The financial performance implications of differential marketing strategies:

Exploring farms that pursue local markets as a core competitive advantage

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Abstract:

The latest USDA-ERS report on *Trends in Local and Regional Food Systems* reported that almost 8% of agricultural producers (>163,000 farms) now participate in direct or intermediated markets (where intermediated is the umbrella term USDA now uses for instances where farmers sell direct to the grocers, schools or restaurants). And, it suggests that those participating in such markets may be more economically viable and likely to survive, regardless of their scale. This is important in an industry increasingly defined by its bimodal nature, with a few large farms supplying high volume channels, and a much greater number of small farms that may be more focused on local and regional markets. This study compiles financial benchmarks that allow us to explore how market channels and other farm characteristics influence financial performance. To create benchmarks, we use 2013 USDA ARMS data and divide our sample of local and regional food marketers into high and low performing quartiles by profitability, defined here as the return on assets. Beyond sharing the differences in financial metrics across these groups, we will also explore what operator, regional and production characteristics may matter to financial outcomes.

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1 Introduction

The latest U.S. Department of Agriculture's Economic Research Service report on Trends in Local and Regional Food systems reported that almost 10% of U.S. agricultural producers now participate in direct or intermediated markets (Low et al. 2015). This is important in an industry increasingly defined by its bimodal structure, with a few large farms supplying high volume channels, and a much greater number of small farms that may be more focused on often smaller-scale local and regional markets. Given the slowing growth and challenges of direct to consumer marketing (Tropp et al, 2008), accessing markets that are more likely to provide adequate returns on investment is key. Yet, it may be difficult for small- and mid-sized farms to scale up as supply chains become more vertically-integrated and consolidated, so new marketing strategies that change the balance of bargaining power for those unable to operate at larger scale are of interest.

In order to facilitate market access for small- and mid-scale farms, public agencies and private foundations are increasingly financing and promoting food value chain businesses that operate post-farmgate. Between 2009 and 2014, the U.S. Department of Agriculture (USDA) supported over 4,185 local food projects nationwide including the local food promotion program, farmers' market promotion program, and community food projects. Since 2006-2007 the number of food hubs increased by 288 percent and the number of school districts with farm-to-school programs increased by 430 percent to 4,322. Subsequently, Low et al. (2015) shared that the largest area of growth in local food sales is attributed to sales through intermediated marketing channels such as coops and food hubs (growing from $3,349,000 of $6,113,000 as of 2012). In more recent work on how food value chains have emerged to allow for more wholesale market access, Hardesty et al (2014) concluded that successful value-based supply chains VBSCs operate with economies of scale to broaden demand for their products while also generating fair returns to producers and other supply chain partners. Yet, those VBSCs may also face challenges: Angelo et al (2016) report that financial, policy and entrepreneurship factors are all important factors influencing the viability of food supply chain intermediaries.

The objective of this work is to explore how participation in local food marketing channels (direct and intermediated sales) influences the financial performance of farms and ranches, with further delineation of the data to explore if performance is also conditional on scale, key financial

metrics, and market orientation (direct to consumer, intermediated or a hybrid model of sales through both types of local channels). This benchmark analysis may also provide insights into how those choosing to operate in local and regional food markets may see opportunities and challenges to scaling up.

2 Background Research and Literature

Background Research

USDA has a long history of tracking the structure of US farms, and there has been a consistent trend toward a bimodal pattern of many small farms representing a small share of farmgate sales in contrast to an increasingly small number of very large farms reporting a high share of farmgate sales. Most recently, Hoppe (2014) reported that small family farms make up 90 percent of the U.S. farm count but produce a more modest 26-percent share of farm output. Nonfamily farms account for the remaining 3 percent of farms and 15 percent of production. In general, small farms are less profitable than larger farms, with a greater reliance on off-farm income to sustain their household. It is also worth noting that family farms become more diversified as their size increases; between 35 percent and 58 percent of the four family-farm categories with cash farm income greater than $150,000 produced four or more commodities, while the majority of smaller family farms produce only one or two commodities. Yet, it may be that market orientation is another form of diversification not considered by Hoppe's report which may have a differential influence on financial outcomes depending on scale of operation.

