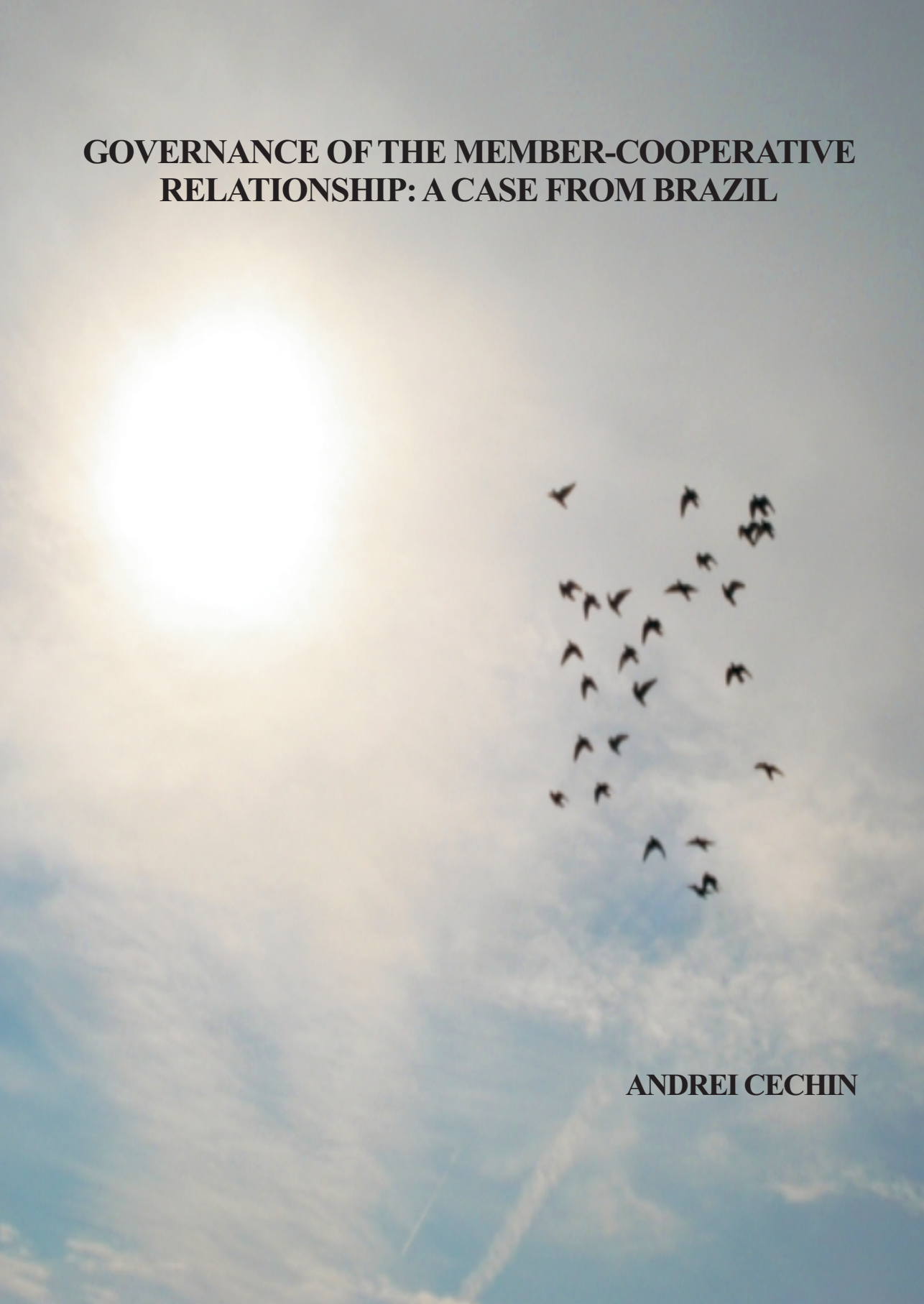
GOVERNANCE OF THE MEMBER-COOPERATIVE RELATIONSHIP: A CASE FROM BRAZIL



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Governance of the member-cooperative relationship:

a case from Brazil

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Governance of the member-cooperative relationship:

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Thesis

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GOVERNANCE OF THE MEMBER-COOPERATIVE RELATIONSHIP: A CASE FROM BRAZIL

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PREFACE

The path that led me to pursue a PhD in Wageningen and particularly in Management Studies was largely a matter of luck and social contacts. I had finished my Master in Environmental Science in Brazil and had other plans. Meanwhile, Prof. Decio Zylbersztajn, whom I hadn't met personally but who knew my previous supervisor, indicated my name to a PhD position in a WOTRO project. I went to his office to meet him personally and I was told that Wageningen University is incredibly international and where interdisciplinary collaboration is common. I would study the interface between collective action and the new challenges of vertical coordination in value chains. I was definitely hooked. That is why I must first thank Prof. Decio for indicating me and incentivizing me to come to the Netherlands. All in all, it was an amazing experience!

I acknowledge WOTRO/NWO for providing all the financial support for this research through the integrated program "Cooperatives and chains: linking smallholders to agricultural markets". It will be hard to have such a support for research in Brazil, even in the most optimistic scenario of scientific development. Most importantly, being part of this integrated program gave me the opportunity not only to share and get important feedback from the other PhD candidates and the postdoc coordinator, but especially to have them - Amsaya Anteneh, Claire Chagwiza, Qiao Liang and Roldan Muradian - as new good friends.

Supervision of one's PhD is very important and even determinant of how motivating or how miserable will be the four years. I was very lucky to have Jos Bijman as my daily supervisor. Since the beginning Jos told me our relationship would be a horizontal one, in which we would collaborate. It turned out that Jos was very open to new ideas, and very dedicated as a supervisor. But most importantly, we always had a very good relationship and I feel comfortable talking about my life plans with him. I can say we became friends. I also thank my promoter, Prof. Onno Omta, for giving me very important feedback on methods and on the quantitative part of the research, but also for motivating me and respecting my decisions during the whole process.

Even though the manufacturing of the papers is largely a solitary endeavour, it is crucial to have colleagues and Professors commenting and criticizing one's work in progress. I thank George Hendrikse, Jerker Nilsson, Petri Ollila and Feng Li for valuable feedback on two papers of this thesis. I thank Chiara Cazzufi whom I met in Helsinki and was so kind in reading one of the papers and giving me very important feedback. Stefano Pascucci became a co-author in a number of papers in this thesis and is always very stimulating to talk with, since he is a brainstorm himself. Stefano usually made the research I was doing look and sound way more interesting, important and general than I would initially perceive. Finally, I thank Christos Kolympiris, who helped me a lot with technicalities of the statistical and econometric procedures, but mostly for sharing very good moments of laughter in the Leeuwenborch!

It was a pleasure to have Annie Royer, Djala, Gumataw, Zen, Katja, Eva, Etrya, Janne (thanks for driving us safe back home), Mersiha (sorry for the wine in your carpet), Domenico (Bonobos to be continued) and Verena as MST colleagues, and Willem and Agata as ORL colleagues. Thank you so much Ina, Johnnatan (laga mi konosé kuandu abo bini na Brazil) and Anne for being so helpful in absolutely everything I needed. Leonie, your help in 2009

was crucial for our quality of life in Wageningen; particularly for finding a place for me and Candi to live even before we arrived. We liked so much to live there that in 2012 we lived there again! Thank you!

I thank the good friends I have made in Wageningen, which made my life there so more interesting and fun. People whom I feel comfortable enough to ask for a couch and whom I would love to receive in my own couch in Brazil. Thank you Rossi, Dimitris, Andrea, Maraki, Theo de Vries, Petra Dwerkzen, Mads Florin, Henrique, João, Pedro, Mariana and Vanja for sharing foods, drinks, farms, smiles and fun with me, and Cafe De Zaaier for putting us all together. A special thanks to Alex & Anastasia, best neighbours and cooks ever (papoi papoi). Whenever I started taking the PhD life too seriously and worrying too much, I just had to remember that we are talking monkeys on an organic spaceship flying through the universe. I would then enjoy the pleasures of life with these friends without any guilt.

This research was conducted in Brazil, where I spent half of the PhD time. A lot of people helped me. I thank Thiago Jesus for teaching me how to input data through Access, Amorim from Unicamp for helping me with the sampling strategy, Zé Paulo from UEM for giving me important information on broiler industry and contracts, Rúbia Rinaldi from Unioeste for the contacts in the rural workers' union, and Sylvia Saes for giving me very good tips, for teaching a very useful course at USP and for her friendship.

The empirical research wouldn't be possible if I hadn't the crucial openness of cooperative LAR, and the help from its managers Clédio Marschall, Reinaldo Fiuza and Carmem Reis. Applying the survey wouldn't be possible without the very dedicated group of young students from Medianeira, sons and daughter of rural producers themselves, who carried out the interviews with the members: Atilano Candio, Dinéia Finger, Edio Welter, Gelson Loch, Giovanni Camana and Jaffer Besen.

During this PhD I had the pleasure to be a colleague of Kassia Watanabe both in Wageningen and in Brazil. Always laughing, optimistic and going with the flow, Kassia really values human connections. Thank you for your friendship and for the countless Japanese sashimi & sushi banquets!

Finally, I thank Candi, my partner, lover and friend, not only for supporting and being very patient with me, which is obvious, but above all for having the courage to join me in the Netherlands, in the first place, and making our life there really *gezellig*!

1. INTRODUCTION

1.1 Problem statement

Cooperatives play an important role in the agri-food sector. In the European Union (EU), the average market share of all agricultural cooperatives is 40%. In non-EU OECD countries sharing similar cultural characteristics with Europe (such as Switzerland, Norway, Canada, USA, New Zealand and Australia) cooperatives also play an important role in the food chain. Large cooperatives are present in all of these countries, especially in the USA. Cooperatives are particularly important in the dairy sector, but also in olives, wine, cereals, and fruits & vegetables (Bijman et al., 2012).

Agricultural cooperatives are organizations jointly owned and controlled by farmers. A key difference between cooperatives and other business forms is that the cooperative has members, and that these members are simultaneously users, owners and decision-makers of the organization. That is, the relationship between members and cooperative organization has traditionally been divided into three dimensions (Dunn, 1988): ownership (or financing), control (or decision-making), and use (or transaction).

Cooperatives are pooled interdependence organizations in the sense that each member renders a discrete contribution to the cooperative and each member is supported by the cooperative. When there are mutual dependencies (or interdependencies) between different activities and different transactions, coordination is needed. Coordination has been defined as managing dependencies between activities (Malone and Crowston, 1994). The traditional coordination role of the agricultural cooperative has been mainly a horizontal one - organizing the collection and sales of the members' products, and informing members about the minimum quality requirements. Horizontal coordination in cooperatives already presents collective action problems (Cook, 1995), mainly in the form of free-riding behavior.

Recent events in the agri-food sector increased the demand for guarantees of healthy and safe products, but also for sustainable agricultural practices (Grunert, 2005). Increasingly important attributes of food quality are linked to production process characteristics (Luning and Marcelis, 2006). Particularly challenging is the connectedness of transactions between farmers, traders, processors, retailers and final customers in order to comply with quality requirements, which implies a need for value chain coordination. Quality requirements can be in the form of public or private standards, where the latter is becoming predominant (Reardon and Henson, 2005).

