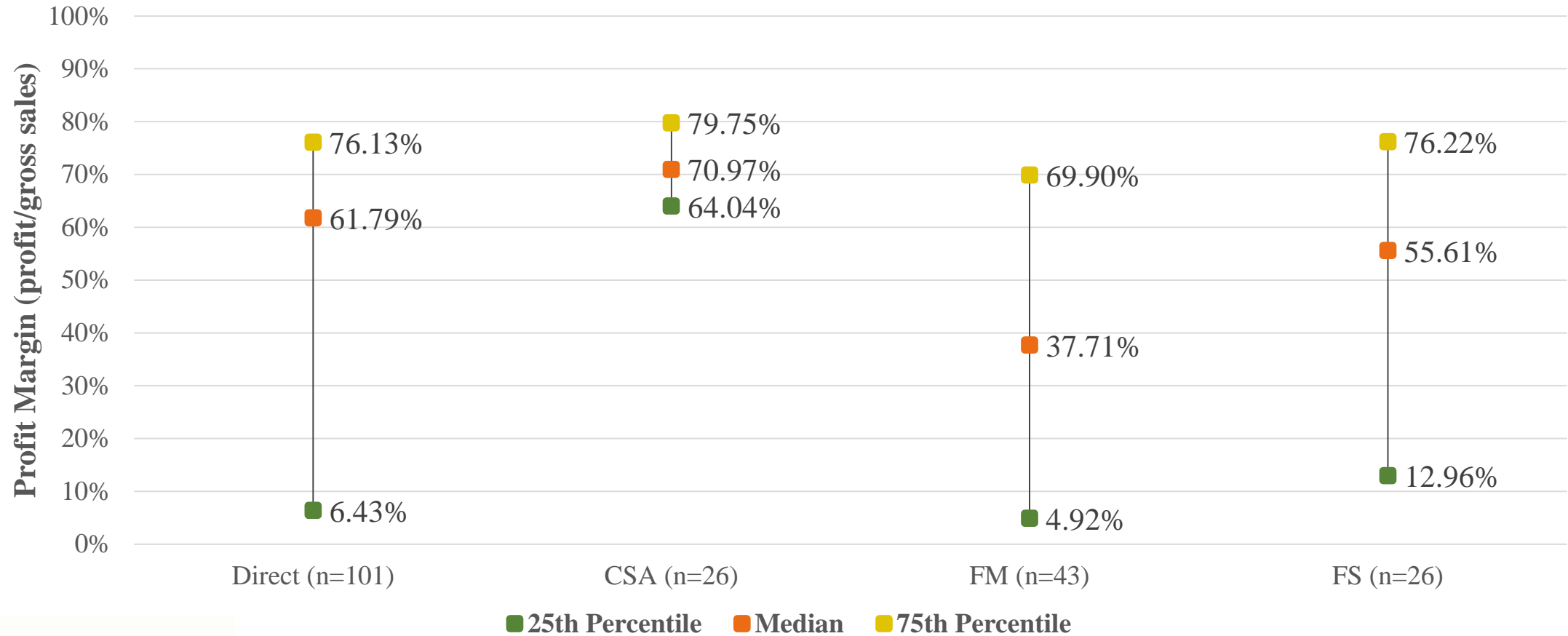


How do you evaluate a market opportunity?

Six interacting factors impact the “performance” of a marketing channel including:

- Price & Profit**: You can sell \$500 worth per hour!
- Associated Costs**: It costs \$300/day to sell there.
- Sales Volume**: ...and its only 1 hour per week...
- Labor Requirements**: ...and it takes 12 hours to prepare...
- Risk**: ...and if it rains no customers come.
- Lifestyle Preferences**

Preliminary CO case study evidence: Marketing Profit Margin Percentiles, Direct Channels



Gross sales - Marketing Labor Cost - Travel Costs

Profit Margin



Gross sales



FACT SHEETS



FINANCIAL PERFORMANCE IMPLICATIONS OF LOCAL FOOD ENTERPRISES

LOCAL FOOD ECONOMICS FACT SHEET

PROFITABILITY IMPLICATIONS OF LOCAL FOOD MARKETING STRATEGIES

The objective of this study is to explore how local food producers in 10 left-to-right oriented marketing channels influence the financial performance of farms and ranches. At any point in time, a farm operation may be producing the bulk of its product marketing portfolio. However, the efficiency of sales against the previously higher or more visible returns from left-oriented customer response supply chains (e.g., farmers markets). This analysis evaluates the range of profitability differences comparisons of sales and market channel available to local food producers.