Beyond scale, the nature of commodities may also suggest that different marketing strategies will impact market success, and thus, financial viability. Past research on fresh produce price determination explicitly considered the extreme perishability of fresh farm products (Sexton and Zhang), and found that supply is fixed when price is above marginal harvesting costs. When prices make harvesting feasible, any surplus returns above the cost of harvesting are divided among buyers and sellers according to their relative bargaining power in the market, which is largely influenced by the amount of supply. In cases where products are slightly more storable, producers have some ability to control supply and so the relative bargaining position of growers, shippers and retailers may vary (Richards and Patterson, 2003). However, the consolidation and scale of many food retailers and distributors is perceived as a threat for the producer-supplier's bargaining position, particularly for perishable products such as produce, dairy and eggs.

Accordingly, direct markets are commonly referenced as one mechanism for producers to regain control of their bargaining power by integrating the wholesale and/or retailer functions into

their own operations. But, there is also evidence that direct markets may constrain producers to a scale that will make it difficult for them to be viable.

Park (2015) examined the impact of participation in direct marketing on the distribution of farm sales using the unconditional quantile regression (UQR) estimator to evaluate the distributional impacts, rather than just an assessment of the means of the sample of those enterprises participating in direct marketing strategies. Park found that the lower sales commonly associated with direct marketing enterprises are somewhat mitigated by the scale of the operation, so scaling up (at least to some degree even if not at the scale required to compete in commodity markets) may be an essential element of attaining viability.

In earlier work on a different segment of alternative producers, Park and Lohr (2010) assessed farm earnings of organic producers. Similar to the 2015 Park study, they found that those who participated in local direct marketing efforts tend to achieve lower earned income; moreover, organic producers who chose to sell the bulk of their product to local markets incurred decreased earnings compared to producers with limited local sales. This would suggest the relative dependency on local sales may correlate with negative financial outcomes, but it is not clear how heterogeneous producers adopting the direct market strategy may be, and thus, if outcomes for some are more favorable.

Park, Mishra, and Wozniak (2014) developed a multinomial logit model identifying variables that influence the choice of direct marketing outlets by farmers in the United States. They found that producers with a broader portfolio of management skills—such as more ways to control input costs—were more likely to rely only on intermediated retail outlets or to diversify into both direct-to-consumer and intermediated retail marketing outlets. This initial evidence that direct and intermediated marketing strategies may have different implications for a farm enterprise.

In past work on value-based supply chains, researchers have outlined several criteria that differentiate food market intermediaries based on how their business strategies may enhance small and mid-scale farmers' financial viability. This work has emanated from the USDA regional coordinating committee focused on "Ag of the Middle," which focuses on several issues of relevance to this article. Specifically, they denote that producer-driven governance and promotional campaigns allow them to capture price premiums in the marketplace for the environmental, economic, and social benefits (values) embedded in the products" (Feenstra et al, 2011; Hardesty et al., 2014).

3 Empirical Analysis

Work on the competitive position of agricultural producers has generally focused on the structure of the entire food system, and USDA Economic Research Service reports have particularly focused on the relative size of farms within the farm sector (Hoppe, 2014). Although financial metrics are only one way to measure competitiveness, together with other work being conducted on costs and efficiency by our research team, analysis of subsamples of the USDA ARMS data can help to inform the literature on relative comparative advantages across scale and market orientation.

3.1 A Conceptual Model: Benchmarking Financial Performance against Market Orientation

Competitive analysis has been utilized by organizations for decades as a means of collecting data and measures regarding the markets, sales, products, production costs, or budgets of competitors. Although competitive analysis is useful in assessing one's position relative to the competition, it usually does not provide insights as to how competitors achieved this position, i.e. through what methods or processes without further delineation of benchmark data. By benchmarking several key financial measures (gross sales, scale efficiency, leverage) across agricultural producer subgroups, we explore how the relative performance of small and mid-size enterprises varies from larger enterprises, and if a comparative disadvantage in scale can at least be at least partially mitigated by participation in alternative marketing channels or other business strategies.