These changes in the agri-food sector, combined with increased consumer demand for variety and convenience, have led to stronger sequential interdependencies, in which the output of one part is the input for another part. The increasing connectedness between farmer–cooperative transactions and cooperative-buyer transactions demands more vertical coordination. A major challenge for the agricultural cooperative is to combine horizontal

coordination among the members with vertical coordination in the value chain (Bijman 2009; Hanf, 2009). Since they are member-oriented, agricultural cooperatives traditionally buy the farm products of its members regardless of its quality. Increasingly, however, cooperatives need to guarantee product quality towards their customers, and thus assure that members supply products of the right quality. Some authors argue that stricter contracts between the cooperative and its members are necessary for the cooperative to cope with this challenge (e.g., Hanf, 2009; Bijman, 2010). This perspective, however, neglects the role of non-hierarchy mechanisms used in governing the cooperative-member relationship, such as social capital and democratic decision-making. Several socio-psychological factors beyond pursuing (short term) economic benefit affect members' commitment to the cooperative in general (Fulton, 1999), and to the quality strategy and customer-orientation of the cooperative in particular. Empirical research has shown that social identity (Borgen, 2001), trust and perception of participation (Osterberg and Nilsson, 2009) all have a positive effect on commitment.

Therefore, the central research objective of the thesis is to understand the governance mechanisms that can be used by the cooperative to strengthen the member-cooperative relationship, and understanding the effects of the different governance mechanisms on the coordination of members' adjustments to higher quality levels.

1.2 Theoretical approach

In the organizational economics literature the agricultural cooperative has been characterized as a hybrid governance structure, placed between market and hierarchy, since farmers pool some resources at the processing firm level while maintaining autonomy at the farm level (Ménard, 2007). However, by defining a cooperative only as a hybrid governance structure, Menard (2007) and Chaddad (2012) provide only a limited perspective on the organizational characteristics the cooperative. A more recent characterization by Nilsson et al. (2012) has departed from the 'markets and hierarchies framework' (Williamson, 1975) by proposing that social capital is the base of the cooperative both in terms of resources and in terms of governance. Establishing a jointly owned firm, usually on a small scale with its members living in the same village, is risky since everybody becomes dependent on each other. If one or a few of the members shirk, the whole community suffers. High levels of trust are, therefore, needed within the membership, particularly in the initial phase of the development of the cooperative. The cooperative's financial capital originates from the members, often because they have voluntarily abstained from patronage refunds. Therefore, according to Nilsson et al. (2012), the financial capital would ultimately be a kind of conversion of social capital. Social capital is also important for the governance of the member-cooperative relationship, for the way decisions are taken and implemented. However, social capital is not the same 'equal voting rights' (Nilsson et al., 2012, p. 190), which is a democracy mechanism. The importance of social capital for internal governance lies in the norms that arise to coordinate the interaction of people being part of a particular community. That is why it has also been called 'community governance' (Bowles and Gintis, 2002; Hayami, 2009).

Democracy and community mechanisms, however, have not yet been integrated in the Transaction Costs framework, where market and hierarchy are still the dominant governance mechanisms.

Like all empirically observed firms and markets, cooperatives are institutions employing a wide range of governance mechanisms. Our approach to governance mechanisms is different from the concept "the mechanisms of governance" as developed by Williamson (1996). Often, "governance structure" and "governance mechanism" are used as synonyms in the Transaction Costs Economics (TCE) literature. However, most governance structures are neither pure markets nor pure hierarchies. Nor can they be considered as discrete pure hybrids. According to Grandori and Furnari (2008), all governance structures use four mechanisms: market, hierarchy, democracy and community. Market refers to highly powered incentives and the capacity of coordinating action with minimal communication; hierarchy refers to predictability, transparency and accountability through formal rules, procedures and evaluation systems; democracy implies infusing voice and integrating different interests through diffusion of ownership, decision and representation rights; finally, community means infusing cohesion and homogenizing interests through knowledge and value sharing. This thesis adopts Grandori and Furnari's (2008) perspective. The agricultural cooperative embodies varying mixes of these four archetypical mechanisms to govern transaction relationships between cooperative firm and farmer-member.

Organizational economics, with TCE and Agency Theory as its dominant strains, does not take into account individuals' ability to change their attitudes with changes in time and place. Context is believed not to have any effect on the individuals' attitude towards opportunism, even if it might reduce or increase the scope for opportunistic behaviour (Goshal and Moran, 1996: 20). While it is argued by Agency Theory that the scope for opportunistic behaviour can be reduced with incentive alignment (Jensen and Meckling, 1976), and by TCE that the scope for opportunistic behaviour can be reduced with sanctions (Williamson, 1996), the common assumption in both approaches is that opportunism as an attitude is not open to management. This is another limitation of the standard organizational economics approach to cooperatives. However, opportunism and commitment, understood as attitudes, might vary with the quality of the relationship between parties of a transaction and might be open to management. To understand the dynamics of agricultural cooperative governance, we suggest that the unit of analysis be shifted from the member-cooperative transaction to the member-cooperative transaction relationship.

Studies on agricultural cooperatives that take an organizational economics perspective often conclude with the suggestion for future research of looking more closely at social capital and community aspects (Sykuta and Cook, 2001; Ménard, 2007; Chaddad, 2012). However community and democracy mechanisms are seldom integrated into these studies themselves. Not including these two important governance mechanisms is a clear limitation of the organizational economics approach to cooperatives, especially because they might be an important source of competitive advantage of cooperatives over alternative arrangements

(Davis and Bialoskorski, 2010). Central to sustaining any stable arrangement is the "willingness of trading partners to exert effort on behalf of the relationship" (Mohr & Spekman, 1994: 137), which might be understood as commitment (Joshi and Stump, 1999). In our theoretical approach, based not only on organizational economics but also on economic sociology, social psychology and organization theory we aim to show that both community and democracy mechanisms are crucial for strengthening commitment.

Cooperatives depend on the commitment of their members to supply the right quantity and quality of agricultural products. Nevertheless, there are very few empirical studies on member commitment in agricultural cooperatives, (Borgen, 2001; Bijman & Verhees, 2011; Hansen et al., 2002; Osterberg & Nilsson, 2009; Trechter et al., 2002). Furthermore, it is common to see conceptual confusion between commitment and loyal behaviour (Pascucci et al., 2012). Commitment, however, is better understood as an antecedent attitude of loyal behaviour, which might or might not determine actual loyal behavior. Our approach follows the more recent organizational commitment literature (Solinger et al., 2008) in defining member commitment as an attitude. We define member commitment as the willingness to make a sacrifice to contribute to the organization's success and to the long-term stability of the relationship.

Transaction costs can be distinguished into transactional risks and coordination costs (Grover and Malhotra, 2003). Transactional risks, or exchange hazards, relate to the potential opportunistic behavior of the contract parties. TCE focuses almost exclusively on the minimization of transactional risks. The main solution to high transactional risks is, according to TCE, choosing a hierarchical governance structure for the transaction (Williamson, 1991). When applied to cooperatives, the prediction is that as asset specificity at the cooperative firm level increases (relative to asset specificity at the farm level), more hierarchical governance will be needed, because of the need to control potential opportunistic behavior (Hendrikse and Bijman, 2002; Ménard, 2007). This is a limitation of the TCE approach to cooperatives, because the increase in the use of hierarchical mechanisms might be needed for coordination purposes rather than for control of opportunism. Our approach, borrowing from inter-firm network literature (Gulati and Singh, 1998; Gulati et al., 2005; Nooteboom, 2004) recognizes the possibility that control problems might be solved with informal social mechanisms. Still, community mechanisms might reduce transactional risks but might not be enough to coordinate efficiently in a situation of strong interdependencies in the food value chain. Moreover, authority in the form of standards, rules and procedures, might be more effective when compared to democracy in reducing cognitive heterogeneity, and might be needed when there is uncertainty about the actions of others (Gulati et al, 2005) as well as when the need for information exchange increases. It is our key assumption that the use of different and different combinations of governance mechanisms is contingent on the particular control and coordination requirements of the transaction relationship between members and the cooperative firm.

1.3 Empirical context

Empirical research has been conducted in one large multi-product processing agricultural cooperative in Southern Brazil. The studied cooperative, Lar, is engaged in soy, broiler, vegetables, milk, swine and cassava, where soy and broiler are its leading businesses. The role of empirical research in this thesis is to test hypotheses regarding: (1) the effect of governance mechanisms on member commitment; (2) how relationship characteristics might affect quality performance; (3) that motivations for continued membership might be drivers of pro-active participation in the governance of the cooperative. Brazilian agricultural cooperatives are interesting to examine these theoretical insights for three reasons.

First, cooperatives are important in the agricultural economy and play a leading role in exporting agricultural goods. The economic importance of agricultural cooperatives in Brazil goes beyond the number of cooperatives and jobs created; these organizations contributed 38.4 % of agricultural GDP and hold about 7.5 % of the total capacity of soybeans handlers in the country (OCB, 2009). The South region of the country is known for its history of successful cooperatives. In the state of Paraná (in the South) agricultural cooperatives are a case of economic success, leading Brazilian exports of agricultural goods. Paraná has 80 agricultural cooperatives, which account for 55% of agricultural GDP of Paraná. Agricultural cooperatives are major players also in the broiler business. From a list of 25 largest chicken meat exporters, in 2009, six of them were cooperatives, of which four are from the state of Paraná (Abef, 2009). There is a significant market concentration in the broiler industry of Paraná, with a high participation of cooperatives among the largest slaughterhouses.

Second, agricultural cooperatives in the south of Brazil experienced in the last two decades similar developments as agricultural cooperatives in North Europe. They went through a process of vertical integration towards the consumer markets, operating in the processing, retailing and branding stages of the chain. Like most cooperatives in Paraná, the studied cooperative - Lar - was founded in the 1960s by a small number of farmers. Until the 1980s it was commercializing soy and wheat. In the 1980s it began with a diversification process, starting to produce soy oil, building an animal feed unit, establishing its first supermarkets, and setting up its transport fleet. Similar to other agricultural cooperatives in Brazil, Lar was forced to reorganize and set new focuses in the early 1990s because of the increasingly competitive market. From 1998, Lar built processing units for hogs, broilers and vegetables. In the broiler, vegetables and soy businesses, Lar operates in all stages of the value chain: coordinating production and selling of inputs, crop and animal production at the farm level, processing and distribution in wholesale and retail. In the case of broilers, more than 80% of the production is sold in international markets.

The 1990s were characterized by the administrative modernization of Lar, with the introduction of practices such as strategic planning, reducing managerial costs, and placing emphasis on business performance. Lar was ranked in 1990 for the first time among the 500 biggest companies in the country, in terms of turnover, and the fifth largest agricultural firm

in the south of Brazil (Marschall, 2009). In 2012, Lar's turnover was of 894 million dollars placing the cooperative in the 316th position in the ranking of biggest companies in the country, in terms of turnover.