Return on Assets for Marketing Outlets and Sales From Producers

Sales Revenue Range	Return on Assets		
	Market Direct	Wholesale	Both Direct and Wholesale
\$10,000 to \$24,000	0.08	0.08	0.08
\$25,000 to \$49,000	0.12	0.12	0.12
\$50,000 to \$74,000	0.16	0.16	0.16
\$75,000 to \$99,000	0.20	0.20	0.20
\$100,000 and higher	0.24	0.24	0.24

1. Producers can be profitable at all combinations of sales and market channels.

2. Greater sales provided a clear advantage in intermediate marketing among the highest performers.

3. All producers using direct-to-consumer only, the highest performing local food producers implemented the highest performing "both" and "left" sales products.

4. Sales direct market to the choice of appropriate marketing strategies and the portfolio of channels, at least among the more profitable.

LOCAL FOOD ECONOMICS FACT SHEET

FINANCIAL BENCHMARKS FOR LOCAL FOOD PRODUCERS

The objective of this study is to explore the financial benchmarks for producers participating in direct-to-consumer and intermediate market channels. By benchmarking several key business factors across producer segments, we can compare those operations with relatively worse (quartile 1) and better (quartile 4) financial performance. Key factors include sales costs, financial efficiency (assets turnover) and average yield to asset ratio. Given the marketing response nature of direct sales, we evaluate labor cost benchmarks and how these benchmarks change as sales increase. Since the critical nature of agriculture makes it particularly susceptible to financial risk and regulatory challenges, we explore how farms that sell through local markets compare to others in terms of labor usage and financial efficiency.

Labor Share of Variable Costs by Sales and Quantities

1. Labor investments are a relatively higher share of total costs as operations grow in scale. This suggests the "both" and "wholesale" based on average response supply chains is higher as the volume of sales conducted through direct and intermediate markets increases.

LOCAL FOOD ECONOMICS FACT SHEET

THE ROLE OF LABOR AND OTHER VARIABLE EXPENSES IN LOCAL FOOD MARKETS

The objective of this study is to explore the financial benchmarks for producers participating in direct-to-consumer and intermediate market channels. By benchmarking several key business factors across producer segments, we can compare those operations with relatively worse (quartile 1) and better (quartile 4) financial performance. Key factors include sales costs, financial efficiency (assets turnover) and average yield to asset ratio. Given the marketing response nature of direct sales, we evaluate labor cost benchmarks and how these benchmarks change as sales increase. Since the critical nature of agriculture makes it particularly susceptible to financial risk and regulatory challenges, we explore how farms that sell through local markets compare to others in terms of labor usage and financial efficiency.

Average Share of Variable Expenses for All Farm Scale and Local Producers, US

1. Consistent with prior findings, farms selling local food sales have significantly lower average expenditures compared to local food participants (\$13,000 to \$17,000).

2. On average, local food participants spend 6% of total expenditures on labor, compared to 8% for farms that do not sell through local food channels.

LOCAL FOOD ECONOMICS FACT SHEET

EVALUATING THE FINANCIAL EFFICIENCY OF LOCAL FOOD PRODUCERS

The objective of this study is to explore the financial benchmarks for producers participating in direct-to-consumer and intermediate market channels. By benchmarking several key business factors across producer segments, we can compare those operations with relatively worse (quartile 1) and better (quartile 4) financial performance. Key factors include sales costs, financial efficiency (assets turnover) and average yield to asset ratio. Given the marketing response nature of direct sales, we evaluate labor cost benchmarks and how these benchmarks change as sales increase. Since the critical nature of agriculture makes it particularly susceptible to financial risk and regulatory challenges, we explore how farms that sell through local markets compare to others in terms of labor usage and financial efficiency.