Bauman et al (2014) developed a 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). The set of marketing strategies are divided into four quadrants using sales volume as the horizontal dimension and value-added (operating profit margin) per unit of sales as the vertical dimension. The types of marketing strategies are ordered 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, perhaps as new marketing opportunities appear or financial challenges arise.

The business models, shown in the top two quadrants of Figure 1, are the focus of this article, 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), there may be reason to believe that a portfolio of these marketing strategies, rather than one singular approach, may correspond to a positive influence on the financial viability of a farm enterprise, and this relationship is worth further exploration. Given past research has shown that scale and cost control strategies were found to be key determinants of profitability, those will be two important criteria for comparison in this analysis. In addition, we intend to disentangle how producers with varying strategies may compare across

other key characteristics as a way of exploring whether direct and intermediated sales farms chose those markets as a way to leverage opportunities or guard against challenges in their specific farm business environment.

3.2 Data and Methods

Data for this study are taken from the 2013 Phase III United States Department of Agriculture Ag Resource Management Survey (ARMS) to estimate the parameters of the model. The data include gross cash farm income, marketing channels utilized, key product segments, region where operation is located, fixed and variable expenses, assets, debt, and farm and operator characteristics. The ARMS is a nationally representative survey that targets about 30,000 farms annually and utilizes a complex survey design (e.g. complex stratified, multiple-frame, and probability-weighted). Given this survey design, if the purpose of the analysis is to describe the population, then the estimates must be weighted. But if the purpose is to describe a sample, which in our case is farmers and rancher participating in local food marketing channels, then weighting the sample will distort the results by forcing this sample act more like the average famer (Dubman, 2000). If the goal is to compare farmers and ranchers participating in local food marketing channels to those farmers utilizing traditional marketing channels, then it is necessary to weight estimates. But, as is the case in this paper, if the comparison is within local food marketing channels, then no weighting is necessary.

In the ARMS, the criteria used to establish whether a farm participates in local food marketing channels is twofold. First, participants are asked to respond (yes/no) if they produced, raised, or grew commodities for human consumption that were sold directly to: (1) individual consumers, (2) retail outlets, and (3) institutions? Second, they are asked to provide the amount of money they received from the sale crop and livestock commodities from these same marketing channels. We chose to define local food system participants by all those that reported any amount of positive sales in any of the three direct marketing channels listed above. Following Low et al. (2015), sales to individual consumers are classified as direct-to-consumer sales and sales by the producer (or a value based supply chain representing the producer) to retail outlets and institutions are classified as intermediated sales. Of the total sample, Table 1 shows that 16,461 (94%) reported no local food sales and 1,013 (6%) responded that they had positive sales in local food marketing channels. For all those respondents who reported positive sales in local food marketing channels, 664 (66%) had

positive direct-to-consumer sales only, 136 (13%) had positive intermediates sales only, and 213 (21%) had positive sales to both outlets.

By not using the jackknife weighting scheme to standardize the sample analyzed, this paper assumes that; 1) local food producers would not be shown as representative using the criteria commonly used to create more representative farms in the ARMS sampling scheme; 2) the ARMS sampling scheme is representative of all farms so comparisons of our targeted set of producers to the sample still offers some important inferences. In short, we did not modify the targeted sample to normalize it to a representative US farm population because we expect it is those farms' variance from being "representative" which is interesting for comparisons.

Table 1 highlights a couple of important aspects of this sample. First, the top rows illustrate how the local marketing producer sample compares to the full ARMS sample (1,013 of 16,416 total operations, and how those samples relate to the broader farm population of 2 million), and below, how the commodity samples compare when decomposed by those marketing locally compared to those that do not. Also, the observation numbers allow one to see that, as is the case for all farms, there is a high prevalence of very small farms among the sample marketing locally, and that some products are more commonly sold using direct and intermediated strategies (fruits and vegetables).