Third, southern Brazilian agricultural cooperatives, which have shown to be economically successful, continue being traditional in the sense of ownership and control rights (Costa et al., 2013). In Brazil, ownership rights are defined by federal law 5764/71, which closely follows traditional cooperative principles. Different from North American, North European, and Oceanian cooperatives, where the most common model is of complete separation of decision control from decision management functions (Chaddad & Iliopoulos, 2013), and management has been delegated to professionals who are appointed by the Board of Directors, in Brazilian cooperatives the Chief Executive Officer is usually also the president of Board.

1.4 Research topics

Structural changes in agri-food markets have led to a greater need for vertical coordination in value chains. The attempt to organize the participating farmers and firms along the food value chain generates transactional risks and coordination costs in the relationship between agricultural cooperative and farmer-member. Most theory on cooperatives stemming from organizational economics overlooks the importance of strengthening commitment and reducing cognitive heterogeneity in order to reduce those costs and risks. Moreover, the organizational economics perspective on cooperatives often neglects the role community and democracy mechanisms which, besides market and hierarchy mechanisms, may be used in governing the member-cooperative relationship. *Therefore, the first research topic of this thesis is about the mechanisms for governing the member-cooperative relationship, and how they affect transactional risks and coordination costs.*

As quality requirements from downstream customers become stricter, cooperatives also have to strictly coordinate the transactions with their suppliers, their members, accordingly. Strengthening vertical coordination might be necessary for a customer-orientated strategy. It is important that members of an agricultural cooperative are committed to customer orientation; otherwise vertical coordination can be costly. Member commitment prevents side selling, in particular, and free-riding behaviour in general. In other words, commitment supports collective action. *The second research topic is on the disentangling of commitment into collective action and customer orientation and on the implications of the four governance mechanisms - market, hierarchy, community and democracy - for both types of commitment.*

When cooperatives become larger and/or more diverse in their activities, and when different activities of the cooperative cater to different groups of members, membership heterogeneity may become a problem (Hansmann, 1996; Fulton and Giannakas, 2001). The basic assumption in most of the literature on the impact of member heterogeneity on the process and outcomes of decision-making is that farmers pursue individual or subgroup interests when participating in the decision-making of the cooperative. If members primarily pursue

individual economic interests, there might be a relationship between the economic reasons for becoming a member (and maintaining membership) and the motivation to participate in the governance of the cooperative. If the assumption that members pursue individual interests when participating in the governance of the cooperative is correct, one should expect an empirically observable correlation between economic motivation for association and participation in the governance of a cooperative. *The third research topic is about the economic motivations for association as drivers of participation in the governance of a cooperative.*

Fulton (1995) questions whether cooperatives can adapt to a rapidly changing environment characterized by technological change and industrialization of agriculture. However, a higher degree of centralized decision-making enables cooperatives to define and effectively apply quality norms for their supply, control the quality of delivered products, monitor members' production processes and, on the limit, exclude a non-complying member of further deliveries. On the one hand, cooperatives may be mimicking Investor-Owned Firms (IOFs) in applying more hierarchical coordination mechanisms. On the other hand, cooperatives have unique organizational characteristics that could provide them with competitive advantage, such as the tight relationship between members and cooperative, which may enable less costly coordination of the transaction (Sykuta and Cook, 2001). *The fourth research topic is, therefore, about the differences in quality performance between a cooperative and an IOF, and whether these differences can be explained by relationship characteristics.*

1.5 Methodological approach

The empirical foundation of this thesis lies in one large multi-product cooperative from Brazil. With the exception of Chapter 2, which is conceptual and has as its main purpose the development of propositions, Chapters 3 to 5 are based on a survey among the members of cooperative Lar. Therefore, the main methodological approach is quantitative.

Chapters 3, 4 and 5 are based on data collected, between December of 2010 and April of 2011, through a questionnaire distributed among 148 members of the cooperative. The questionnaire used a five point Likert scale of importance or agreement for the constructs commitment and for the four governance mechanisms - market, hierarchy, community and democracy – and for participation. Since the type of commodity was expected to influence our dependent variables, a non-proportional stratified random sample was taken from broiler, vegetables and soybeans producers in seven (of the eleven) towns.

In Chapter 3 data are analyzed with separate Principle Component Analyses (PCA) for member commitment and for the governance mechanisms variables, and with an Ordinary Least Squares (OLS) regression to test the relationships between governance mechanisms and member commitment. In Chapter 4 a multinomial logit regression was undertaken for the different categories of participation.

Chapter 5 deals with the difference between a cooperative and an IOF in their relationship with broiler producers. From our sample of members of the cooperative, only the 55 members who were broiler producers would answer the questions of Part 2 of the survey. The same questions in Part 2 of the questionnaire were presented to 42 IOF suppliers between April of 2011 and June 2011. The data analysis of this study was done with nonparametric tests that compared the conditions of being an IOF supplier or a member-supplier of the cooperative.

1.6 Thesis outline

The structure of the thesis is described in **Figure 1**. In **Chapter 2** we propose a conceptual framework to understanding governance in cooperatives. We go beyond the transaction by focusing on the transaction relationship and we add community and democracy mechanisms to market and hierarchy. Moreover, we propose that these mechanisms not only have a role in affecting commitment, and thereby transactional risks, but also in affecting cognitive heterogeneity, and thereby coordination costs.

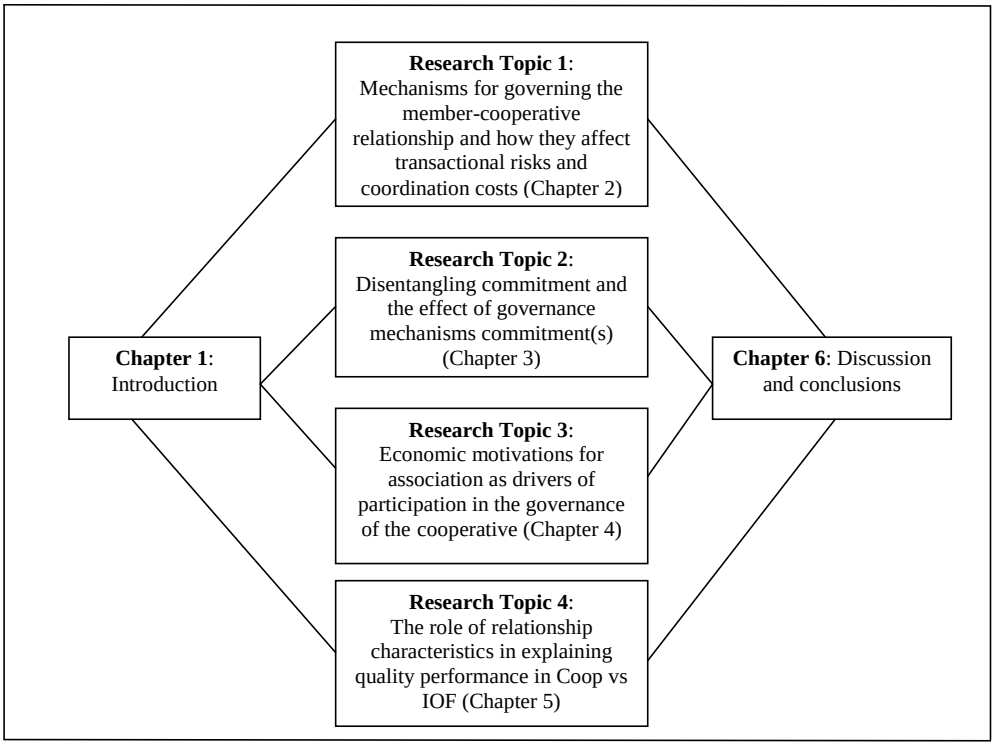
We address the mechanisms used by the cooperative to govern the member-cooperative relationship and their effect on commitment, in **Chapter 3**. We empirically disentangle two types of commitment, commitment to collective action and commitment to customer-oriented strategy, and assess the effect of market, hierarchy, community and democracy mechanisms on both types.

In **Chapter 4** we address the issue of participation. We first categorize participation into four types - passive, occasional supporters, involved pro-active. Second, we elect a number of motivations for continued membership to assess whether they also have a role in driving participation in the General Assembly and in any board or committee.

Finally, in **Chapter 5** we start describing the broiler industry in Brazil and compare quality performance of cooperatives and IOFs. Data collected from 97 broiler suppliers of one cooperative and two IOF's were used to understand whether relationship characteristics are significantly different between the two conditions. Then we explore the potential of a number of relationship characteristics that could explain quality performance.

We present the main conclusions and the discussion and added value of putting these four research topics together in **Chapter 6**, where we also present possible institutional and policy implications and suggestions for further research.

Figure 1.1


Research Topic 1: Mechanisms for governing the member-cooperative relationship and how they affect transactional risks and coordination costs (Chapter 2)
Research Topic 2: Disentangling commitment and the effect of governance mechanisms commitment(s) (Chapter 3)
Chapter 1: Introduction
Chapter 6: Discussion and conclusions
Research Topic 3: Economic motivations for association as drivers of participation in the governance of the cooperative (Chapter 4)
Research Topic 4: The role of relationship characteristics in explaining quality performance in Coop vs IOF (Chapter 5)

2. DECOMPOSING THE GOVERNANCE OF THE MEMBER-COOPERATIVE RELATIONSHIP

2. Decomposing the governance of the member-cooperative relationship

2.1 Introduction

Food and agricultural commodity markets have undergone tremendous changes in the past decades (Reardon and Barrett 2000; Swinnen and Maertens 2007). Supermarkets have become major actors in the domestic food value chain worldwide (Reardon et al. 2003), and private food standards have become increasingly important in response to consumers' concerns about food safety, quality and the socio-economic and environmental conditions of production (Henson and Reardon, 2005). Moreover, agricultural products, previously traded as standardized commodities, are increasingly valued for specific traits and are differentiated according to their inherent quality attributes (Hobbs and Young 2000). Thus, quality has become one of the main factors influencing the governance of food value chains, leading to more vertical coordination. Previous studies indicate that though increasing vertical coordination is ensuring more value creation for all involved actors, it is also increasing their interdependency. These changes in the agri-food value chains have also implications for agricultural cooperatives, which need to adapt their operations and standards to the new requirements of national and international customers.

There are two types of challenges when organizing the participation of farmers and firms along the food value chain. The first is cooperation among the different actors with potentially conflicting interests (Granovetter, 1985; Williamson, 1975). The second challenge is coordination of activities among the different actors (Gulati et al, 2005). These challenges can be understood in terms of reducing transaction costs, which can generally be represented in terms of two major components, transactional risks and coordination costs (Grover and Malhotra, 2003). Transactional risks, or exchange hazards, relate to the potential opportunistic behavior of the contract parties. Their origin is in the conflicting interests in a transaction, thus can be understood as costs that arise with the potential of opportunistic behaviour. These costs have also been called "appropriation concerns" (Gulati and Singh, 1998). They include the risk that other parties in the transaction will shirk their agreed upon responsibilities. For instance, the farmer might deliver a product with an inferior quality if it knows the processor is not able to identify and measure the violation (Raynaud et al., 2005), or the risk of hold-up when specific investments have been made by the processing firm (Williamson, 1991).

