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Estimating how increases in local food sales transactions costs perceived by growers are related to market channel and farm characteristics

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Introduction

- Consumer demand for local food continues to grow and many consumers are willing to pay a premium for source-identified food grown near where they live (Costanigro, Thimany McFadden, Kroll & Nurse, 2011), creating growing profit opportunities for producers able to market products through local food channels.
- Direct-to-consumer marketing (e.g., at farmers' markets) is an important component of local food sales, but continued growth in sales requires increasing intermediated sales through distributors, institutions, retail markets, and restaurants (Low and Vogel, 2011).
- Selling into direct and intermediated local market channels may present different challenges than those faced by producers selling into traditional wholesale markets (Conner, King, Kilondinsky, et. al, 2011; Johnson & Endres, 2012).
- Relatively little research analyzes how barriers faced by producers differ across market channels (e.g., local vs. not local). With considerable attention being paid to local food system development as a potential way to support small- and mid-sized producer profitability and generate positive economic development outcomes, this gap in understanding represents an important area of research.

Objective

This study assessed how producers' perceived barriers to sales, as measured by transactions costs, are related to market channel (local vs. not local) and farm size.

Methods

Study Design:

- Cross-sectional (survey)

Participants:

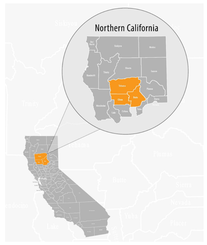
- Random sample of 200 northern CA farmers selected from ~2,500 farms,
  - Population identified from Certified Producer Certificate and Pesticide Use List
  - Response Rate: 18%

Data Collection:

- Trained student researchers administered survey by telephone

Data Analysis:

- Frequencies for farm demographics, perceived barriers to expanding farm business
- ANOVA, t-tests and binary logistic regressions tested associations between barriers, demographics and market channels



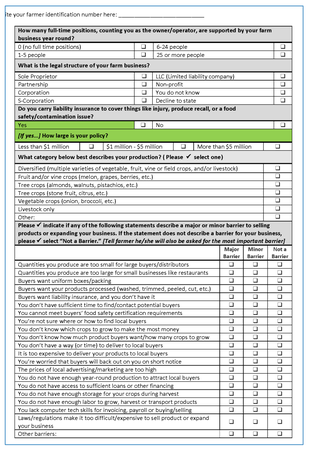


Figure 1. Sample page from the *Farmer Needs Survey*, including list of barriers.

Table 1: Perceived barriers experienced by producers grouped by transaction cost category (n = 200).

Information Transaction Costs	Producers indicating "yes"
You don't have sufficient time to find/contact potential buyers	49 (24.5%)
You're not sure where or how to find local buyers	26 (13.0%)
You don't know which crops to grow to make the most money	29 (14.5%)
You don't know how much product buyers want/how many crops to grow	31 (15.5%)
The prices of local advertising/marketing are too high	42 (21.0%)
Negotiation Transaction Costs	
Buyers want liability insurance, and you don't have it	10 (5.0%)
You cannot meet buyers' food safety certification requirements	20 (10.0%)
Product Transfer Transaction Costs	
Buyers want uniform boxes/packing	30 (15.0%)
Buyers want your products processed (washed, trimmed, peeled, cut, etc.)	29 (14.5%)
You don't have a way (or time) to deliver to local buyers	40 (20.0%)
It is too expensive to deliver your products to local buyers	44 (22.0%)
You do not have enough storage for your crops during harvest	41 (20.5%)
Monitoring and Enforcement Costs	
You're worried that buyers will back out on you on short notice	32 (16.0%)
No Barriers Indicated	
None	68 (34%)

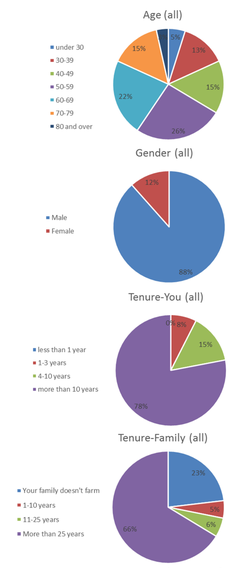


Figure 2. Demographics of surveyed farmers.

