State Branded Programs and Consumer Preference for Locally Grown Produce

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Presented at the NAREA Post Conference Workshop:
The Economics of Local Foods Markets

Atlantic City, NJ

June 15th 2010

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Funding for state-branded programs has dwindled.

- Famer-to-Consumer Direct Marketing Act of 1976
  - State-of-origin brands an indirect result; Used by states to combat interstate competition and depressed commodity price
- During the 1980s many federal programs were shifted to the state and supported through block grants..
- Emergency Agricultural Act of 2001 saw a near doubling of state brand programs
- By 2008, 41 programs in total

State Brands are Important

- Revitalization of state branding campaigns and brands is important to several constituencies,
  - Help consumers to delineate what is meant by the term "local" – a term currently left to retailer interpretation
  - Provide assurance to consumers as to the credence attributes commonly ascribed to locally grown produce (e.g., freshness, reduced environmental impact, support of local economy).
  - Meaningfully differentiates commodities which should enable channel members to command higher margins

Research Objectives

- 2 phases.
  - Phase I explores attributes of state-branded programs in order to identify characteristics associated with successful state programs.
  - Phase II estimates consumer preferences and willingness to pay for food safety attributes associated with locally grown.

Phase 1: Attributes of Successful State-Branded Programs

- Exploratory

- No (!) existing research on state-branded agricultural programs

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Phase 1: Attributes of Successful State-Branded Programs

1. Secondary data collected from state agricultural websites

13 program attributes were identified:

- funding sources (membership fees, federal , and state funding)
- the number of funding sources
- membership compilation (is membership and state branding available to farmers' markets, commodity groups and/or retailers)
- the availability of marketing assistance
- the existence of an active state-brand promotional campaign
- the publication of a list of program members
- the existence of tradeshows for state-branded goods

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Phase 1: Attributes of Successful State-Branded Programs

- 50 states were then contacted and surveyed to obtain primary data on these attributes

- Survey comprised of 15 questions; 13 pertained to attributes identified and 2 related to the programs' best practices and success metrics

- 50 states surveyed; 44 responses, 3 states reported no state brand program

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Table 1: Program Count, Membership Summary, and Membership Mean*

Groups	Number of State Programs	Membership Total	Membership Average	P-value
Member funding	12	6,842	570	0.72
No member funding	29	18,797	648	0.72
Federal funding	20	6,673	334	0.01*
No federal funding	21	18,966	903	0.01*
State funding	33	22,734	689	0.07**
No state funding	8	2,905	363	0.07**
More than 1 funding source	23	9,853	428	0.06**
Less than 1 funding source	18	15,786	877	0.06**
Retailers	33	21,502	652	0.70
No retailers	8	4,137	517	0.70
Commodity	29	22,712	783	0.00*
No commodity	12	2,927	244	0.00*
Farmers markets	32	21,267	665	0.57
No farmers markets	9	4,372	486	0.57
List provided	32	22,179	693	0.16
No list provided	9	3,460	384	0.16
Promotion	33	21,693	657	0.34
No promotion	8	3,946	493	0.34
Marketing assistance	31	21,899	706	0.09**
No marketing assistance	10	3,740	374	0.09**
Tradeshow	34	21,638	636	0.78
No tradeshow	7	4,001	572	0.78
Started before 2000	23	16,887	734	0.34
Started after 2000	18	8,752	486	0.34

*significant at the 95 % level of confidence

*significant at the 90% level of confidence

Phase I: Conclusions

- Attributes of a successful state brand program are
  - Uses state funding
  - Has a single steady funding source
  - Includes commodity group members
  - Provides marketing assistance
    - Federal funding had significant negative impact on success
  - Charging member fees and year established were insignificant

- **Implications**
  - Charge membership fees
  - Recruit commodity groups
  - Rely less on federal funding

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Phase 2 : Consumers' WTP for State-Branded Attributes

- Objective: to determine consumers' willingness-to-pay for state-branded, locally grown attributes.
  - Focus on food safety and tracebility

- Choice-based conjoint analysis used to estimate consumer preference for two locally grown agricultural products.

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What we know …

- Consumers prefer to purchase locally grown (LG) foods
- And are willing to pay a (small) premium for
  - Quality (Freshness, taste)
  - support of the local economy
  - environmental benefits
- However, relatively little is known about produce attributes that may address consumers' food safety concerns.

Data Collection

- Focus groups were conducted with key stakeholders (growers, distributors, researchers and consumers) to inform the survey design.
- Self-administered, written surveys (approx 15 to 20 minutes).
- Convenience sample of 315 participants, for a total of 14, 580 observations
- Data collected in the greater Phoenix Metropolitan Area at:
  - a traditional supermarket
  - a premium grocer
  - an open-air farmers market, and
  - a locally-owned restaurant that serves fresh, quality cuisine.
- Collection sites located in urban, suburban and rural neighborhoods; represented diverse demographic populations.
- Collected on weekdays and weekends between 10:00 am - 6:00 pm

Sample Overview

Number of Respondents and Observations by Intercept Location

Store Type	Respondents	Observations
Basic Grocer	108	2,160
Premium Grocer	82	4,920
Farmers' Market	75	4,500
Restaurant	50	3,000
Total	**315**	**14,580**