Coordination costs arise when actors are unaware that their actions are interdependent and when there is uncertainty about the others' actions (Gulati and Singh, 1998; Gulati et al, 2005). A firm must process information, take decisions taking new information into account and communicate these decisions, and all these actions are costly. Even if all appropriation concerns are addressed, that is, in the case of joint interest, coordination problems may still remain (Hodgson, 2004; Gulati et al., 2005). In the case of a supplier-processor transaction, coordination costs include costs of exchanging information on products, price, availability, demand, as well as the costs of adapting the quality of the product or production process (Grover and Malhotra, 2003). The costs of information exchange, and thereby coordination costs, are increased when people interpret information differently.

Reducing the risk of opportunistic behavior and the costs of information exchange are an important challenge for every processing firm in food value chains consisting of independent suppliers. Agricultural cooperatives, however, are more affected than other organizations by transactional risks and coordination costs because they are collective action organizations (thus pursuing a common interest among the members), and they have to combine members' interests with the interests of their customers (thus building vertical coordination throughout the supply chain from farmer to customer (Feng and Hendrikse, 2008; Bijman, 2009; Bijman, 2010; Bijman et al., 2011).

An agricultural cooperative has been defined as an inter-organizational configuration consisting of two types of economic entities: independent farmers as the members, and a jointly owned processing/marketing company as the cooperative firm (Hendrikse and Bijman, 2002). In other words, a cooperative consists of farmers who pool some resources at the processing firm level while maintaining autonomy at the farm level (Ménard, 2007). This complex organizational structure implies that the cooperative faces both bilateral transactional risks at the level of the processing firm, and a systemic risk of free-riding behavior by members. In efficiently dealing with these risks, cooperatives depend on the commitment of their members to supply the right quantity and quality of agricultural products.

Cooperatives cannot directly decide on member commitment. Neither can they directly decide on the degree of uncertainty regarding the interdependency of members' actions. However, cooperatives have various governance mechanisms available for managing the transaction relationship between the processing firm and the independent farmer-members. Different governance mechanisms have different effect on transactional efficiency by reducing transactional risks and coordination costs (Mesquita and Brush, 2008).

The objective of this chapter is to propose a conceptual framework on how different governance mechanisms determine, individually and collectively, transactional efficiency by affecting transactional risks and coordination costs. We pose that the relationship between governance mechanisms and transactional risks is mediated by the parties' willingness to sacrifice short term gains for the sake of the relationship, here called commitment, and that the relationship between governance mechanisms and coordination costs is mediated by the variety in parties' interpretation frameworks, here called cognitive heterogeneity.

The structure of this chapter is as follows. In **Section 2.2**, we present our two major assumptions, which are that both commitment and cognitive heterogeneity affect transaction costs. Thus, we present the concepts of commitment and cognitive heterogeneity and how they relate to transactional risks and coordination costs. In **Section 2.3**, we differentiate governance structures from governance mechanisms, and describe the mechanisms used by the cooperative to governance the member-cooperative relationship. In **Section 2.4**, we develop a number of propositions on the relation between each governance mechanism and both types of commitment, while in **Section 2.5** we develop a number of propositions on the relation between each governance mechanism and cognitive heterogeneity. Finally, we

summarize the main ideas, discuss the main contributions and put forward a number of topics for further research in **Section 2.6**.

2.2 Commitment, cognitive heterogeneity and transaction costs

Markets are imperfect, and therefore transactions are costly. The Transaction Cost Economics (TCE) framework begins with this general observation. Assuming bounded rationality and opportunism leads to TCE's key message: characteristics of a transaction determine the magnitude of exchange hazards, which determine the magnitude of the direct transaction costs of crafting safeguards, monitoring and enforcing the agreement, and the indirect transaction costs of failure to invest in productive assets, which determine the efficiency of a particular governance structure (Williamson, 1996).

2.2.1 Transactional risks and commitment

The "willingness of trading partners to exert effort on behalf of the relationship" (Mohr & Spekman, 1994: 137), which might be understood as commitment (Joshi and Stump, 1999), is central to sustaining any stable arrangement. We define member commitment as the willingness to make a sacrifice to contribute to the organization's success (Solinger et al., 2008) and to the long-term stability of the relationship (Joshi and Stump, 1999).

While TCE considers the effect of governance mechanisms on opportunistic behaviour, through their control of the individual's scope of action, it does not consider their effect on the individuals' opportunistic attitude (Goshal and Moran, 1996: 20). However, opportunism and commitment, understood as attitudes, might be open to management. We do not consider members of a cooperative as benevolent cooperators, nor as necessarily opportunistic agents. Member commitment to the cooperative is affected by how the member-cooperative relationship is governed. In inter-organizational configurations where the transactions between the parties are more frequent and the relationships are more stable than in the spot market, it is the quality of the relationship (Goshal and Moran, 1996) the appropriate unit of analysis (Nooteboom, 2004). Our unit of analysis is, therefore, the transaction relationship rather than the transaction *per se*.

There are two potential problems regarding the transaction relationship between members and cooperative firm that need to be distinguished: a multilateral problem of free riding and a bilateral problem of the inability to properly measure the effort of the individual member. In cooperatives the most fundamental transactional risk is a systemic risk, namely free-riding (Cook, 1995). This multilateral problem becomes more severe when the social group becomes larger and more heterogeneous (Ostrom, 2000). Members of an agricultural cooperative may choose to sell their farm products to alternative buyers when those offer a better price. This entails idle capacity and thus economic costs for the cooperative. Furthermore, in the current context of private quality standards, members of an agricultural cooperative have a common interest to deliver products complying with quality requirements and build up a collective

reputation through the cooperative. However, individually, they might not be willing to assume the implied costs (Cechin et al., 2013).

That is why, in cooperative studies, commitment has been defined as "the preference of cooperative members to patronize a cooperative even when the cooperative's price or service is not as good as that provided by an IOF" (Fulton, 1999: 423). We define this type of commitment as **commitment to collective action**, which is internal to the relationship among members, and between members and cooperative. In this sense, committed members are less likely to exit the cooperative, or to sell outside when alternative buyers offer better prices or services. If the risk of free-riding is considered as a systemic transactional risk, then members' commitment to collective action has the important function of reducing this systemic risk.

The second potential problem regarding the transaction relationship between members and cooperative firm is the bilateral problem of the inability to properly measure the effort of the individual member at the farm level. In the context of differentiated products and high interdependencies among economic actors in a value chain, the extent to which the individual member puts effort in improving quality at the farm level is an increasingly important transactional risk. A more customer-oriented strategy implies less freedom for members at the farm level (Bijman et al., 2011). However, the individual farmer might shirk the agreement on the quality attributes, particularly if they are related to the production process in addition to those intrinsic attributes of the delivered farm products. This bilateral transactional risk between supplier and buyer is more close to that which TCE focuses on.

It is important that the individual member is committed to the customer-orientated strategy with its quality requirements. We define this type of commitment as a **commitment to customer-orientation**, which is external to the relationship with cooperative. That is, commitment to customer orientation is an attitude towards the requirements of other actors in the chain. In this sense, member commitment to customer orientation reduces the transactional risk of members not complying with quality requirements.

Overcoming the free-rider problem is, therefore, at the core of the collective action dilemma in cooperatives, and it is argued that the glue of commitment mitigates this problem (Fulton, 1999). Furthermore, given a situation of interdependency in food value chain, commitment reduces transactional risks in the bilateral dealings between the cooperative and its members, since it reduces the likelihood of members' shirking in the production of quality attributes. In sum, the higher the level of member commitment, the lower will be the transactional risks between cooperative firm and its suppliers.

2.2.2 Cognitive heterogeneity and coordination costs

Following Nooteboom (2000) we define cognitive heterogeneity as differences in peoples' interpretation, understanding and evaluation of the world. Assuming categories of cognition are constructed from action in the world, heterogeneity results from different life paths and

different environments people develop. Nooteboom et al. (2007) have approached this in terms of 'cognitive distance' between people.

Gathering and processing information, making decisions that take this information into account, and communicating these decisions are at the core of the coordination tasks. In case of strong interdependencies between transactions in food chains, more information exchange is needed. The lack of knowledge about the interactions between different actors' decisions is an important constraint on coordination. Problems inherent in language use are also constraints for coordination. Therefore, a common ground (or low cognitive heterogeneity) among people enables coordination because it allows people to accurately anticipate and interpret each other's actions. A shared cognitive framework consists of mutual, common or joint knowledge, beliefs and suppositions (Clark, 1996) and it includes codes, classifications and categories (Gulati and Puranam, 2011).

When there is strong cognitive heterogeneity, that is, when people interpret information differently, the implementation of interdependent activities between procuring and supplying units can involve costly and time consuming negotiations (Gulati et al., 2005). The more dissimilar is the cognitive framework among members, the more information exchange is needed to make sure that a task is understood. The more homogeneity in cognitive frameworks among the membership, the more likely individuals are able to anticipate each other's actions, thereby minimizing the need for communication while still enabling coordination (Gulati and Puranam, 2011).

Although, strictly, a cooperative is not one firm but an inter-organizational configuration, membership within the cooperative might lead to the creation of shared understanding of the task environment and the interdependence it embodies (Weick, 1995), as well as shared values and norms that serve to make the actions of others more predictable (Kogut and Zander, 1996). A shared cognitive framework enables actors to follow rules in an automatic and non-calculative way, as if it was the 'program' or 'software' of their own mind (Hofstede, 1991) established through socialization and orientation. It reduces cognitive complexity by setting a frame of knowledge 'out of discussion' within which current action problems can be considered and solved (Grandori, 1997). The lower the cognitive heterogeneity among members, the more confident one member is about how others will behave and how one should behave in a given situation. This leads to lower coordination costs in the dealings between cooperative firm and suppliers.

2.3 Cooperative governance structure and its mechanisms

2.3.1 Governance structures and mechanisms

Transaction cost economics has been an influential approach to governance. Initially only two generic governance structures were distinguished: market and hierarchy (Williamson, 1975). Later the idea of a hybrid governance structure was introduced as if it were an intermediate form in the continuum between market and hierarchy (Williamson, 1991). Powell (1990)

proposed that network form was a form distinct from the market and the hierarchy, as it used reciprocity norms and reputation as coordination mechanisms.

Several authors, however, have emphasized that governance structures use a combination of different governance mechanisms to align interests and actions. Ouchi (1980) distinguished between the mechanisms market, bureaucracy and clan. "Markets, bureaucracies, and clans are therefore three distinct mechanisms which may be present in differing degrees, in any real organization" (Ouchi, 1980: 132). Bradach and Eccles (1989), for example, emphasized that any governance structure combines, in different degrees, the instruments of price, authority and trust. Hennart (1993) argues that it is necessary to distinguish between methods for organizing transactions (hierarchy and the price system), each with particular costs and benefits, and institutions (firms and markets). According to him, although markets rely predominantly on prices and firms rely predominantly on hierarchy, there is not a one-to-one correspondence between prices and markets or between hierarchy and firms.