Representation of a Disruptive Profit Efficiency Frontier

1. The average estimated efficiency of local food producers is 43% implying that, on average, a farm can increase profits by about 132% by improving efficiency.

2. Farms could earn higher profits using a different combination of their own variable inputs.

3. Overall, more direct market producers are not producing on the efficiency frontier and could realize significant improvements in profitability with changes in their operations.



USDA AMS sample of Local Food Producers, Farmers and Ranchers, 2013

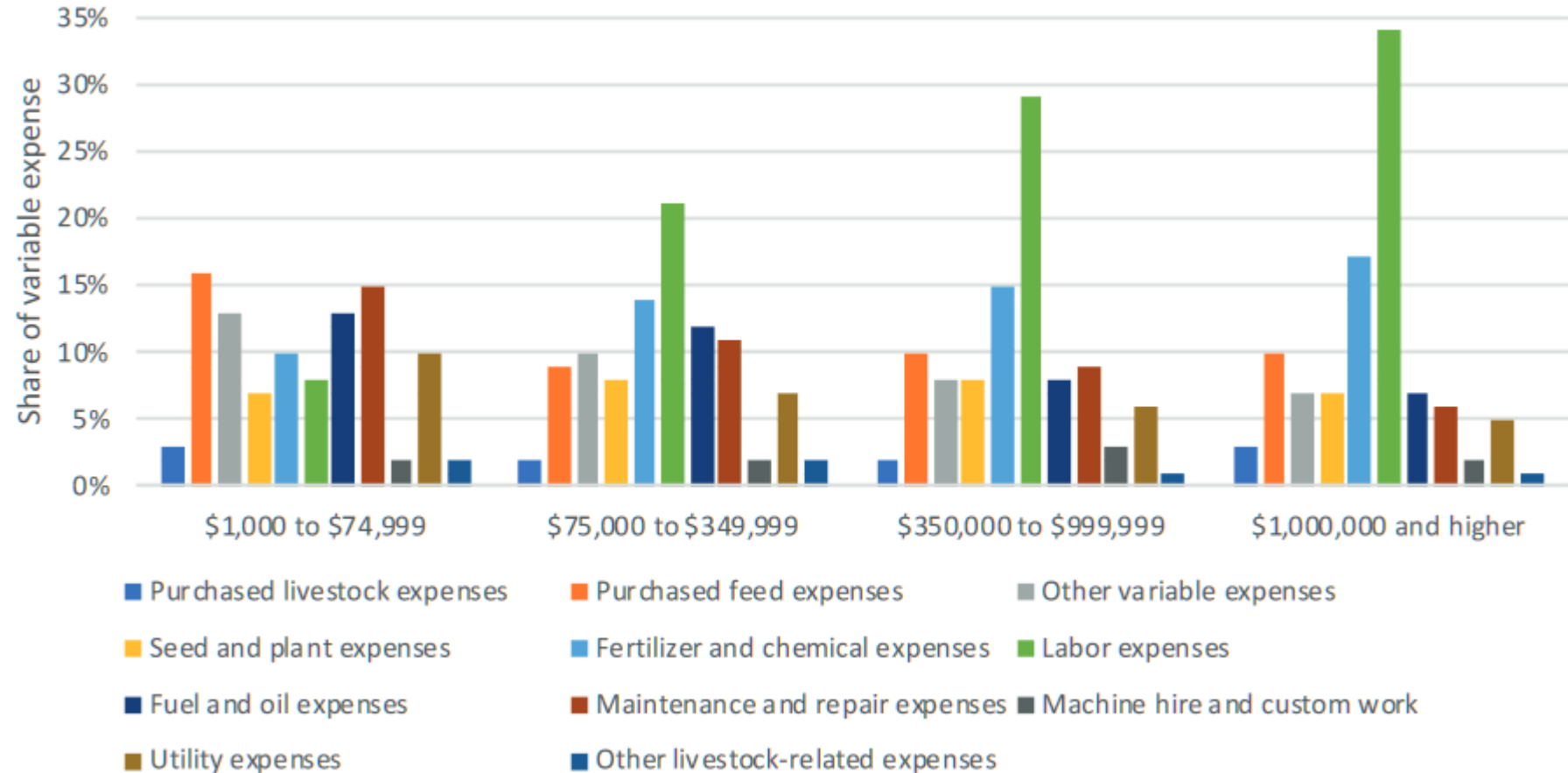
- 2013 Phase III ARMS data
- Nationally representative survey that targets about 30,000 farms, providing annual, national-level data on farm business

