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

Understanding member heterogeneity in Belgian fruit marketing cooperatives: the role of risk preferences

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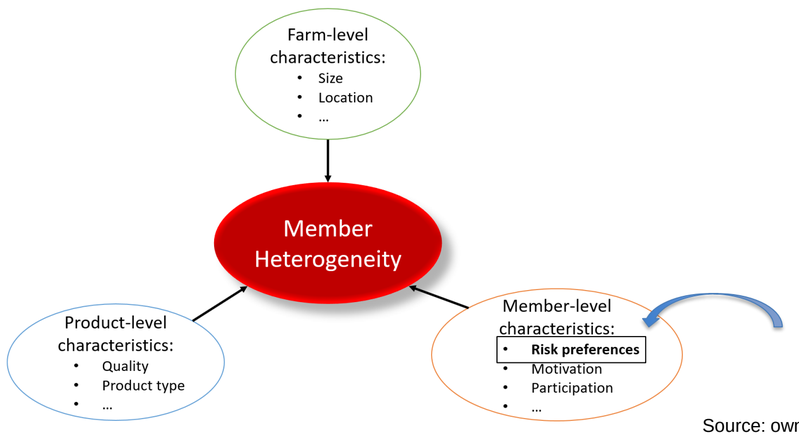
INTRODUCTION

Motivation

- Member heterogeneity = key problem for management of cooperatives



Source: own elaboration based on Höhler and Kühl (2017)

- Understand member heterogeneity? → analyse member satisfaction & commitment (Horwitz and Horwitz, 2007; Soboh et al., 2009)

- We include risk preference as member-level characteristic in explorative survey
- Literature gap: no previous empirical studies on risk preferences → satisfaction / commitment

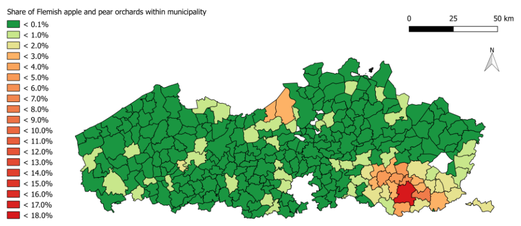
Hypothesis

- Relatively risk averse farmers are more satisfied with their cooperative

METHODOLOGY

Case study

- A & P farming in Flanders, Belgium: intensive, highly specialized
- Entrepreneurial and business-oriented
- Very high consolidation at initial wholesale level: cooperative auctions
- Self-selection into coop auctions 1, 2, 3 unlikely



Source: graph based on data of Statistics Belgium, 2018

Empirical approach

1. Focus groups and interviews
2. Farmer survey: detailed farm- and farmer characteristics
   + risk preference elicitation task: unframed lottery Tanaka et al. (2010)
   - Sample of 137 A/P producers (population 729); 116 members
   - Representative in terms of age, spatial distribution, +/- farm size

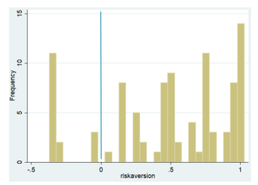
Analysis

- Regression analyses on 2 measures of satisfaction: linear probability model

PRELIMINARY RESULTS

Risk preferences

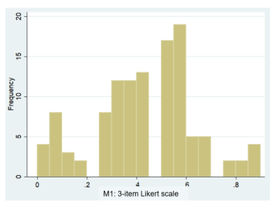
- Cumulative prospect theory framework (Kahneman & Tversky, 1979): distinguish utility function curvature (σ), loss aversion (λ), and probability weighiting (α)

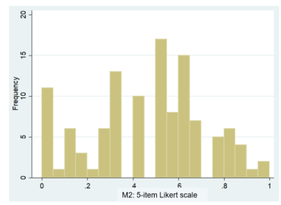


< 0 = risk loving
0 = risk neutral
> 0 = risk averse

Satisfaction with cooperative

- Two Likert-scale measures (M1 and M2)





