170th EAAE Seminar – Montpellier:
Governance of food chains and consumption dynamics: what are the impacts on food security and sustainability?

Flemish fruit farmers' preferences for sales channels' attributes – and the actual set of options to farmers

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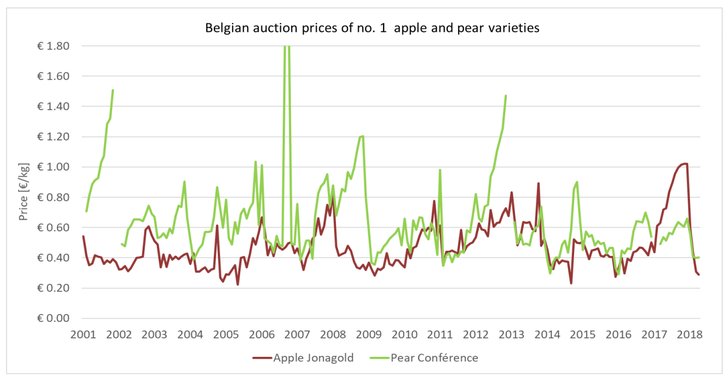
INTRODUCTION

Motivation

- Reduction in EU market protection → price volatility in EU commodity markets
- Output price volatility = key challenge to farmers (e.g. Meuwissen et al., 2018)
- Price risk management shifts to private actors; mitigation through
  - Horizontal cooperation: supply coordination, price pooling (mainly in cooperatives)
  - Vertical collaboration: risk sharing partnerships (e.g. Belgian retailer initiative)

Setting

- Case study: apple and pear (A&P) farming in Flanders, Belgium
- A &P marketing primarily by cooperatives; limited prevalence of price pooling
- Price volatility = inherent to apple and pear market



Source: graph based on data of Statistics Belgium, 2018

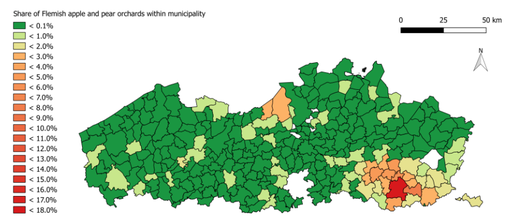
Research question

- Feasibility of price risk sharing through horizontal cooperation?
- Constrained by different preferences?

METHODOLOGY

Case study

- A & P farming in Flanders, Belgium: intensive, highly specialized sector
- Entrepreneurial and business-oriented
- Very high consolidation at initial wholesale level: cooperative auctions



Source: graph based on data of Statistics Belgium, 2018

Empirical approach

1. Focus groups and interviews to understand sales channels' (attributes)
2. Farmer survey: detailed farm- and farmer characteristics
   + risk preference elicitation task: lottery
   + discrete choice experiment on sales channels' attributes

ATTRIBUTES	LEVELS		
INTERMEDIARY	YES	NO	
TIMING	BEFORE THE HARVEST	AFTER THE HARVEST	
PRICE POOLING	NO	YES	
PRICE VOLATILITY	CONSTANT PRICE	REDUCED VOLATILITY	HIGH VOLATILITY
AVERAGE PRICE/KG	-30% ; -20% ; -10% ; 0 ; +10% ; +20% ; +30% of [average price of the most important cultivar]		

- Sample of 137 A/P producers (population 729)
- Representative in terms of age, spatial distribution, +/- farm size

PRELIMINARY RESULTS

Conditional logit model (McFadden, 1974)

1. Assuming homogeneous preferences: population-wide systemic preferences
2. Including interaction terms with respondent characteristics: first step to explain different preferences

Results

- Step 1: preference for individual-performance based price and small price volatility (model 1)
- Step 2: risk averse farmers (model 2) and price poolers (model 4) dislike price volatility more strongly
- Step 2: no sig. difference in preferences risk averse farmers (model 3) and price poolers (model 5) for individual-performance based price
  - Unexpected?

NEXT STEPS

- Refine analysis with more elaborate models
- Map preference heterogeneity: grouping / clusters
- Investigate preferences on brokerage by intermediary and timing price settlement
- Preferences seem to differ significantly: cooperative-wide price risk sharing schemes unlikely feasible

Preliminary results: conditional logit models

	(1)	(2)	(3)	(4)	(5)
choice					
intermediary	0.0047	0.0114	0.0053	0.0039	0.0061
	(0.1111)	(0.1107)	(0.1105)	(0.1111)	(0.1113)
during_season	0.0075	0.0049	0.0076	0.0100	0.0083
	(0.0770)	(0.0788)	(0.0761)	(0.0784)	(0.0767)
group_performance	-0.3565***	-0.3698***	-0.3428***	-0.3571***	-0.3801***
	(0.1047)	(0.1044)	(0.1219)	(0.1056)	(0.1246)
pricevolatility_zero	-0.2757**	-0.5135***	-0.2777***	-0.3885***	-0.2751**
	(0.1071)	(0.1600)	(0.1066)	(0.1232)	(0.1073)
pricevolality_high	-0.3550***	-0.3035*	-0.3572***	-0.2905**	-0.3550***
	(0.1079)	(0.1549)	(0.1091)	(0.1213)	(0.1077)
riskaverse × volatility_zero		0.2671*			
		(0.1399)			
riskaverse × volatility_small		-0.1521			
		(0.1213)			
riskaverse × volatility_high		-0.2428*			
		(0.1437)			
riskaverse × group_performance_no			-0.0535		
			(0.1202)		
riskaverse × group_performance_yes			-0.0813		
			(0.1090)		
price_pooler × volatility_zero				0.4123***	
				(0.1537)	
price_pooler × volatility_small				-0.0426	
				(0.1442)	
price_pooler × volatility_high				-0.3272*	
				(0.1723)	
price_pooler × group_performance_no					-0.0275
					(0.1385)
price_pooler × group_performance_yes					0.0671
					(0.1281)
price	0.0314***	0.0321***	0.0318***	0.0316***	0.0314***
	(0.0088)	(0.0090)	(0.0089)	(0.0089)	(0.0089)
ASC	-4.0774***	-5.0623***	-4.2945***	-4.2279***	-4.1175***
	(1.1021)	(1.3327)	(1.1013)	(1.1851)	(1.1510)
Observations	2028	2028	2028	2028	2028

Standard errors in parentheses
std err. clustered at respondent's level
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

more risk averse (dummy); 52%

price poolers (dummy); 32%

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