Results and Discussion

- 132 producers perceived at least one barrier (Table 1, Table 2).
- Producers selling into local channels reported statistically significantly more TC barriers overall (total barriers) than wholesale channel only sellers (Table 3).
- By TC category, producers selling into local channels were statistically significantly more likely to perceive barriers from *information* TCs, *monitoring and enforcement* TCs and *transfer* TCs than wholesale channel only sellers (Table 4).
- There was no statistically significant relationship between farm size and number of TC barriers overall (Table 5) or any of the TC categories (Table 6).
- Farm size was not statistically significantly related to market channel (Table 7).

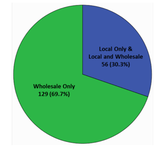


Figure 3: Number and percent of producers reporting sales into local channels (including both) vs. into wholesale channels only.

Table 2. Average number of transaction costs indicated as a major or minor barrier by producers selecting one or more transaction cost.

	n	Minimum	Maximum	Median	Mean	SD
Barrier Score	132	1	13	2	3.2	2.617

Table 3. Independent t-test estimating the association between market channel and the number of transaction costs selected as a major or minor barrier (barrier score).

	n	Mean	SD
Local and local/wholesale	56	3.38	3.205
Wholesale only	129	1.58	2.207

	df	t	p-value	Mean Difference (95% CI)
Barrier Score	183	3.813	<0.001	1.794 (0.857-2.730)

Table 4. Binary logistic regressions estimating statistical association between market channel and perceived transactions costs (TCs).

Characteristic	No. of farmers indicating 'yes' to ≥ 1 Barrier (%)	OR (95% CI)	p-value
Information TCs			
Local and local/wholesale	36 (64.3)	4.558 (2.107 - 9.859)	<0.001*
Wholesale only	47 (36.4)	reference	
Negotiation TCs			
Local and local/wholesale	11 (19.6)	2.460 (0.918 - 6.593)	0.074
Wholesale only	14 (10.9)	reference	
Monitoring and Enforcement TCs			
Local and local/wholesale	17 (23)	2.393 (1.112 - 5.147)	0.026*
Wholesale only	15 (11.6)	reference	
Transfer TCs			
Local and local/wholesale	36 (64.3)	2.949 (1.447 - 6.012)	0.003*
Wholesale only	55 (42.6)	reference	

Table 5. One-way ANOVA estimating the association between farm size (small, medium, large) and the number of transaction costs indicated as a major or minor barrier.

	n	df	F	p-value
Barrier Score	182	2	1.469	0.233

Table 6. Binary logistic regressions estimating statistical association between farm size and perceived transactions costs (TCs).

Characteristic	No. of farmers indicating 'yes' to ≥ 1 Barrier (%)	OR (95% CI)	p-value
Information TCs			
Small (≤ $100,000 per year)	42 (50.6)	0.874 (0.401 - 1.902)	0.734
Medium ($100,000 - $250,000 per year)	14 (36.8)	0.354 (0.263 - 1.612)	0.354
Large (≥ $250,000 per year)	30 (49.2)	reference	
Negotiation TCs			
Small (≤ $100,000 per year)	12 (14.5)	1.315 (0.454 - 3.315)	0.614
Medium ($100,000 - $250,000 per year)	2 (5.3)	0.367 (0.072 - 1.875)	0.228
Large (≥ $250,000 per year)	8 (13.1)	reference	
Monitoring and Enforcement TCs			
Small (≤ $100,000 per year)	15 (16.9)	1.172 (0.471 - 2.917)	0.732
Medium ($100,000 - $250,000 per year)	6 (15.8)	1.083 (0.352 - 3.330)	0.889
Large (≥ $250,000 per year)	9 (14.8)	reference	
Transfer TCs			
Small (≤ $100,000 per year)	41 (49.4)	1.162 (0.546-2.471)	0.697
Medium ($100,000 - $250,000 per year)	16 (42.1)	0.949 (0.400 - 2.254)	0.906
Large (≥ $250,000 per year)	27 (44.3)	reference	

Table 7. Chi-square test of independence examining the relationship between farm size and market channel.

	Size			
Market Channel	Small	Medium	Large	**Total**
Local and local/wholesale	29	9	17	55
Wholesale only	44	28	41	113
Total	73	37	58	168

	Value	p-value
Phi	0.136	0.21
Cramer's V	0.136	0.21

Conclusion

Results suggest that perceived transactions cost barriers reported by producers differ statistically by market channel, with farmers selling into local channels statistically significantly more likely ($\alpha = 0.05$) to report information, enforcement and transfer transaction cost barriers. However, the data did not support the commonly assumed relationship between farm size and local sales, and perceived transaction cost barriers were not statistically significantly related to farm size. These results have implications for granting agencies and economic development professionals, among others.

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