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The Sample

- Population Representation
  - 5 demographic categories: income, age, education, gender & race
    - Distribution of gender and race is similar
    - Age of sample is younger
    - Higher levels of education and income reported

Sub-Sample Demographics

Variable	Full Sample	Basic Grocer	Premium Grocer	Farmers Market	Restaurant
Mean HH Income	$70,739	$60,175	$75,000	$73,972	$82,291
Mean Respondent Age	45	40	50	47	44
Gender - % Female	54	51	46	56	73
Primary Shopper %	85	81	85	85	92
Race - % White	79	73	85	84	75
Education - % Post HS	84	85	77	88	88

Methodology

- Three Methods Used
  - Simple descriptive statistics and t-tests were used to identify attributes that had an impact on the success of state brand programs
  - Conjoint analysis was conducted to identify differences in preference for local produce product that has had a recent food safety recall (spinach) and one that has not (carrots)
  - A RUM was used to determine the marginal impact of attributes and estimate WTP for traceability and local vs. national certification

Purchase Frequency of Locally Grown by Brand Awareness

Brand Awareness	Sample Size	Mean	Standard Deviation	P-value
Aware	140	2.49	0.88	.000
Unaware/Unsure	173	3.24	0.01	.000

Purchase scale is 1=daily, 2=weekly, 3=bi-monthly, 4=monthly, 5=never

- Those who were aware of the Arizona Grown brand purchased locally grown vegetables more frequently than the group who was unaware/unsure.

Important Characteristics When Buying Fresh Produce[a]

Characteristic	Mean	Basic Grocer	Premium Grocer	Farmers Market	Restaurant
1. Taste	1.21	**1.16**	1.2	**1.1**	**1.48**
2. Freshness	1.22	1.22	1.24	1.18	1.26
3. Appearance	1.48	1.4	1.43	1.67	1.42
4. USDA Safety Standards	1.66	1.56	1.57	1.87	1.74
5. Past Purchase Experience	1.68	1.7	1.68	1.78	1.5
Product Origin	2.04	**2.25**	**1.93**	**1.54**	**2.50**
Organic	2.29	**2.56**	**2.41**	**1.76**	**2.26**
Traceable	2.34	**2.59**	2.23	**1.89**	**2.68**
Environmentally Friendly	1.9	**2.08**	**2.03**	**1.44**	**2.18**
Brand Name	3	**2.7**	**2.9**	**3.5**	3.04
Production Method	2.07	**2.43**	**1.9**	**1.5**	**2.42**
Price	1.75	**1.56**	1.74	**1.97**	1.88
Fair Labor Practices	2.09	2.06	**2.43**	**1.73**	2.16

[a] 1=Very Important, 3=Neutral, 5=Not Important

Bold is used to indicate signficant at the .05 level

Consumer Perception about Arizona Grown Brand

Descriptive Statement	Mean	Basic Grocer	Premium Grocer	Farmers Market	Restaurant
More support. of local farmers	4.09	3.86	4.18	**4.51**	**3.84**
Less Desirable	2.09	**2.43**	1.88	**1.68**	**2.32**
Less Healthy	2.14	**2.52**	2.05	**1.6**	2.26
More supportive of local econ.	3.84	4.07	**4.55**	3.84	4.08
Fresher	3.75	3.61	3.81	**4.08**	3.43
Superior Taste	3.34	3.22	3.4	**3.62**	**3.07**
Exceeds USDA Guidelines	3.33	3.39	3.4	3.34	3.02
Worse For Environment	2.27	2.38	2.0	2.5	2.27
More suscept. to contaminants	2.32	2.48	2.23	2.09	2.46
Less Responsible Production	2.4	2.57	2.37	2.09	2.56

1- Strongly Disagree - 5 Strongly Agree

Bold us used to indicate significance at the .05 level.

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Conjoint Choice Experiments: Attributes and Levels

Carrots		Spinach	
Product Attribute	**Levels**	**Product Attribute**	**Levels**
Production Origin	Grown outside US	Production Origin	Grown outside US
	Grown inside US		Grown inside US
	Grown in Arizona		Grown in Arizona
Food Safety	Traceable	Food Safety	Traceable
	Non-Traceable		Non-Traceable
Certification	USDA	Certification	USDA
	Arizona Grown		Arizona Grown
	(blank)		(blank)
Price per pound	$0.65	Price per pound	$1.85
	$0.80		$2.10
	$0.95		$2.35
	$1.10		$2.60
	$1.25		$2.85

Conjoint analysis used to identify differences in preference for produce that has had a recent food safety recall and for produce that has not.

Conjoint Choice Experiments

Imagine that you are purchasing carrots and there is a variety of fresh carrots to choose from. The carrots are all offered in a 1-lb. bunch. The carrots differ only on the four attributes defined below (certification, product origin, traceability, and price). On all other attributes, the carrots are identical. Any purchase that you decide to make will have the effect of reducing the money available to you and your family for other purchases.