Grandori and Soda (1995) have argued that inter-firm networks are neither an entirely different 'third' pure type of governance with respect to pure markets and pure hierarchies, nor 'intermediate' hybrids combining some traits of markets and some of hierarchies. Inter-firm networks are institutions employing a wide range of coordination mechanisms. According to Grandori and Furnari (2008), empirically observed governance structures embody varying mixes of four ideal-type mechanisms (elements): market, hierarchy, community and democracy. Market relates to high-powered incentives and the capacity of coordinating action with minimal communication. Hierarchy implies predictability, transparency and accountability through formal rules, procedures and evaluation systems. Community means infusing cohesion and homogenizing interests through knowledge and value sharing. Finally, democracy mechanisms infuse voice and integrate different interests through diffusion of ownership, decision and representation rights.

2.3.2 Cooperative governance structure

When it comes to categorizing cooperatives, organizational economics has largely focused on the attributes that distinguish cooperatives from markets and hierarchies. Ménard (2007) characterizes cooperative as a hybrid governance structure, in which participants pool resources, the cooperative firm contracts with its members, and members compete among each other, maintaining autonomous property and decision rights regarding most assets while sharing some strategic resources.

A hybrid governance structure, however, is not necessarily an intermediate between market and hierarchy (Makadok and Coff, 2009). Chaddad (2012) argues that the cooperative blends particular market mechanisms with hierarchy mechanisms for particular dimensions and thus may be viewed as a distinct hybrid mode rather than an intermediate between market and hierarchy governance structures. Extending Chaddad and Cook's (2004) positioning of alternative cooperative ownership models in a continuum between 'traditional' cooperatives and investor-owned firms, Chaddad (2012) considers other governance attributes besides

ownership and places market at one end of the spectrum. This is an advance in disentangling governance mechanisms within cooperatives. Even if new generation cooperatives exhibit formal authority, administrative control, common staff, coordinated adaptation, and high degrees of formalization and centralization, which are all hierarchy mechanisms, they still retain some market mechanisms including separated ownership, high powered incentives, and autonomous adaptation. More importantly, Chaddad (2012) recognizes that democratic control is a unique mechanism adopted by the cooperative governance structure that cannot be placed in a market-hierarchy continuum, and that embeddedness in social interactions often results in greater confidence in the predictability of the transaction partner's actions. If the members of a cooperative form a social community with strong ties, informal coordination and control mechanisms can work as 'lubricants', mitigating conflicts of interest and reducing transaction costs.

Organizational economics, however, has largely overlooked the features that give the cooperative governance structure a unique form: its democratic management model in which each member has one vote, and its bidimensionality as a social community and an enterprise (Bonus, 1986; Borgen, 2004; Valentinov, 2004). Nilsson et al. (2012) approach the social community aspect by providing a social capital framework for understanding why cooperatives often suffer from problems in the current market environments. However, democracy and community mechanisms have not yet been, so far, integrated in a Transaction Costs Economics framework, next to market and hierarchy mechanisms. Following Grandori (1997) and Grandori and Furnari (2008) we shift the level of analysis from the description and categorization of the governance structures to the modeling of the constitutive governance mechanisms, by analyzing the effect of different mechanisms on member commitment and cognitive heterogeneity, which we assume impacts transactional risks and coordination costs.

Using Grandori and Furnari's (2008) framework for understanding organizations, we conjecture that agricultural cooperatives are a good example of organizations that combine the four ideal mechanisms: market, hierarchy, community and democracy. Agricultural cooperatives are formally democratic in decision-making and ownership. Farmers always remain independent from the cooperative firm responding at some degree to market signals. Hierarchy is difficult to conceptualize in cooperatives, since, on the one hand, members are the formal owners of the cooperative firm (thus hierarchy 'flows' from members to managers), and on the other hand managers tell the members what to do regarding supply operations (thus, here hierarchy 'flows' from manager to member). In this chapter, we are only interested in hierarchy mechanisms flowing from managers to farmer-members. Finally, at least when they are formed, agricultural cooperatives are tight communities with strong social ties among its members. Almost all cooperatives start on a small scale, with a small number of founders living in the same village. The task of establishing a jointly-owned firm was a risky one because everybody would then be dependent on each other. If one or a few of the members were shirking, the entire community would suffer. Therefore, the level of social capital had to be high (Nilsson et al., 2012). In Table 1, we present the control and

coordination principles of each governance mechanism, relating them to some practices in cooperatives.

Table 2.1 Mechanisms, principles and practices

Governance mechanisms	Principles of control	Principles of coordination	Practices in Cooperatives
Market	High powered monetary incentives	Autonomous decisions based on minimal communication	Competitive prices; pay for performance (productivity or quality); premium for member loyalty
Hierarchy	Authority to inflict penalty or sanction	Command and predictability	Formal rules and standards; formal contracts with members; monitoring members at farm level; input control
Community	Homogenizing interests through shared moral norms	Homogenizing judgements through a shared cognitive framework	Competence sharing committees; leadership training committees; family involvement; diffusion of Coop ideology and values
Democracy	Integrating different interests through 'voice' giving	Integrating different judgements in decision making	Opportunities for member participation in decision-making; opportunities for member representation; opportunities for member suggestions and complaints

Source: adapted from Grandori and Furnari (2008)

2.4 Governance mechanisms affecting commitment

Governance mechanisms have a function of aligning interests and generating credible commitments, as most of the research in Organizational Economics has emphasized (Ouchi, 1980; Bradach and Eccles, 1989; Hennart, 1993; Williamson, 1991; 1996; Ménard, 2004; Maste,n 2006; Masten and Prufer, 2011). This cooperation-enhancing function of the governance of any collaboration (Gulati et al., 2012) is about reducing the risks associated with opportunistic behaviour. In this section we will develop a number of propositions regarding the effect of each governance mechanism on commitment. Since member commitment in agricultural cooperatives has been disentangled into two dimensions - collective action and customer-orientation -, we will put forward propositions for both.

Market

The market mechanism is here understood as a high powered incentive system rather than "a completely defined governance form" (Grandori, 1997). It includes the use of prices as informational devices that signal the direction of the autonomous adjustments of production decisions. Participants take independent decisions about their own investments and activities,

mainly based on the incentives they receive, that is, decision making is decentralized. Pay-for-performance schemes that reward producers according to their efficiency and/or quality are market practices because they work as high powered incentives. Monetary incentives induce reliable behavior from members, where actions are elicited by rewards (Nooteboom, 2007).

The market mechanism individualizes the relationship between cooperative and members allowing for some degree of autonomous adaptation. However, in cooperatives with strong social ties among members who are intrinsically motivated, monetary incentives might damage the quality of exchange outcomes by discouraging individuals' voluntary willingness to cooperate. It has been argued that commitment is reduced when extrinsic rewards are increased and the weakening of commitment is not restored even after the extrinsic rewards are taken away (Baker, Jensen and Murphy, 1988). Some external interventions might damage the quality of exchange outcomes by discouraging individuals' voluntary willingness to cooperate, that is, member commitment. The effect is especially important when monetary incentives are applied to an activity that has been intrinsically motivated before, possibly reducing the total available motivation to engage in the activity. As the outcome, engagement in the activity might well be reduced rather than increased (Frey, 1997; Frey and Jegen, 2001). Therefore, if monetary incentives are used to foster member compliance to an agreement or even loyalty to the cooperative, they might have counterproductive effects if they weaken commitment. Because commitment is the attitude towards sacrificing short term economic benefits for the sake of the relationship and of the organization's success, and not the actual loyal behavior, we can still pose that the market mechanism weakens commitment to collective action.

> **P1a: The market mechanism negatively affects members' commitment to collective action**

On the other hand, it might happen that when the membership of the cooperative becomes larger and more heterogeneous, and social ties become weaker, farmers begin to require more of the market mechanisms to be committed to the cooperative. Also if members have fewer opportunities to influence the cooperative's decisions, through informal or formal processes, they might request more of the market mechanism in their individual transactions (Bijman et al., 2011). More importantly, market mechanisms are a good way to align members' interests with a customer oriented strategy. Members need to feel that their effort to maintain or elevate the quality of their products and production processes as a response to customer demands is being rewarded.

> **P1b: The market mechanism positively affects members' commitment to customer orientation**

Hierarchy

The hierarchy mechanism is understood as the execution of authority, in the sense of decision and/or control rights exercised legitimately by a central agent (Grandori, 1997), rather than

the centralization of ownership and residual rewards rights within one party (Coase 1937; Williamson 1975). Hierarchy as the consolidation of ownership does not imply that the dominant coordination mechanism should be authority. The ability to use authority as a mechanism is not limited to intra-firm settings, since authority can also be used between organizations by means of contractual provisions, which essentially "produce the effects of hierarchies" (Stinchcombe 1985, p. 165). Authority implies the allocation of resources through formal rules and plans but it varies in degree of formalization and centralization of decision-making. As put by Ménard (2004; 2007), authority on some decisions may be with the cooperative board of directors and managers, when the membership has delegated to these governing bodies specific rights such as coordinating activities, allocating resources, and solving disputes. When we study the degree of authority in cooperatives we focus on the strength of surveillance and fiat used by the cooperative board of directors and managers to promote certain types of behaviours and deter others with member-suppliers.

Research on intra-organizational relationships has shown that too much authority weakens the incentives of subordinates to invest in relationship-specific assets (Williamson, 1985) and in acquiring information needed to make informed decisions (Aghion and Tirole, 1997). Even if sanctions can promote certain types of behaviours and deter others, surveillance and fiat might have negative effect on individual attitudes toward the specific behaviour that is required (Enzle and Anderson, 1993). As argued by Goshal and Moran (1996), hierarchical control does not necessarily decrease opportunistic behaviour. In fact it might have precisely the opposite effect. When the relationship between principal (manager) and agent (farmer) is personal, the agent perceives increased monitoring as an indication of distrust and this induces him or her to reduce effort (Frey, 1993).

Hierarchical mechanisms do not seem to combine well with the democratic and participatory norms in cooperatives, as they seem inherently contrary to cooperative principles such as voluntary membership, joint interests, and participatory decision-making. Strengthening the hierarchy mechanism in a cooperative may eventually increase members' opportunistic attitude because, first, farmers do not want to be controlled (Hogeland, 2006), and second, members might perceive that they are not trusted to behave appropriately. Therefore, we expect that the more hierarchical is the cooperative relationship with its member-suppliers, the more the latter will develop a negative attitude towards their cooperative.

P2a: The hierarchy mechanism negatively affects members' commitment to collective action

Advantages of hierarchy, compared to the market mechanism, are a higher capacity to control performance of the other party in the transaction and to mitigate the costs associated with the holdup problem that arises when one party in the transaction has non-redeployable assets. In other words, it facilitates the control of opportunism when specific investments were made. The cooperative needs to safeguard its investments at the processing (firm) level, and it could do so by introducing more of the hierarchy mechanism, such as production contracts for

individual members or even excluding members that are not able to comply with the standards that are needed to protect the brand (Bijman, 2009).

