Marketing Contracts for Fresh Market Tomato Production: A Choice Based Experiment

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INTRODUCTION

- A marketing contract is typically a written agreement between growers and a buyer who sets a price and possible price adjustments as well as a market outlet
- Fresh produce is characterized by high production/ marketing risk but limited options to mitigate it.
- Marketing contracts are one important option for managing such risks

DATA COLLECTION

- Main data source for the study is a mail survey
- The sample consisted of 315 wholesale tomato growers from 4 states: KY, IL,IN, OH
- Response rate: 17% (55 growers out of 315)
- Usable Surveys: 49

SUMMARY STATISTICS

Table 1: Summary Statistics

Variable	Average	Std.	Min.	Max.
Gender, (1=female)	0.24	0.43	0	1
Age (1=older than 45)	0.61	0.48	0	1
Experience with contracts (1=yes)	0.36	0.48	0	1
Household size	2.4	1.28	1	6
Acres with tomatoes	17.5	85.56	0.125	600
Education (1=graduated high school)	0.61	0.48	0	1
Off farm employment (1= yes)	0.42	0.49	0	1

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OBJECTIVES

- Identify marketing contract characteristics that may influence growers' decision to participate in such agreements.
- Provide information to wholesale buyers (i.e. restaurant managers, grocery stores) that will help them design contracts that are more attractive to farmers

METHODOLOGY/ SURVEY DESIGN

- A stated choice preference experiment was conducted
- Conditional logit and Mixed logit models were used in the analysis

Table 2: Contract Attributes

Variable	Description
Early Price ($/lbs)	Price for late June-early July Levels:0.62, 0.68, 0.74
Peak Price ($/lbs)	Price for July-August Levels: 0.53, 0.55, 0.58
Late Price ($/lbs)	Price for September -October Levels: 0.70, 0.77, 0.84
Early Volume (lbs/acre)	Volume for late June-early July Levels:2,200, 2,400, 2,600
Peak Volume (lbs/acre)	Volume for July - August Levels:5,000, 5,500, 6,0000
Late Volume (lbs/acre)	Volume for September -October Levels:4,300, 4,700, 5,100
Penalties (% of price)	Price reduction if the agreement is not satisfied. Levels:5%, 10%, 15%,Terminate
Certification Cost	3rd party audit cost Levels: 0, 500, 1000

PRELIMINARY RESULTS

Table 3: Conditional and Mixed Logit Results

	Conditional Logit		Mixed Logit	
	Coeff.	Std. Err.	Coeff.	Std. Err.
Early price	3.51*	1.948	3.76*	2.114
Peak price	4.38	4.731	5.19	5.273
Late price	0.54	1.684	1.29	1.873
Early volume	-0.0002	0.0005	-0.0003	0.0005
Peak volume	0.00	0.0002	0.0001	0.0002
Late volume	0.0002	0.0003	0.0002	0.0003
Penalty	-0.01***	0.0025	-0.01***	0.0028
Certification Cost	-0.001***	0.0002	-0.001***	0.00028
No Contract	5.65	4.31	6.88	4.857
Standard Deviation Estimates				
No Contract S.D			3.18 ***	0.624
McFadden R^2	0.11		0.12	

*, **, and *** indicate 10%, 5%, and 1% significant respectively.

Table 4: Selected Marginal Values (over early price)

Variable	Marginal Value	Std.Err.
Certification cost	.0004402***	.0002425
Penalty	.0031317***	.0018564

*, **, and *** indicate 10%, 5%, and 1% significant respectively.

Marginal values are calculated as the negative ratio between the coefficient of the attributes (penalty and certification cost) and the coefficient of price (early price for Table 4).

DISCUSSION

✓Growers prefer contracts that offer higher early prices

✓Almost all growers showed strong preference against higher penalties and certification costs

✓In order to accept 1% higher price penalties, growers want 0.003 cents per lbs higher early price