	Choice A ☐	Choice B ☐	Choice C ☐	Choice D ☐
Product Origin	Grown in Arizona	Grown in US	Grown in US	I prefer none of these alternatives.
Traceability	Traceable	Traceable	Non-Traceable	
Certification	USDA	-	USDA	
Price	$0.95/lb.	$0.65/lb.	$1.25/lb.	

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Model Specification

$$Y = \beta_1 + /- \beta_2 PRICE - \beta_3 TRACE + /- \beta_4 AZG + /- \beta_5 USDA + \beta_6 AWARE +$$
$$\beta_7 AZGSAFE + \beta_8 AZGLCLSP + /- \beta_9 AZGAGE + /- \beta_{10} AZGINC + /- \beta_{11} AZGEDU + \varepsilon$$

- Price
- Traceable
- AZ Grown Certified
- USDA Certified
- AZ Grown is safer
- Awareness of AZ Grown
- AZ Grown supports local economy
- AZ Grown is safer
- Age
- Income
- Education

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The Choice Experiments - Food Safety

Spinach has had a recent food safety incidence.

Carrots have not had any recent food safety outbreaks

This distinction helps to evaluate the hypothesis that food safety attributes play a significant role in the choice of locally grown and state-branded products

Overall Fit for Conjoint Model

	Carrot	Spinach
No. of Observations	6,838	6,827
Likelihood Function Value	-4575.63	-4336.31
Pseudo R-squared	0.424	0.468
Chi-Squared Statistic (p-value)	6741 (.000)	7631 (.000)
Percentage of Correct Predictions	66%	66%

Parameter Estimates and Marginal Effects for Carrots

Product Specific Attribute	Grown in AZ	Marginal Effects	Grown in U.S.	Marginal Effects	Grown Outside US	Marginal Effects
Constant	-7.44	-0.261	-6.32	0.259	-4.8	0.002
Price	**11.79**	**0.046**	**11.59**	**-0.047**	**11.8**	**0.000**
Traceability	**4.83**	**-0.099**	**5.26**	**0.100**	**4.57**	**-0.000**
Certified AZ Grown	-1.97	**-0.116**	-1.47	**0.118**	**-3.5**	-0.002
Certified USDA	**1.72**	**0.291**	0.47	**-0.292**	**1.27**	0.000
Aware of AZG Brand	**0.98**	**0.054**	**0.74**	**-0.054**	**0.70**	-0.000
AZG Safer	-0.42	0.006	**-0.45**	-0.006	**-0.82**	**-0.000**
AZG Sup. Loc. Econ.	**0.24**	**0.034**	0.09	**-0.034**	**-0.07**	-0.000

Parameter Estimates and Marginal Effects for Spinach

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AZG Sup. Loc. Econ.	**0.24**	**0.034**	**0.09**	**-0.034**	**-0.07**	**-0.000**

Select Willingness to Pay Estimates for "Arizona Grown"

	Carrot	Spinach
Marginal Utility of Income	$11.79	$18.25
Traceability	-$0.41	-$0.51
Certified AZ Grown	$0.17	$0.26
Certified USDA	-$0.14	$0.08

* in $/lb.

Marginal WTP calculated as:

$$MWTP_k = -\frac{\theta_k}{\theta_{price}}$$

Discussion & Implications

- Preliminary research, incl. focus groups and key person interviews, identified food safety attributes as a concern among Arizona consumers, producers and retailers
- State brand awareness increases likelihood to purchase
- Top 5 attributes: taste, freshness, appearance, food safety guidelines and past purchase experience
- AZ Grown: more supportive of local farmers, more desirable and healthier then conventionally grown produce.
- **These attributes should be highlighted during any state rebranding strategy.**

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Discussion & Implications

- Results of the conjoint choice experiment were mixed.
- MNL model had a strong fit to the data, but the price coefficient was positive in all cases

  Possible reasons:

  – the sample distribution of the education and income skewed high when compared to the state population

  – the distribution of prices may not have been significantly wide as to capture the upper-limit of people's WTP

Discussion & Implications

- Respondents were WTP a premium of $0.26 per pound for AZ Grown labeled spinach over locally grown spinach unlabeled
  - Higher than the $0.17 locally branded carrot premium.

- Produce labeled Arizona Grown had a higher WTP then local produce USDA certified.

- WTP a premium for a product that has had a food safety outbreak, but for produce with no food safety outbreak, only WTP a premium for LG .

- **Highlights consumers' perception of locally grown as an indicator of safety and confirms the association consumers have between local food and safe food**

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Discussion & Implications

- Negative premium garnered by traceability

  Possible explanations:
  - traceability is a public good
  - Consumers may not fully understand the benefits of an *ex post* ftraceability system .
  - the good is assumed by consumers to have a positive impact on social welfare but not on individual utility.

- Difference in consumer preference for food safety versus their preference for traceability

- **Implication**: To market tracability, need to market it in conjunction with food safety.

Where we go from here

- Marketing campaign
  - Rebranding/ Repositioning to convey benefit of local food safety attributes
- Replicate with comparisons of different commodities and more representative sample Identification of market segments
  - Does perceived risk of food borne illnesses differ among subgroups; if so, which ones?
- Extend to brokers and retailers of local produce