Table 2 shares the means of several key variables from the direct and intermediated sample, to help compare numbers across producers of different sales class categories (note that the two highest farm income classes are combined to attain a larger sample). And, since Jablonski and Schmit (2015) found differential expenditure patterns among those who participate in local and regional food systems, those variables will also be explored in this study. As is the case for all farms (Hoppe, 2014), larger scale increases the average profitability. Among marketing strategies, higher gross cash farm income increases is positively correlated with participating in intermediated markets (either solely or together with direct marketing). Not surprisingly, the ratio of off-farm to farm income indicates that the smaller farms are reliant on off-farm income streams to sustain the household (and perhaps subsidize the operations), and as one might expect, those operators who scale up are relatively less dependent on off-farm income streams as their profitability improves.

Although no statistical tests were performed, visual observation suggests larger locally marketing farms are spending a higher share of variable costs on labor, suggesting that are either more labor intensive, or perhaps, as sales grow the owner and family labor contributions are no longer sufficient to maintain operations. The other noticeable difference is the share of costs spent on rent, which is relatively low for the smaller operations, and is consistent with the relatively higher

ratio of owned to leased land among that sales class, as land payments would be an overhead cost while rent would be registered as a variable cost.

As was expected, fruit and vegetable operations were common across all sales classes of locally marketing farms. What may be more surprising is that livestock enterprises are more commonly small, perhaps representing lifestyle farms that are less focused on farm viability because of off-farm incomes that offset any operation losses. It is interesting to note that a higher share of the locally marketing farms are in the West and South regions (using USDA regional designations), and that the smallest sales class farms are in the South. What is masked by these averages is the great heterogeneity in this sample, something that segmentation into quartiles allows us to consider.

4 Results

In initial work dividing the USDA Agricultural Resource Management Survey (the USDA's primary data on farm financial performance) sample of farms with and without sales through local markets, we found significant expenditure differences (Jablonski et al, forthcoming). This paper groups local and regional food marketers into high and low performing quartiles by profitability. There are many measures of profitability, but in this case, we chose to use a farm's reported return on assets (ROA) to sort farms into quartiles as a way to disentangle what differences may exist among the most and least profitable farms. The use of a "standardized" measure like return on assets, may allow some expected and interesting cases (such as lean farms with few owned assets that are aggressively pursuing high end produce and product markets) to emerge more clearly. In contrast, gross measures (net income) or more refined measures (return on equity) may mask some interesting aspects we expect to see in the comparisons.

Beyond sharing the financial profitability differences across these groups, we also explore what operator and production characteristics (region, level of enterprise diversification) may matter to financial outcomes. Additionally, we will explore differences in bargaining power by comparing local producers selling through intermediated channels to producers not participating in direct or intermediate markets who are of a similar size, using net farm income as a proxy for price, to determine differences in bargaining power between marketing channels.

4.1 An Overview of the ROA Quartile Groups

Before delineating between groups of farms, there are some general themes to explore for the sample of farms that market directly. Following the classification scheme adopted by the USDA Economic Research Service to delineate the structure of US farms by gross cash farm income (GCFI), we will consider farms in four sales classes; $1-74,999, $75-349,000, $350,000-999,999 and $1 million and higher in GCFI. Table 3 summarizes the return on asset results by these sales classes. Table 3 shares the profitability means by quartile and by sales class. Tests show that there are significant differences across quartiles for all sales classes, so comparisons are warranted given the notable differences between high and low performing enterprises.

4.2 Profitability by scale of farm sales

As a whole, those farms participating in local food sales show a broad range of profitability with higher performers reporting returns over 23%, a strong result for a generally low margin industry such as agriculture. Still, over half of the sample reported negative returns, but again, this

varies by sales size class. Only the top 25% of the smallest size operations (Quartile 4) are profitable, but for those in this small sales class, a very lean management (small denominator and overhead cost burden) and cost control strategy (drawing against the $75,000 or less in sales) would be required to report any profits. Once above the $75,000 sales threshold, all other size classes have at least one half (Quartiles 3 & 4) of their operations reporting some profitability, and the highest performing groups report impressive Return on asset levels of 30, 42 and 68%, respectively.