Given a situation of interdependency in the food value chain, and the increasing importance of private quality standards, the cooperative is seeking more control over members' inputs, outputs and production processes. Hierarchy mechanisms can be considered as a guarantee for members, because the latter know what to expect from the cooperative. Formalization represents not only duties but also rights, such as the cooperative's commitment to reward the quality of delivered products. If members feel their investments are more safeguarded with more control and formalization, they will recognize that following consumer trends and delivering high quality will determine the value of their production in the long-run. Moreover, if the cooperative has the authority to act unilaterally and decisively (Masten, 2006) upon members' production processes in response to unfolding events in the market, members might have no option but to commit to the cooperative's customer-oriented strategy.

> **P2b: The hierarchy mechanism positively affects members' commitment to customer orientation**

Community

A community is a social network in which people have repeated interactions, and where norms arise to coordinate their interaction (Bowles and Gintis, 2002; Hayami, 2009). The frequency of interactions and presence of shared knowledge or interests of its members, are defining characteristics of a community **(**Masten and Prufer, 2011). Shared moral norms are informal rules that facilitate, motivate and govern joint action of concrete people with whom one shares common identity feelings (Coleman, 1988), as they substantiate the expectation that others will not behave opportunistically (Ostrom, 2000). Cooperatives have been defined as social-capital-dependent organizations (Valentinov, 2004; Nilsson et al., 2012), because in addition to being an enterprise, the cooperative is a social community where trust, moral norms, beliefs and the internalization of cooperative values are important.

While rational control based on information and the use of formal administrative mechanisms can limit deceptive behaviour, social control, based on the use of informal mechanisms to build motivation and commitment, can also limit deception (Ouchi, 1980). Furthermore, social control induces individuals to internalize values and goals of the organization and therefore it implies a change in attitudes. As recognized by Relational Exchange Theory (Macneil, 1978; Joshi and Stump, 1999), relational norms are a unique class of governance mechanism, based on internalization of moral norms that prescribe commitment in exchange relationships.

As Hogeland (2006) indicates, without applying the term social capital, social networks based on norms of reciprocity and trust can be seen as the most essential asset of cooperatives, in comparison to the investor-owned firm (IOF). In fact, the strength of cooperatives in effecting coordination resides, in principle, in their tendency to involve lower information asymmetries

and greater trust in their relationships with farmers than would be the case with IOFs (Sykuta and Cook, 2001). The most important consequence of the community mechanism is to enhance members' commitment to the cooperative, their generalized attitude towards serving and enhancing the organization's interests (Solinger et al., 2008). We pose that the community mechanism positively affects members' willingness to make a sacrifice for the sake of the continued relationship with the cooperative.

P3a: The community mechanism positively affects members' commitment to collective action

However, there is also research showing that too much community governance might lead to sub-optimal results. There is a risk that members will be locked-in into a low innovative or inefficient situation. Cooperative members might be subject to the 'paradox of embeddedness' (Uzzi, 1997), which means that an organization (the farm) has difficulties to access new information and to learn new skills because it is too embedded in one network (the cooperative). For instance, if farmers trust only the community of members from the cooperative but do not trust other actors in the value chain, they might develop a negative attitude towards the cooperative's customer-orientation. Successful vertical coordination in value chains requires complying with a number of quality requirements from customers. Therefore, a negative attitude towards downstream partners in the chains might result in member opportunistic behavior towards shifts in customer's preferences and quality requirements. If members have strong social ties among the community of members and weak ties to other actors in the value chain, reinforcing community mechanisms might hinder members' commitment to customer orientation.

P3b: The community mechanism negatively affects members' commitment to customer orientation

Democracy

Inter-firm arrangements and collective ventures as consortia, associations, partnerships and cooperatives, which have joint action interdependences, cannot be understood without looking at the democracy mechanism that is used to regulate collective action (Grandori, 1997). Equally distributed decision rights and 'voice-giving' procedures are typical ingredients of democratic governance, aimed at integrating different judgments and interests of multiple actors through representative devices (Harrison & Freeman, 2004). Democracy offers a simple, relatively verifiable criterion by which to judge the legitimacy of executive actions, namely, that decisions receive the explicit consent of designated individuals or groups before being implemented (Masten, 2006). Menard (2011) has shown, using a stylized case of a millers' alliance, that members of a collective venture endorse a voting procedure to exercise their control rights. Despite the uneven distribution of shares across members of the alliance, decisions are made according to a 'one member, one vote' rule, like in most cooperatives.

Recent theories of political governance view the establishment of credible commitments as the principal function of democratic governance (Masten, 2006). Fenwick (2005) argues that increasing employees' voice, i.e., the possibility to complain about a relationship and try to work things out, would lead to greater level of organizational commitment, which would further improve decisions' implementation rates and reduce dysfunctional behavior of employees. We assume this equally applies to member-cooperative relationships. In cooperatives, the principle of democratic member control assumes that members will participate in setting policy and giving broad direction to cooperative activities in a way in which no member has greater voice than any other member. It has been shown that the perception among members that they are participating, that they are given 'voice', is likely to strengthen their commitment to the cooperative (Osterberg and Nilsson, 2009). A participatory decision framework and the opportunity to voice complaints, concerns and ideas strengthen the development of common interests, and this is probably the greatest advantage of the democracy mechanism.

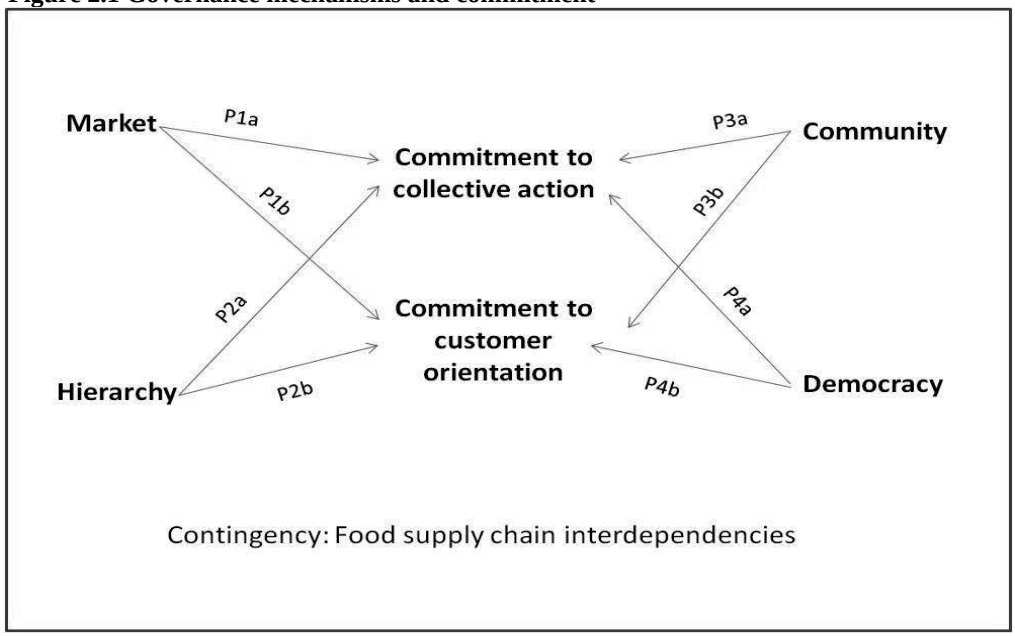
P4a: The democracy mechanism positively affects members' commitment to collective action

Members are often interested in selling all of their products to the cooperative, no matter the quality, whereas the cooperative puts in place a strict quality control system to meet buyers' requirements. Democratic decision-making in cooperatives might hinder value chain coordination if the latter involves innovation and adjustments to stricter quality requirements. In this type of decision-making structure the majority rules. However, the majority is usually rather conservative, that is, opposing change and refusing to agree to volume contracts and rigorous quality standards (Bijman et al., 2011). It is reasonable to expect, therefore, that the more members can voice complaints and concerns, and the more they perceive the cooperative as a democratic organization in decision-making the less they are willing to lose productive autonomy at the farm level and commit themselves to customers' demands.

P4b: The democracy mechanism negatively affects members' commitment to customer orientation

In Figure 1 the conceptual model relating governance mechanisms and both types of commitment – to collective action and to customer orientation - is presented and the eight arrows stand for the propositions that were put forward in this section.

Figure 2.1 Governance mechanisms and commitment



Source: own elaboration

2.5 Governance mechanisms affecting cognitive heterogeneity

Governance mechanisms also have a cognitive function (Grandori, 1997; Nooteboom, 2004). In fact, a stream of research in Organizational Economics has considered the idea of institutionally-sustained shared cognitive frameworks a central point in explaining 'the nature of the firm' (Kogut and Zander, 1996; Nooteboom, 2000; 2004; Hodgson, 2004). Because of cognitive variety, "there is always greater or lesser cognitive distance between people" (Nooteboom, 2004, p.512). However, in order to achieve common goals in an organization, its members need a certain degree of shared perception, interpretations and values (Weick, 1995). In this section we will develop a number of propositions regarding the effect of each governance mechanism on cognitive heterogeneity.

Market

The market has been conceived as a highly efficient mechanism for coordinating large systems of similar agents through structured quantified information available to everybody and without further communication (Hayek, 1945). The market mechanism allows actors to greatly simplify economic decisions through the use of a particular set of heuristics, thus, it is capable of economizing on bounded rationality (Grandori, 1997). However, the market mechanism limits the quality of information and availability of information on other actors (Grandori, 1997). Therefore, actions are not concerted and the market mechanism is not efficient in coordinated adaptation. Situations involving specific investments, interdependent

tasks, and the transmission of non-codified information would imply high transaction costs if the market mechanism was the only available.

Agricultural cooperatives generally pay market prices to their members for the products delivered. Thus, the production activities of the farmer and the processing and marketing activities of the cooperative firm are to some extent coordinated through the price mechanism. Pay-for-performance schemes where the farmer receives a price according to the quantity and quality of delivered products, might have the effect of allocating too much of members' attention to easily measured activities and efforts. From intra-organisational studies, we know that high-powered incentives allocate individual attention away from important, but hard to measure, asset values (Holmstrom and Milgrom, 1991). Therefore, despite being a simple coordination mechanism, we do not expect the market or the price system to build a shared cognitive framework.

P5: The market mechanism preserves cognitive heterogeneity among members

Hierarchy

When interdependence increases in food value chains, the need for coordination also increases. This means more information needs to be exchanged and processed, and decision-making becomes more dependent on constant information updates because of shifts in market circumstances or in customers' quality requirements. It is necessary for the governing body of the cooperative to enhance the predictability of other's actions, and to increase knowledge about how actions are interdependent (Thompson, 1967). The hierarchy mechanism implies a higher capacity to process information, to take this information into account in decision-making and to communicate the decisions. A centralized decision-making body is able to use authority (Thompson, 1967) and standard operating procedures that allow quick decisions (Gulati and Singh, 1998) by clarifying decision-making procedures and anticipating issues before they arise (Stinchcombe, 1985).

