PRIN: RESEARCH PROJECTS OF RELEVANT NATIONAL INTEREST – Call 2020
Prot. 20205L79R8

"Towards a holistic approach to Sustainable Risk management in agriculture" Sus-Risk

Report on farmers' preferences for contract farming (Task 5.b)

Deliverable 5.1

Document Title	Report	Author	Elisa Giampietri, Samuele Trestini
Document type	Deliverable	Due date	30 M – 01/12/2024
First issue		Ref.	
Dissemination level	Internal	Revised	

PROJECT	Towards a holistic approach to sustainable risk management in agriculture	Prot.	……
Call identifier	PRIN: RESEARCH PROJECTS OF RELEVANT NATIONAL INTEREST – 2020 Call for proposals Prot. 20205L79R8		
Work Package			
WP	WP5	Description	Farmers' preferences for contract farming
Principal Investigator	Samuele Trestini		
WP Coordinator	UNIPD		
Project Start date	01/06/2022		
Project Duration	36 month		

Report on Task 5.b. Assessing farmers' preferences for contract farming

Authors: Elisa Giampietri, Samuele Trestini

Introduction

Marketing contracts (MCs) are written agreements between the producer and the buyer that establish a price for a predetermined quality and quantity of a commodity before marketing (Harwood et al. 1999). MCs offer a promising solution to mitigate the significant price volatility that has challenged European farmers in recent decades. Indeed, commodity price spikes in 2006–2008, 2011, and 2021, compounded by the COVID-19 pandemic and geopolitical tensions such as the Ukraine conflict, have increased the vulnerability of arable crop producers (Baffes and Haniotis, 2010; Coibion et al., 2020; USDA, 2022). Historically, the European Union's Common Agricultural Policy (CAP) provided price support, but recent reforms have shifted farmers towards alternative risk management strategies (Giampietri and Trestini, 2020). Despite the potential of MCs to stabilize income and reduce transaction costs (Wilson and Dahl, 2009; Bellemare, 2012), their adoption remains limited in Europe. Barriers include perceived complexity and other constraints. While North American literature provides insights into contract adoption dynamics (Goodwin and Schroeder, 1994; Sartwelle et al., 2000; Pennings et al., 2008), European research, particularly on MCs, is scarce. Also, studies on Italian wheat producers indicate limited adoption (Solazzo et al., 2020).

A study was conducted from authors from the University of Padova in Italy to analyze the factors influencing Italian farmers' intentions to adopt MCs. The study applies the Technology-Organization-Environment (TOE) framework by Tornatzky and Fleisher (1990) and uses data from a survey of 84 arable farmers and Partial Least Squares Structural Equation Modeling (PLS-SEM) to explore key determinants of farmers' intention to adopt MCs.

Data collection and methods

An online survey was administered during summer and autumn 2021. The final dataset included 84 valid responses.

The survey presented respondents with descriptions of MCs and asked them to rate various statements related to TOE constructs using 5-point Likert scales. In particular, the TOE framework structures the factors influencing innovation adoption into three contexts: i) Technological Context: including factors like perceived ease of use (PEOU), compatibility (PC), usefulness (PU), and security concerns (SC); ii) Organizational Context: including factors like perceived lack of resources (PLR) and top management support (TMS); iii) Environmental Context: including factors as mimetic pressure (MP)

and normative pressure (NP). Based on this, nine hypotheses were developed to explore how these factors influence farmers' intention to adopt MCs (INT). Demographic data such as age, gender, and farm size were also collected.

PLS-SEM was selected to analyze the relationships between constructs. This method is well-suited to small samples and exploratory research, estimating latent variable relationships through Ordinary Least Squares regressions (Hair et al., 2017). The model's constructs included INT as the endogenous variable and TOE components as exogenous variables.

Results

Sample characteristics indicated that the majority of respondents were male (93%) and relatively young (average age 44). Additionally, 57% specialized in arable crops, and 63% sold products through associations like cooperatives. Risk management practices were common, though adoption of financial instruments remained limited.

Surveyed farmers intend to adopt marketing contracts (MCs), finding them useful, easy to use, and compatible with their farm's features. They do not see resource constraints as barriers. However, aligned with Solazzo et al. (2020), they express some scepticism about buyer contract fulfilment. Farm owners and buyers support MC adoption, and respondents are aware that many peers already participate in such contracts.

The inner model results reveal that the TOE framework accounts for 75% of the variance in the intention to adopt marketing contracts, indicating strong explanatory power. Bootstrapped path coefficients highlight the significance of several key factors. perceived compatibility, perceived usefulness, top management support, perceived lack of resources, and normative pressure all show significant positive effects on adoption intentions. In contrast, perceived ease of use, security concerns, mimetic pressure, and farm size do not exhibit significant influence in this context.

Compatibility emerges as a key driver of adoption, with intentions increasing when marketing contracts align with farm production and management needs. This underscores the value of flexible contracts suited to diverse farm characteristics (Saenger et al., 2013; Vamuloh et al., 2019). Perceived usefulness, particularly for mitigating price risks, also significantly boosts adoption intentions, contrasting with past findings on futures contracts (Michels et al., 2019). Notably, ease of use and security concerns do not influence adoption, suggesting decisions are shaped more by utility and compatibility. Top management support stands out as the strongest predictor, highlighting the pivotal role of farm owners in driving adoption. This suggests that policy interventions and training should target farm owners to increase MC uptake (Gangwar et al., 2015). Surprisingly, perceived lack of resources positively impacts adoption, possibly reflecting farmers' readiness to invest in promising

innovations, though this requires further investigation. Farm size, contrary to earlier assumptions (Pennings et al., 2004; Vamuloh et al., 2019), does not significantly affect adoption. Normative pressure from buyers plays a crucial role, suggesting cooperatives and consortia strongly encourage uptake, though this may raise concerns about market power (Sexton, 2013). In contrast, mimetic pressure proves irrelevant, indicating that peer behavior does not guide farmers' decisions.

Conclusions

This study confirms the relevance of the TOE framework for analyzing agricultural innovations such as MCs. It highlights several important findings: first, farmers are more inclined to adopt MCs when they view them as valuable tools for managing price risk and compatible with their operational models. Moreover, the positive attitude of farm owners towards MCs strongly predicts adoption intention, underscoring the need for targeted training and extension services. Also, buyers play a central role in encouraging MC uptake. From a policy perspective, these findings suggest that promoting MC adoption requires coordinated efforts targeting both farmers and buyers. Educational programs should focus on farm owners to enhance their understanding of MC benefits. Additionally, policy frameworks should ensure that buyer-farmer relationships remain balanced to avoid potential market distortions. In the future, cross-country studies and longitudinal research linking intentions to actual adoption behavior would enhance understanding and provide broader insights into the adoption of MCs across diverse agricultural contexts. In conclusion, by applying the TOE framework, this study offers valuable guidance for stakeholders aiming to increase MC adoption, ultimately contributing to greater income stability and resilience in the agricultural sector.

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