Even among the smallest scale producers (under $75,000), the highest performers are profitable, but the lowest performers are indicative of some of the most common discussion points about the prevalence of the high number of very small farms in the US. Hoppe (2014) reports that this small sales class is prevalent within the farm sector, but relatively insignificant in terms of share of total farm revenues, and often, characterized as tangential to the core industry (i.e., either lifestyle or hobby farmers or beginning producers trying to establish markets). Although the middle quartiles (2 & 3) also report negative returns, they are relatively similar to one another in magnitude, thereby indicating these "median" returns are representative of the majority of small producers. What is interesting to note is the variance across locally marketing enterprises in the low and high income quartiles indicating that outliers in this size class may be the most interesting to explore further in terms of what strategies influence cost efficiency or marketing success.

Next we consider the second highest sales class ($75-349,999) and see evidence of the transition to financial viability at a relatively small gross cash farm income level, an encouraging indicator to those concerned about the scale bias of some ag markets. This finding is consistent with previous work by USDA Economic Research Service (Jablonski and Vogel, 2015) which concluded that farmers may reach cash flow and profit viability at a relatively lower sales scale than farms that focus on commodity markets, and therefore, may have a higher survival rate. Among the highest performing producers, the top quartile report very strong returns on assets (30%), over half of the sample shows positive returns and even the lower performing groups' average returns are markedly improved from the smaller sales class.

As one might expect, as the discussion continues by examining farms with greater scale (over $350,000 but less than one million in gross income), profits improve for all 4 quartiles and again over half of the sample is operating at a profitable level at this scale. When local food farms are also operating at a scale that is among the highest categories of gross sales (over $1 million), the top three quartiles (75%) are profitable, with the best performers reporting over 65% returns on assets (admittedly uncommon in base economic sectors such as agriculture). These initial results further

motivate the need to explore groupings of producers as means may signal little among a sector of farms that are likely to be quite heterogeneous.

4.3 Leverage by scale of farm

A key indicator of economic performance is the leverage used to finance the business, and again, we frame our discussion by exploring how the scale-based quartiles vary in their use of debt. It should be noted that this is one of the few factors where quartiles within sales classes were all found to be significantly different from one another. Among the smallest income class (under $75,000), there is the least reported debt, and all farmers in this category use well below the average for farms in general. However, it is unclear if this is due to limited access to capital (as the proliferation of new lending programs focused on small, specialty crop or beginning farmers would appear to address), or if instead, the choice of the operator is to invest equity capital at this stage of development so that the risk of repayment is not a challenge. The least debt was held by the top quartile that was profitable at this scale, so debt may be challenging to the cost control strategies needed at this size.

Once we move to the higher grossing farm operations, the patterns are more bimodal. The debt levels reported by the best and worst performing farmers (Q1 & Q4 as delineated by ROA) both use relatively higher levels of debt. One could imagine a situation where the poorest performing operations see debt as a solution for cash flow shortfalls, whereas the best performing operations see debt financing as an opportunity for faster growth. However, if cash flows are constrained (as would be the case with farm that are not profitable), debt may need to be collateralized with assets, and depending on the farm's ownership vs. lease status, this could present a challenge. However, if higher risk, these farms may also consider high interest rate credit (such as credit cards or trade credit) which may only exacerbate their challenges to attain cost competitiveness. So, targeted, government-backed credit access may be an attractive policy solution if these mid-size farms are a goal to support.

4.4 Other key factors

As expected, off-farm income is significantly different across farms in the lowest to highest sales class, but it is also interesting to examine whether it varies among farms with high and low profitability. There are no patterns that emerge when we test for significant differences across quartiles for any sales class, so off-farm income does not seem to be an important aspect of profitability analysis.

In contrast, the asset turnover ratio (ATR), which is the farm's ability to create gross sales effectively from investments in production assets, does show some interesting and significant patterns across farms who market directly and are of varying scale. As expected, the highest performing farms are generally the highest ATRs indicating they are the most effective at creating a significantly higher level of sales than those who do not perform well financially (across scales). But there are a few exceptions. In the smallest scale gross farm income class, there were not significant differences across quartiles (as was the case for all other sales classes). But, there does appear to generally be a challenge in converting assets into saleable goods, lending further evidence of some hobbyists who participate in farming as a lifestyle rather than vocational choices. They may seek out a farmstead and lifestyle that has aesthetic or amenity value, but with less concern about actively managing their land, animals or machinery into saleable goods. The interesting exception is the poorest performing quartile shows relatively high technical efficiency in converting assets to sales, but perhaps it is their relatively high indebtedness and high costs of carrying this debt what explains their high sales conversion not translating to profitability.