Regression analyses: linear probability model

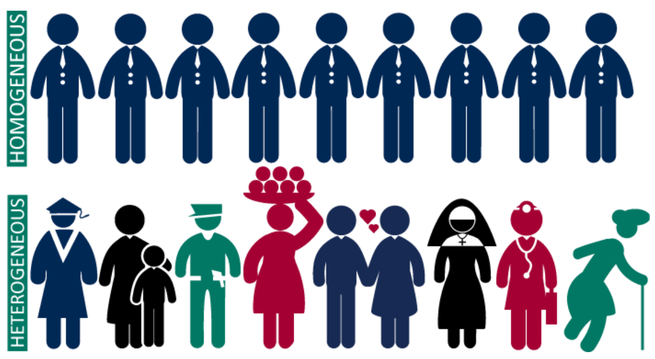
$$MEASURE_i = \beta_{0,i} + \beta_{RISK,i}.SIGMAi + \beta_{2,i}.X_{2,i} + \ ... + \beta_{15i}.X_{15,i} + \varepsilon_i \,, \qquad \text{for i = 1 to N}$$

	Dependent variable						Reduced sample: coop. auctions					
	M1			M2			M1			M2		
	Observed Coef.	Bootstrap Std. Err.	P>z	Observed Coef.	Bootstrap Std. Err.	P>z	Observed Coef.	Bootstrap Std. Err.	P>z	Observed Coef.	Bootstrap Std. Err.	P>z
Member-level characteristics												
σ	**0.1164**	**0.0524**	**	**0.1890**	**0.0640**	***	**0.1183**	**0.0519**	**	**0.1745**	**0.0749**	**
λ	-0.0148	0.0629		-0.0112	0.0706		-0.0267	0.0656		0.0416	0.0802	
α	0.0646	0.0896		-0.0371	0.0951		0.0413	0.0913		-0.0142	0.1098	
Age	0.0009	0.0024		0.0012	0.0028		0.0009	0.0027		-0.0004	0.0030	
Education												
Higher vocational	0.0248	0.0545		-0.0060	0.0574		0.0322	0.0613		-0.0114	0.0671	
Academic	-0.0205	0.0709		-0.0678	0.0949		-0.0456	0.0749		-0.0841	0.0973	
BoD expierence	0.0701	0.0861		0.0271	0.0766		0.1004	0.0843		-0.0006	0.0706	
Using dedicated services	0.1411	0.0410	***	0.1554	0.0487	***	0.1390	0.0479	***	0.1495	0.0587	**
Product-level characteristics												
"Club" varieties	0.0382	0.0496		0.0340	0.0555		0.0360	0.0581		0.0348	0.0632	
% good quality pear	0.0012	0.0010		0.0005	0.0011		0.0010	0.0009		0.0008	0.0014	
Farm-level characteristics												
Farm size (log)	0.0021	0.0350		0.0137	0.0420		-0.0085	0.0383		0.0066	0.0541	
Dist Coop ¹ (log)	0.0015	0.0197		0.0224	0.0195		0.0101	0.0193		0.0205	0.0214	
Dist Coop ²(log)	-0.0163	0.0230		0.0224	0.0293		-0.0220	0.0238		0.0067	0.0326	
Dist Coop ³(log)	0.0115	0.0222		-0.0028	0.0346		0.0025	0.0221		0.0024	0.0384	
Control variable												
New PO	0.0652	0.0662		-0.0889	0.0711							
Constant	0.1790	0.2029		0.0486	0.2106		0.2479	0.2127		0.1665	0.2407	
Number of obs	101			101			89			89		
Wald chi2(15)	31.61			44.5			23.49			21.14		
R-squared	0.2541			0.2684			0.2394			0.2155		
Root MSE	0.1958			0.2366			0.2013			0.242		

CONCLUSIONS and NEXT STEPS

- Members' satisfaction = strongly related to risk preferences in this case study
- Support for frequent theoretical assumption: risk preferences → preferences w.r.t. cooperative
- Management solutions for member heterogeneity should take risk preferences into account

- Importance member / product / farm-level characteristics? All correlated ..
- Linear probability model → disentangling heterogeneity by grouping



SUFISA

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