	No. of observations	Population size
Market Channel		
D2C	664	124,186
Intermediated	136	11,703
D2CIntermediated	213	24,012
Alllocalfood	1,013	159,901
Nonlocalfood	16,416	1,935,568
Local food producers by farm scale (GCFI)		
1kto75k	534	112,563
75kto350k	214	21,104
350to1Million	104	3,922
Million and higher	107	3,607



The Role of Labor and Other Variable Expenses

Average Share of Variable Expenses for Local Producers by Scale, U.S.



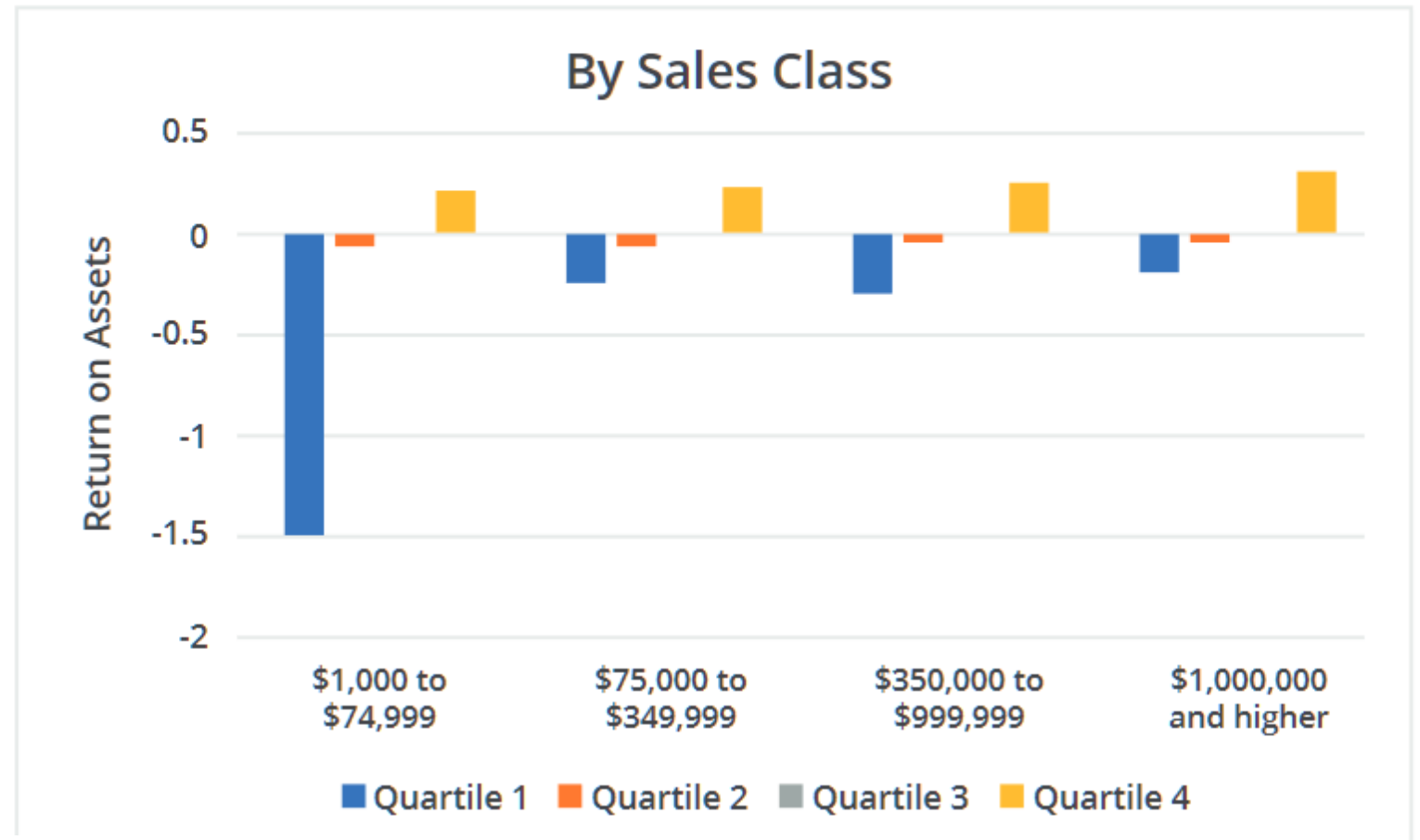
Source: Bauman, Thilmany, Jablonski 2018