A similar pattern emerges among the second lowest performers for mid-size group reporting $75-350,000 in sales. However, once we get to the highest sales classes, the highest performers are consistently almost the most efficient in terms of ATR. Yet, as the high levels reported among some large farms in the debt-to-asset ratio tables, there may be ineffective financing strategies even at the largest scale. Perhaps it is worth exploring if some of these farms grew too fast in hopes of taking advantage of market opportunities they faced.

4.5 Labor productivity by scale of farm

Because previous work by Jablonski and Schmit (2016) suggests there are significant differences in use of labor by those farms who market directly, this paper made labor productivity a key focus of analysis. Here we see a slightly opposite story where labor productivity may decline in relative terms as we get to higher sales classes. Perhaps it is because, within large scale farms where hired labor numbers are substantial enough, hiring strategies and a scarcity of labor necessitate hiring a number of relatively unskilled laborers to supplement household or partner labor (which may be more skilled and more incentive-aligned).

Surprisingly again, in the smallest sales class, the lowest profit farms show higher labor productivity again suggesting their challenges are in the use of capital not labor. But as we move to higher sales classes (the two segments ranging from $75,-999,999) there is an interesting pattern of how labor productivity varies)

5 Discussion and Next Steps

In initial work targeting performance analysis on those who participate in local marketing strategies among the USDA Agricultural Resource Management Survey, researchers found differences that suggest different business strategies are being employed. This paper's grouping of local and regional food marketers into quartiles by profitability (Return on Assets), and then further delineating these results by the gross farm income scale levels, provides valuable insights. We sought to explore how different size producers' financial performance may rely on their ability to understand and exploit a new set of comparative advantages in increasingly differentiated markets. There are a number of interesting differences across operator and production characteristics, and some of those factors appear to vary with financial outcomes. In other work to complement this research, efficiency of these same locally marketing farms is being explored, and it seems that participation in direct and intermediated markets can offset the scale inefficiencies small and mid size farms face (Bauman et al, 2016).

What are the implications of these differences in returns across sales class among those farms that have chosen to integrate direct sales into their business strategy? First, the financial choices these farms face may vary from a typical farm. If part of the reason they report high returns is because they operate with a "lean" model where they lease all they can and minimize overhead by leasing rather than owning real estate and long-term assets. However, the trade-off for that strategy is that it may be harder to collateralize loans if farms don't own assets that would allow for securitization. So, further growth may be limited to what operating cash flows allow, even if market opportunities would allow for even faster growth. But, the USDA does seem poised to increase their access to guaranteed credit and technical assistance for this group of producers.

Despite increasing investments in innovative, regional food supply chain initiatives, there is little systematic consideration of the outcomes of these efforts, and specifically, if it helps small and mid-size farms to explore a new set of comparative advantages. This paper is intended to begin evaluating whether outcomes targeted at those sales classes has been effective. And, initial evidence is that intermediated markets are positively related to those in higher sales classes, and in turn, a higher share of those enterprises report profitability (and for the top 25%, impressive ROA numbers).

If one agrees that accessing markets is difficult for small- and mid-sized farms as procurement systems are increasingly vertically and horizontally integrated and aim to maximize efficiency, new models will be necessary (Hardesty et al, 2014; Tropp et al., 2008). Angelo et al (2016) concluded

that, to enhance the viability of food value chains and the producers involved, market development, market access, and consumer and institutional buyer education are key. This paper provides at least initial evidence that participation in direct and intermediated markets may allow the most business savvy farms of any scale to be financially viable. Together with other research cited here, innovations in food supply chains are a key component of the marketing infrastructure to support these producers. Those value chains that have found opportunities to become viable elements of the food supply chain are providing market access, and seemingly, the underlying economics allow those disadvantaged by scale to be profitable.