Because hierarchy allows the efficient transmission and processing of information as well as centralized decision-making, it definitely has its advantages. In terms of decision-making, ultimately autocrats have the authority to act unilaterally and decisively in response to unfolding events, in contrast to democracy (Masten, 2006). Authority and centralized decision-making allow a small group of individuals to be informed about and decide how different interdependent actors should behave. An authority can figure out the optimal pattern of actions by interdependent individuals, and simply direct them to take such actions through appropriately stated rules (Conner and Prahalad, 1996). The ability to give orders rather than to persuade reduces the levels of information exchange (Demsetz, 1988). Authority exercised in the form of widely known plans, rules, standards and procedures (Grant, 1996) and used to legitimize and widely propagate terminology (Arrow, 1974) contributes directly to reducing cognitive heterogeneity (Gulati and Puranam, 2011).

P6: The hierarchy mechanism reduces cognitive heterogeneity among members

Community

An agricultural cooperative can be understood as a community of practice, since its members are a collection of people engaged in a common endeavour (Lave and Wenger 1991; Wenger and Snyder, 2000). They are not just a group of farmers having a contract with the same organization. The social group of cooperative members can be considered a community of practice because in the course of regular joint activity, the membership develops common ways of doing things, views, values, power relations and ways of talking. The cooperative engages its members in mutual sense-making about the collective organization, about their respective forms of participation, and about their orientation to other organizations and institutions around them (Eckert 2006).

The community mechanism as a managerial instrument is about diffusing values and beliefs to create a common ground of understanding. Diffusing cooperative ideology, i.e., the set of ideas and values as expressed by cooperative principles is a practice which can be conceptualized as a community mechanism. Because ideologies may function as pre-packaged units of interpretation (Jost et al., 2008), and the community mechanism aims at members' internalization of specific values and beliefs, we expect that it builds a shared cognitive framework which reduces misunderstanding and allows for easier exchange of tacit knowledge (Kogut and Zander, 1996).

P7: The community mechanism reduces cognitive heterogeneity among members.

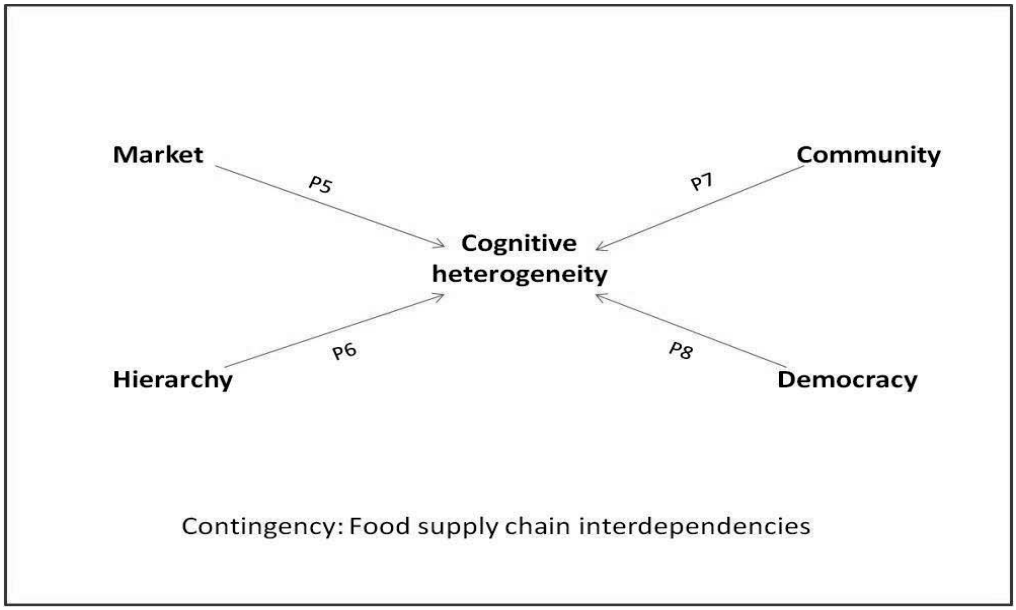
Democracy

In terms of informational requirements, the democracy mechanism, of which voting is a core practice, resembles the market mechanism since it involves "unilateral expected value maximizing decision-making over a set of well-defined alternatives" (Grandori, 1997, p.34). The point of democracy mechanisms is precisely to ensure that individuals with highly diverse ways of interpreting the world have the opportunity to express their views and to influence collective choices (Landemore, 2013). As this type of decision-making structure aims at integrating different interests and judgements, and gives members the possibility of 'voice', i.e., to complain about the relationship with the cooperative and try to work things out, we expect it to hinder the building of a shared cognitive framework. In this sense democracy preserves the diversity of cognition among people.

P8: The democracy mechanism preserves cognitive heterogeneity among members.

In Figure 2 the conceptual model relating governance mechanisms and cognitive heterogeneity is presented and the four arrows stand for the propositions that were put forward in this section.

Figure 2.2 Governance mechanisms and cognitive framework



Source: own elaboration

2.6 Conclusions and further research

Summary

Agricultural cooperatives face collective action challenges that are related to the predominance of strict private quality standards, the concentration of the retail sector, and the strong interdependencies in food value chains. These structural changes in agri-food markets have also resulted in new transactional risks in the member-cooperative relationship. If cooperatives are to follow customer-oriented strategies, member commitment to these strategies reduces the transactional risks of member shirking in quality compliance. Furthermore, upgrading quality implies coordinating interdependent activities, which, in turn, requires complex information exchange. To reduce the implied coordination costs, the agricultural cooperative might want to reduce cognitive heterogeneity among members. This common ground of values, beliefs and knowledge can prevent the need for additional (costly) communication.

In this chapter we argued that both commitment and cognition are open to management. Four governance mechanisms affect commitment and cognitive heterogeneity. Moreover, in the context of food value chain interdependencies and customer orientation, there are two types of commitment, which are affected in different ways by the four governance mechanisms. If both commitment to collective action and commitment to customer orientation are enhanced, control is facilitated, while if cognitive heterogeneity is reduced coordination is facilitated. However, strong interdependencies and strict quality requirements in food value chains

generate a number of trade-offs between these mechanisms. While market and hierarchy might be needed to strengthen commitment to customer orientation, and thereby reduce short term transactional risks, these mechanisms might have a negative effect on commitment to collective action. That is, market and hierarchy mechanisms might increase the risk of future collective failure, by generating hidden social costs that accumulate and only appear in the long-run.

Contributions

This chapter has three main contributions to the organizational economics discourse on the cooperative governance structure. First, it acknowledges that agricultural cooperatives employ a wide range of governance mechanisms, as empirically observed firms, hybrids and markets do. Although we argue that the cooperative uses the market, hierarchy, community and democracy mechanisms simultaneously to manage the relationship between cooperative firm and farmer-member, the governing body of the cooperative can chose to increase the relative strength of a particular mechanism in seeking to enhance commitment and reduce cognitive heterogeneity.

Second, this chapter acknowledges the crucial role of community and democracy mechanisms in enhancing commitment to collective action in cooperatives. It is not rare that cooperative studies using an organizational economics perspective conclude with the suggestion for future research of looking more closely at social community aspects. However community and democracy mechanisms are never integrated into these studies. It is likely that these mechanisms are stronger in cooperative configurations than in other types of inter-firm-networks and investor-owned firms. Furthermore, it has been argued that these mechanisms are the very source of competitive advantage of cooperatives over alternative arrangements (Davis and Bialoskorski, 2010).

Third, this chapter acknowledges the coordination function of governance mechanisms, in line with Gulati et al. (2012). Governance of any inter-firm collaboration has at least two functions: maintaining partners' commitment and aligning interests on the one hand, and aligning and adjusting partners' actions on the other hand. Since the democracy mechanism might preserve rather than reduce cognitive heterogeneity, it is likely to increase the coordination costs for the cooperative. Therefore, the main function of hierarchy in cooperatives might be to reduce cognitive heterogeneity through formal rules and standards, thus increasing predictability and facilitating coordination, than to mitigating opportunistic behaviour.

Further research

An approach to the governance of the member-cooperative relationship which looks at the four mechanisms and their effect on commitment and cognition opens three main areas for further research. First, by decomposing the governance of the member-cooperative relationship into four mechanisms, future research might focus on the evolution of the relative

importance of each mechanism. How does the mix of governance mechanisms evolve when cooperatives adapt to changing market circumstances? How does the evolving mix of governance mechanisms affect commitment and cognition over time?

Second, an underexplored topic in general, and particularly in cooperative studies, is *crowding effects*. Cooperative members' compliance to an agreement regarding a specific transaction has to be managed in a way that the required commitment is not crowded out. If commitment, understood as an attitude, is open to management as motivation is (Osterloh and Frey, 2000), it might be crowded in or out (Frey, 1997), depending on the mix of governance mechanisms and on how members perceive each mechanism. Stronger hierarchical controls and monetary incentives do not necessarily align interests and make individuals respond with more motivation to cooperate and less motivation to free ride, shirk or breach a contract. They might even have the opposite effect if they crowd-out intrinsic motivation (Frey and Jegen, 2001). For further empirical studies, we suggest to focus on the interaction between governance mechanisms, and on the dynamic, possibly non-linear, effects of these interactions on commitment.

Third, our disentangling of the mechanisms used to govern the member-cooperative relationship can open new research on the role of these mechanisms in promoting innovation and learning of individual farmers and of the collective enterprise. In this chapter we only considered the efficiency enhancing functions of governance mechanisms, not looking at innovation and learning functions. The notion of cognitive heterogeneity is useful for understanding coordination costs, and we assumed that the lower the cognitive heterogeneity among members the lower the coordination costs for the cooperative. However, when it comes to innovation the relationship might not be linear. This is an important limitation of our conceptual framework. Nooteboom (2000) and Nooteboom et al., (2007) proposed that there is an inverted-U shaped relationship between cognitive distance and innovation performance. As cognitive distance increases, there is a positive effect on learning by interaction because of the opportunities for novel combinations of complementary knowledge. At a certain threshold, however, cognitive distance becomes so large that it prevents the mutual understanding needed to realize the complementarities. Therefore, if mutual understanding might reduce coordination costs, too much of it may preclude innovation opportunities (Nooteboom, 2000; Nooteboom et al., 2007) and effective solving of complex problems (Landemore, 2013). The implication is that democracy mechanisms might foster innovation. This is an important direction for future empirical research on cooperative innovation and collective entrepreneurship in general (Cook and Plunkett, 2006; Bijman and Doorneweert, 2010).

3. THE IMPACT OF GOVERNANCE MECHANISMS ON MEMBER COMMITMENT[1]

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3. The impact of governance mechanisms on member commitment

3.1 Introduction

As quality requirements from downstream customers become more strict, cooperatives also have to strictly coordinate the transactions with their suppliers, their members, accordingly. Strengthening vertical coordination might be necessary for a customer-orientated strategy, but it might also have a negative effect on commitment. Member commitment is crucial in agricultural cooperatives. How can leaders of cooperatives imply customer-oriented strategies in a smooth way, while maintaining member commitment? To answer this question one must first disentangle commitment. Then, one must have a framework that links governance mechanisms to the alignment of interests and actions, that is, to commitment.