Methodology: Profitability implications of local food marketing strategies

- We divide the sample into quartiles, segmented by profitability
 - Profitability is defined as return on assets.
 - A % representing the net income made per dollar of assets invested in a farm, common competitive returns for industry are 10-15%
 - For segments: Quartile 4-best performers, Quartile 1-lowest performers
- Provides benchmark information for comparisons across groups and time (as more years become available)

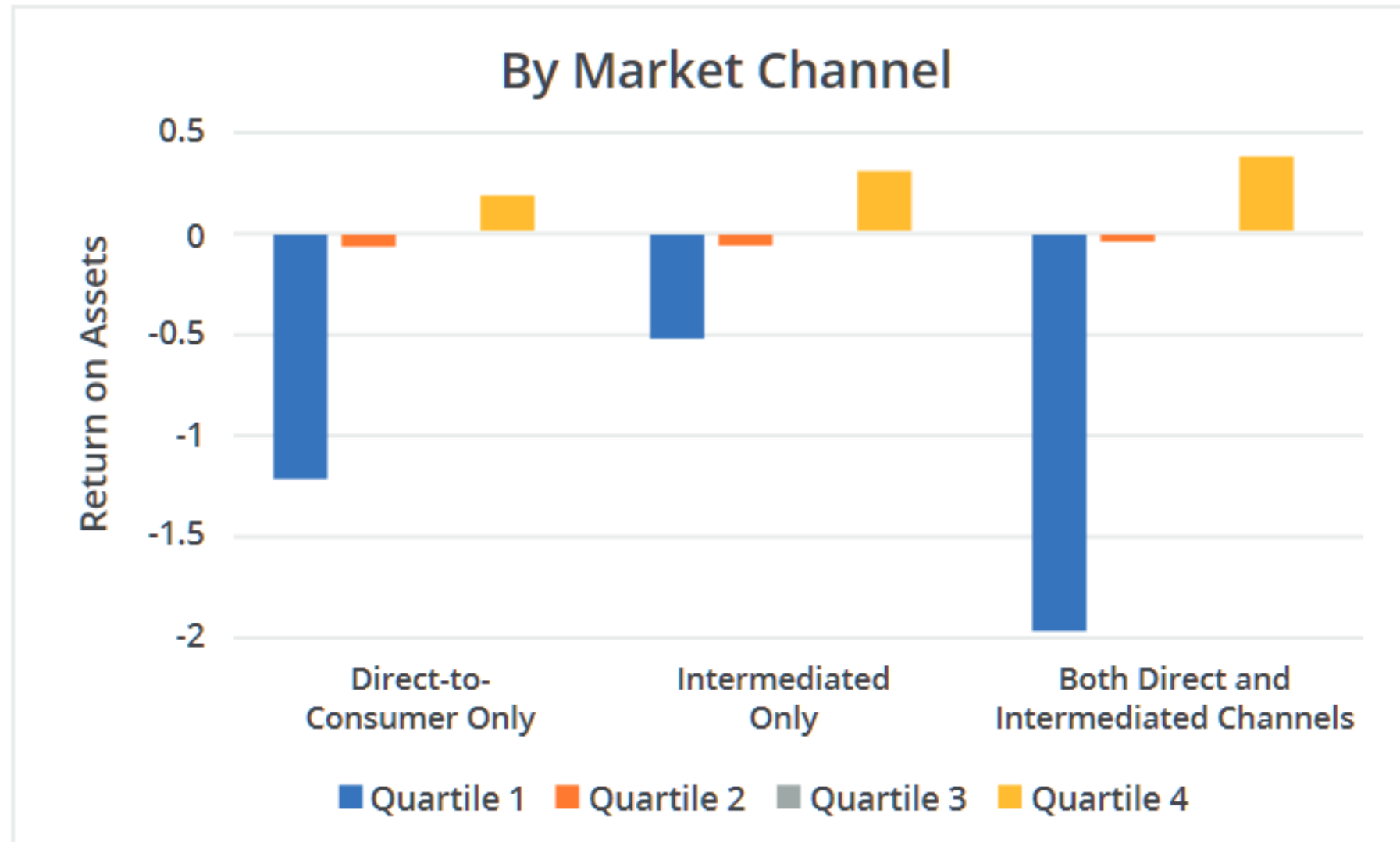
Profitability by Scale and Channel

Return on Assets by Quartile
(Quartile 4 is the most profitable)



Source: Bauman, Thilmany, Jablonski 2018

Profitability by Scale and Channel



Source: Bauman, Thilmany, Jablonski 2018



Regional Economic Development

Food Systems led economic development is an opportunity to strengthen rural-urban linkages

	2012	2007	% change
Number of Farms	10	24	- 58
Land in Farms	143 acres	609 acres	- 77
Average Size of Farm	14 acres	25 acres	- 44
Market Value of Products Sold	(D)	\$561,000	
Crop Sales (D)			
Livestock Sales (D)			
Average Per Farm	(D)	\$23,356	

Denver Mayor Michael Hancock set the city's 2020 sustainability goals:

Acquiring at least 25 percent of food purchases through Denver's municipal government supply chain from sources produced entirely within Colorado.

Wage rate for local food producers, U.S.

Key takeaways

- Average wages are slightly higher in metro areas (\$26 vs. \$23 and \$21 in metro-adjacent and nonmetro, respectively), there are no significant differences.
- Given the substantial literature that focuses on persistent wage gaps between rural and urban places (e.g., Marré 2017; Young 2013), this finding is unexpected.
- Shows potential for those who see local food systems as one strategy for rural economic development.



FOOD SYSTEMS
COLORADO STATE UNIVERSITY

Source: Jablonski, Bauman, and Thilmany under review

Regional Economic Impacts of Local Food System Investments Generally Demonstrate Relatively Small, Short-Term Gains

- **Impacts on employment, output, labor income**

- Gunter & Thilmany 2012; Hughes & Isengildina-Massa 2015; Hughes et al. 2008; Jablonski et al. 2016; Schmit et al. 2016; Swenson 2010