The imminent release of the first, in-depth USDA survey of those participating in local food markets should provide an even better opportunity to analyze how specific local marketing choices and strategies, along with spatially differentiated factors (adjacency to metro areas, region, transportation corridors or barriers) may influence financial outcomes for this segment of producers. But, initial evidence does indicate that local and intermediated markets are one approach to offer those farms who don't see their comparative advantage as being scale efficient enough to compete in global commodity markets.

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Table 1. USDA ARMS sample of Local Food Farmers and Ranchers

	No. of observations	Population size
Market Channel		
D2C	664	124,186.00
Intermediated	136	11,703.41
D2CIntermediated	213	24,012.00
Alllocalfood	1,013	159,901.40
Nonlocalfood	16,416	1,935,568
Local food producers by farm scale (GCFI)		
1kto75k	534	112,563.10
75kto350k	214	21,104.14
350to1Million	104	3,922.13
Million and higher	107	3,607.85
Local producers by region		
Northeast	105	26,413.74
Midwest	167	24,496.47
Eastnorthcentral	181	23,691.05
Southatlantic	79	19,871.22
Eastsouthcentral	176	28,392.69
Mountain	51	12,528.26
Pacific	254	24,507.97
Primary Enterprise		
Fruit	184	20,103.93
Vegetable	154	28,273.95
Field Crop		
Nursery		
Cattle	183	37,857.73
Hog		
Poultry	60	14,236.08
Dairy	38	4,940.88
Farm location, rural-urban continuum		
Metro	574	89,633.56
Metro adjacent	289	46,136.99
Rural	150	24,130.85

Table 2. Summary Statistics for Local Food Farmers and Ranchers, by Gross Cash Farm Income

	All sales categories (1013)		$1 to $75,000 (n=534)		$75 to $350,000 (n=213)		$350,000 and above (n=211)	
Variable	***Mean***	***Std. Dev.***	***Mean***	***Std. Dev.***	***Mean***	***Std. Dev.***	***Mean***	***Std. Dev.***
Return on Assets	-26.92	425.75	-54.85	583.35	2.14	35.90	13.97	32.45
Share of Variable Costs Attributed to . . .								
Feed	0.13	0.21	0.16	0.23	0.09	0.15	0.10	0.19
Fertilizer	0.12	0.15	0.10	0.15	0.14	0.14	0.16	0.15
Labor	0.15	0.22	0.08	0.16	0.21	0.23	0.32	0.23
Fuel	0.11	0.11	0.13	0.12	0.12	0.11	0.08	0.05
Utilities	0.08	0.12	0.10	0.13	0.07	0.07	0.06	0.09
Other	0.40	0.22	0.44	0.23	0.37	0.18	0.29	0.16
Taxes & Insurance	0.69	0.33	0.78	0.30	0.62	0.32	0.49	0.30
Interest	0.16	0.24	0.14	0.25	0.18	0.24	0.17	0.20
Rent	0.16	0.26	0.08	0.20	0.21	0.28	0.34	0.30
Ratio Off farm to Cash Farm Income	32.20	226.50	13.94	28.78	0.30	0.54	0.05	0.10
Age class; 1: <=34, 2: 35-44, 3:45-54, 4:55-34, 5:65+								
Age Class	3.74	1.12	3.81	1.08	3.53	1.24	3.73	1.08
Ratio of Owned to Leased Land	0.99	1.56	1.14	1.74	0.90	1.71	0.69	0.97
Primary Market Channel and Marketed Product, 0-1								
Direct to consumer	0.66	0.48	0.78	0.42	0.53	0.50	0.43	0.50
Intermediated only	0.13	0.34	0.08	0.27	0.16	0.37	0.26	0.44
Both Direct & Inter.	0.21	0.41	0.14	0.35	0.31	0.46	0.32	0.47
Fruit and Vegetable	0.33	0.47	0.34	0.47	0.34	0.47	0.35	0.48
Field Crop	0.19	0.40	0.14	0.35	0.24	0.43	0.28	0.45
Animal	0.41	0.49	0.47	0.50	0.35	0.48	0.28	0.45
Education class of primary operator; 1: less than high school, 2: completed high school, 3:some college, 4: completed 4 years of college or more								
Op_Educ	3.02	0.96	3.06	0.95	2.90	1.00	3.08	0.91
Urban-rural code; 0=metro,	0.58	0.73	0.56	0.73	0.64	0.77	0.58	0.73
Northeast	0.10	0.30	0.09	0.29	0.12	0.33	0.14	0.35
Midwest	0.16	0.37	0.17	0.38	0.17	0.37	0.14	0.35
South	0.28	0.45	0.32	0.47	0.24	0.43	0.21	0.41
West	0.30	0.46	0.26	0.44	0.31	0.46	0.37	0.48