- **Spatial econometric models**

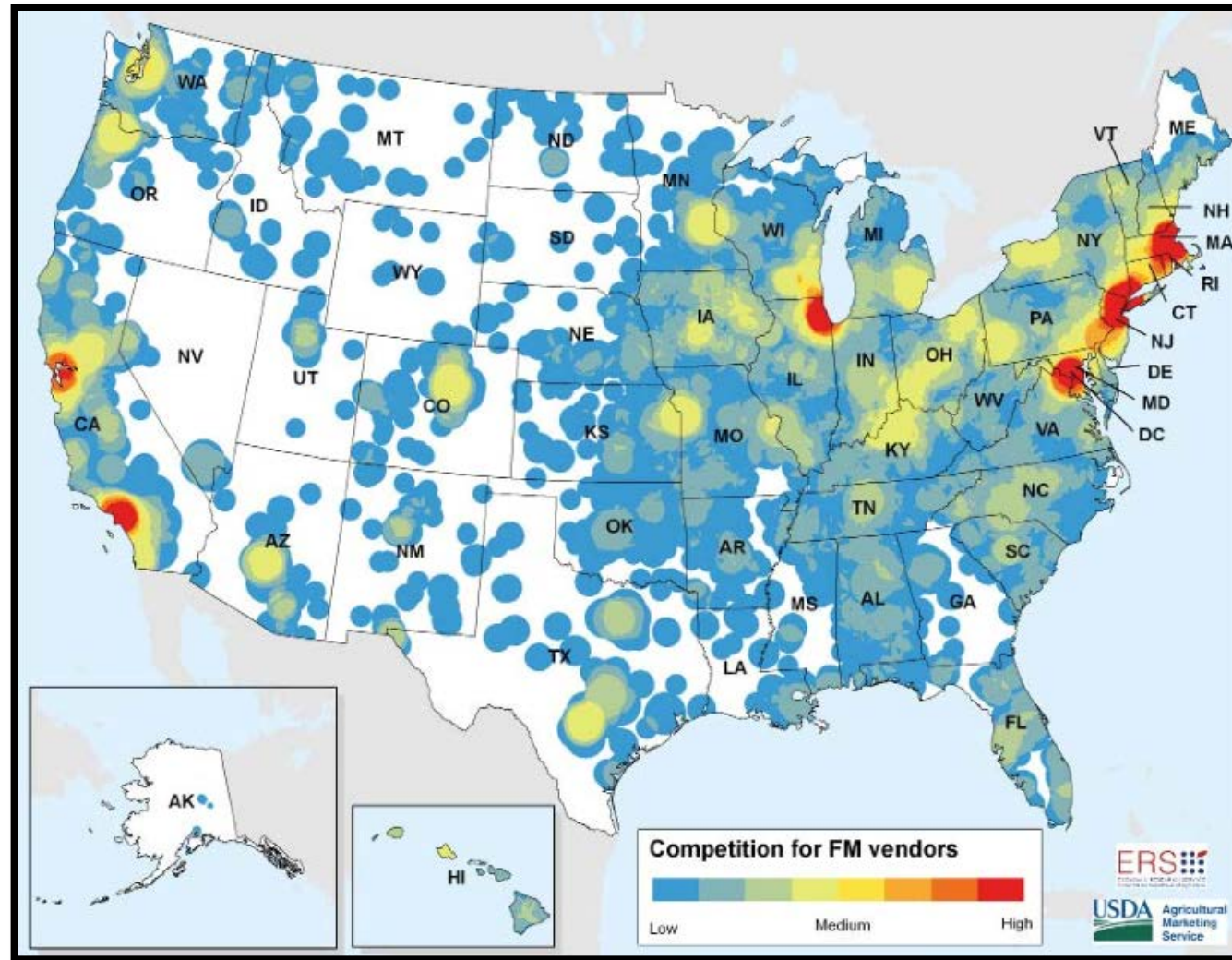
- Deller et al. 2014; Brown et al. 2014



Words of caution in thinking about economic impacts

- Finite resources (e.g., land, consumers dollars, public dollars) so every decision involves a choice.
- Incorporated into economic impact assessments by estimating the **net** rather than the **gross** impact of changes in a local/regional food system.
- Can be on supply (production) or demand (consumer) side, or both.

Competition for Vendors at Farmers Markets



Arable land is likely already in production!

Study from Midwest estimates county-level fresh fruit and vegetable production potentials and expected sales based on current population.

- Corn and soybean are the dominant crops in these states, and net impacts would occur from shifts to fruit and vegetable.
- Land needed to satisfy regional fruit and vegetable demand is small, production consequences would be nominal.

Example Economic Impact Assessment Food Hub

- Surveyed 305 of Regional Access' customers
 - 49% purchased less from other sources due to purchases from RA
 - Average reduction >23%
- Opportunity Cost associated with \$1 increase in final demand for food hub sector ~ \$0.11
- Reduced Total Output Multiplier from 1.82 to 1.63 (>10%)



Other Economic Impacts

- Businesses near farmers' markets reported higher sales on market days
 - Additional sales found to directly support the businesses themselves, but also generated extra tax revenue for the communities in which the markets were located.
- Farmers' markets increase property values in the market district



Evaluating
long-term
economic
impacts more
difficult, but
potentially
where more
important
impacts lie!

- Farmers' markets as **business incubators** by providing the infrastructure necessary to build skills and gain business experience.
- Regular interactions can generate and circulate **knowledge** that vendors might use to develop new products and creative ways of marketing them.
- Sales income may be less important than the **skills and business experience** developed through participation in farmers' markets.

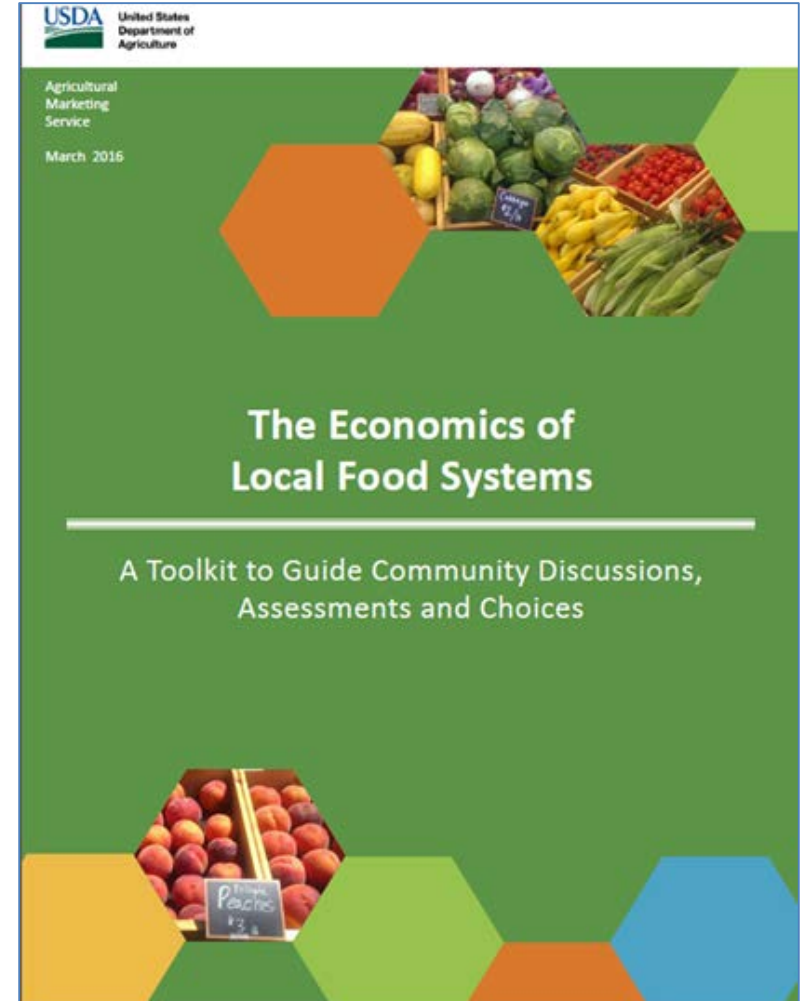
Example: Human Capital

- 75% of farms made (or intend to make) changes to their farm business (ideas for a new product and/or marketing technique) based on these ideas.
- 45% of farms made these changes to product sold in both rural and urban markets.
- 82% reported that they shared ideas (or intend to) that they got through Greenmarkets with farmers in their home communities.

Source: Schmit, Jablonski, Christensen, Kay, and Minner 2017



localfoodeconomics.com





FOOD SYSTEMS
COLORADO STATE UNIVERSITY

Becca Jablonski

Assistant Professor and Food Systems Extension Economist

Department of Agricultural and Resource Economics

Colorado State University

B325 Clark Hall

Becca.Jablonski@colostate.edu

970-491-6133

Foodsystems.colostate.edu

Localfoodeconomics.com