Table 3: Return on assets, by gross cash farm income and quartiles

	y1Kto75k		y75Kto350K		y350kto1M		y1Mtohigh		All Sales	
	Mean	St Error	Mean	St Error	Mean	St Error	Mean	St Error	Mean	St Error
Quartile 1	-208.803	99.632	-19.363	2.750	-16.195	3.263	-8.295	1.809	-123.244	53.053
Quartile 2	-10.477	0.242	-3.149	0.244	-0.732	0.278	5.928	0.529	-6.762	0.145
Quartile 3	-3.936	0.113	1.082	0.189	5.675	0.540	16.982	0.675	-1.186	0.076
Quartile 4	4.571	3.419	30.394	8.139	41.670	7.479	67.776	7.136	23.527	2.921

Note: Return on assets was multiplied by 100 for interpretation and was found to be significantly different across all quartiles for all sales classes.

Table 4: Farm characteristics, by gross cash farm income and quartile, 4 being highest ROA

		Labor share of Variable Costs		Gross Sales/Labor Share of Costs Ratio		Asset Turnover Ratio		Household off-farm income		Business debt to Asset ratio	
		Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.
1Kto75K	Q1	7%	0.015	62.840	44.402	85%	0.625	$ 62,818	5615.7	12%	0.025
	Q2	8%	0.014	27.391	17.741	8%	0.007	$ 68,718	7348.8	11%	0.019
	Q3	7%	0.015	22.862	7.208	6%	0.010	$ 65,099	8442.1	7%	0.013
	Q4	8%	0.014	15.994	2.858	14%	0.057	$ 76,291	9805.7	3%	0.007
75Kto350K	Q1	18%	0.028	23.869	5.957	41%	0.054	$ 30,914	4909.0	23%	0.044
	Q2	22%	0.032	29.206	12.131	14%	0.017	$ 34,744	5311.1	9%	0.030
	Q3	23%	0.031	14.729	3.356	16%	0.020	$ 56,246	16928.7	10%	0.025
	Q4	22%	0.034	26.087	6.118	85%	0.223	$ 52,203	12763.3	17%	0.035
350Kto1M	Q1	32%	0.047	23.296	12.582	52%	0.093	$ 57,087	11497.9	32%	0.079
	Q2	25%	0.038	14.326	3.969	25%	0.062	$ 34,850	9662.6	10%	0.033
	Q3	26%	0.046	59.035	42.453	39%	0.116	$ 54,567	41063.7	9%	0.022
	Q4	34%	0.048	61.544	51.680	163%	0.440	$ 26,232	8636.4	28%	0.123
1 Million and Higher	Q1	35%	0.042	6.852	1.578	42%	0.085	$ 30,010	9920.5	21%	0.059
	Q2	30%	0.049	15.570	5.773	42%	0.0733	$ 39,773	14844.6	11%	0.027
	Q3	32%	0.045	12.616	2.355	67%	0.0656	$ 40,095	11235.5	25%	0.040
	Q4	42%	0.042	8.640	1.1978	166%	0.259	$ 54,460	19588.1	30%	0.096

Note: Asset Turnover ratios across the quartiles was significantly different for the top three sales classes, and the debt to asset ratio was significantly different across the quartiles for all the sales classes.

Figure 1 Typology of Food Marketing Strategies by Sales Volume and Profit Margin