In response to consumers' concerns about food safety, quality and the socio-economic and environmental conditions of production, there has been a shift from public to private food standards (Henson and Reardon, 2005). Production process attributes are also becoming increasingly important in defining food quality (Luning and Marcelis, 2006). When process quality requirements by customers become more strict suppliers must be able and willing to shift and improve production processes at the farm level. That is the case with delivering credence quality attributes in the agri-food sector, especially for those products where even the consumption does not bring information on the quality. Animal welfare and food safety issues, like the use of antibiotics and hormones, are important examples in livestock supply chains. The problem is that the supplier has an information advantage over the buyer and can gain from withholding this information (Barzel, 2000). Overcoming this type of problems and complying with quality requirements are important for any organization that coordinates activities in the supply chain.

A major challenge for cooperative organizations in agriculture is to combine members' collective action with vertical coordination in the supply chain. Cooperatives face a collective action problem, more specifically a "free-rider" problem (Cook, 1995), which is more severe when the social group is larger (Ostrom, 2000). Members of an agricultural cooperative have a common interest to deliver products complying with quality and safety requirements and build-up a collective reputation through the cooperative. However, individually, they might not be willing to assume the implied policies' short-term costs. Each individual might think that "somebody else" should invest in improving quality at the farm level. In fact, the organizational structure of a cooperative presents some disadvantageous implications for its quality management (Mérel et al., 2009): Members can deliver to the cooperative the commodities that alternative buyers do not accept; there is often a failure to adequately reward high-quality producers, causing their exit from the cooperative and reduction in product quality; and cooperatives are not likely to exclude 'marginal' members (Mérel et al., 2009). In an environment where quality requirements of final customers (e.g., retailers) are becoming stricter, however, cooperatives are forced to strengthen the coordination of

member-cooperative transactions to cope with more intense competition in the supply chain, as well as to comply with stricter quality requirements from their customers (Bijman, 2009; Hanf, 2009). Some authors argue that in these circumstances stricter contracts between the cooperative and its members (Hanf, 2009) and monitoring at the farm level are necessary to have more control over the suppliers' opportunistic behavior.

The need to be competitive and to assure quality explains the growing importance of management control over the transactions between members and the cooperative, and the use of control mechanisms that resemble those used by an investor-owned firm (IOF) (Bijman and Wollni, 2009). Members, however, do not want to be controlled. Such "hierarchical" mechanisms might, therefore, lead to a negative attitude towards their cooperatives (Hogeland, 2006). This in turn has been shown to have a negative effect on trust, solidarity, social cohesion and identity among the members (Hogeland, 2006; Nilsson et al. 2009; Nilsson et al., 2012) and has a negative effect on member commitment (Fulton, 1999; Fulton and Giannakas, 2001). In sum, strategies of vertical coordination such as enhancing customer orientation, which implies controlling members input, monitoring farm activities, and sometimes increasing formalization of agreements with members, have invisible social costs that might affect the member's commitment negatively and thereby the cooperative's economic performance (Nilsson et al., 2012).

Commitment has been defined by Fulton (1999:423) as "the preference of cooperative members to patronize a cooperative even when the cooperative's price or service is not as good as that provided by an IOF". Committed members are less likely to exit the cooperative, or to "sell outside" when alternative buyers offer better prices or services. Commitment also reduces transaction costs in the dealings between the cooperative and its members (Fulton, 1999), because it lowers free riding behavior among members, such as shirking in production and delivery of quality products. Furthermore, because commitment incorporates a willingness to make a sacrifice to contribute to the organization's success (Solinger at al., 2008), committed members are more likely to make an effort towards customer orientation, such as investing in quality improvement at the farm level. The managerial problem for the cooperative's leadership is, therefore, how to strengthen members' commitment to customer orientation without undermining commitment to collective action, that is, without increasing exit, side selling and free riding behavior. If one wants to strengthen member commitment one needs to look at the mechanisms that are used by the cooperative to align members' interests and actions.

The cooperative governance structure has been categorized, in the Transaction Costs Economics (TCE) framework, as a 'hybrid' form, because it is characterized by a mix of autonomy and interdependence with three defining pillars: they pool resources, they coordinate through contracts that provide a framework, and they combine competition with cooperation (Ménard, 2004, 2007). In addition to bureaucratic structures within firms and formal contractual relationships (Williamson, 1991), informal social institutions can also reduce transaction costs (Jones et al., 1997; Zenger, Lazzarini and Poppo, 2002; Lazzarini,

Miller and Zenger, 2004, Masten and Pufer, 2011), by reducing the cost of safeguarding against opportunism, diffusing information about reputation and facilitating collective sanctions.

There is a missing link in the literature on cooperatives. One the one hand, cooperatives have been categorized as 'hybrids' in the TCE framework (Williamson, 1991; Ménard, 2004; 2007), or, alternatively, as organizations dependent on 'social capital' (Valentinov, 2004; Nilsson et al., 2012). On the other hand, empirical work on commitment (Borgen, 2001; Hansen et al., 2002; Trechter et al., 2002, Österberg and Nilsson 2009; Bijman and Verhees, 2011), has neither been explicitly related to a theoretical categorization of the governance of the cooperative, nor has it disentangled commitment to collective action from commitment to customer orientation. This is so, because there has been no attempt to empirically decompose the governance of member-cooperative relationship. Furthermore, potential complementarities between formal incentive and control mechanisms and informal social norms (Lazzarini, Miller and Zenger, 2004), democratic 'voice' (Six, 2007; Osterberg and Nilson, 2009), and the role of these mechanisms in aligning interests and actions, i.e., in generating commitment, have been underexplored in cooperative studies. Our theoretical approach looks beyond governance structures as discrete structures, as is common in the TCE tradition (Williamson, 1991; Ménard, 2004; 2007). Following Grandori and Furnari's (2008) work on the 'chemistry of organizations', we decompose the governance of member-cooperative relationship into four ideal-type governance mechanisms: hierarchy mechanisms, market mechanisms, community mechanisms, and democracy mechanisms.

The objective of this chapter is two-fold. First, to disentangle commitment to collective action from commitment to customer orientation. Second, to provide and test a framework that links commitment to the governance mechanisms used to govern the member-cooperative relationship. We assumed that "commitment to collective action" prevents side selling, which entails economic costs for the cooperative because of idle capacity, reduces free riding behavior, and increases the willingness to make an effort towards the organization's success, whereas "commitment to customer orientation" enables a less costly vertical coordination of the member-cooperative transaction. A more general scientific contribution of this study was applying the "chemistry of organizations" framework (Grandori and Furnari, 2008), originally conceived for intra-organization governance, to an inter-organizational relationship between the farmer and the cooperative firm.

As an empirical strategy a survey among 148 farmers was used to collect data. These farmers are members of the same cooperative in southern Brazil. A principal component analysis and an econometric approach were used to check whether indicators could be clustered and to assess the relations between governance mechanisms and commitment. Our results showed that both types of commitment are positively correlated with the member's experience of market incentives and hierarchy control within the cooperative. We also found that members who experience community involvement and the cooperative as a democracy are more committed to collective action.

The chapter is structured as follows. **Section 3.2** describes our theoretical framework on commitment and governance mechanisms and formulates hypotheses on the expected relationships. **Section 3.3** describes the measurement of the concepts, specifies the model, and explains the methods for data collection and analysis. We present our results in **Section 3.4** and discuss the limitations and implications of our findings in **Section 3.5,** before the conclusion in **Section 3.6**.

3.2 Theoretical framework

3.2.1 Commitment

Organizational Commitment

Commitment has been traditionally considered to have at least an affective, a normative and a continuance component (Meyer et al., 1993; Meyer et al., 2002; Solinger et al., 2008). The affective component corresponds to an emotional attachment, a feeling of belonging and a wish to remain a member of the organization. The normative component refers to employees' feelings of obligation to remain with the organization. The continuance component corresponds to a lack of choices other than to remain a member of the organization when leaving it would entail costs and the loss of acquired advantages (Meyer et al. 2002).

Following the more recent organizational commitment literature (Solinger et al., 2008), we define member commitment as an attitude towards the organization or towards a behavior involving the organization, reflected in a combination of affect, cognition and action readiness (i.e., a generalized behavioral pledge to serve and enhance the organization's interests).

Intrinsic rewards have been shown to be more powerful determinants of commitment than extrinsic rewards (Mottaz, 1988). It has also been shown that relational norms increase commitment and decreased opportunism (Joshi and Stump, 1999).

Member commitment in agricultural cooperatives

Members of an agricultural cooperative do not hesitate to sell their farm products to alternative buyers when the economic climate is uncertain (Barraud-Didiera, et al., 2012). There is, however, a conceptual confusion regarding commitment and loyal behavior (continued patronage). Commitment is better understood as an antecedent attitude of loyal behavior, which might or might not determine actual loyal behavior. Overcoming the free-rider problem is at the core of the cooperative's collective action dilemma, and the "glue" of commitment (Fulton, 1999) mitigates this problem. Furthermore, if the cooperative is to engage successfully in strictly coordinated value chains (Zylbersztajn and Farina, 1999), more vertical coordination of the member-cooperative transaction is needed. Usually a strategy that is more oriented towards the customer implies less freedom and more control over the members' activities at the farm level (Bijman et al., 2011). Therefore, it is important that the membership is committed to this (re)orientation (Borgen, 2001).

What factors determine member commitment to cooperatives? On the one hand, cooperatives are business organizations. Fulton and Giannakas (2001) argue that market considerations as the "right" price of product or service provided by the cooperative and a perceived connection between the cooperative's success and members' own individual success affect commitment. Indeed, agricultural cooperatives have a utilitarian objective because they are organized to support farmers in their business aims.

On the other hand, cooperatives were founded on principles of solidarity and egalitarianism, applied by equal voting rights and equal rates of return on investment (Barton, 1989). In his study on social mechanisms in cooperatives, Borgen (2001) has posited that the more members identify with the cooperative, the more they trust the cooperative's leadership cooperative, and the more they are willing to commit themselves to the cooperative's strategies. Hansen et al. (2002) found that trust among members and trust between members and the agricultural cooperative's management are important predictors of group cohesion, which is a measure of the strength of members' desires to remain in a group and, thus, their commitment to it.

Organization factors related to democratic governance also influence member commitment in cooperatives. For instance, Österberg and Nilsson (2009) showed that members' perception of participating in the governance of a cooperative enhances member commitment. Trechter et al. (2002) found that a member who has served on a board of directors, served on a cooperative committee, or received cooperative education, tends to be more committed to the cooperative. The same authors also found that a good communication with the managers of the cooperative is strongly related to member commitment in a positive way. Finally, commitment can be influenced by different preferences. Kalogeras et al. (2009) showed that members of the same cooperative differed with respect to the intra-organizational attributes of control and management.

3.2.2 Governance mechanisms

In seeking the lowest transaction costs, transacting firms choose particular organizational configurations (or governance structures) (Williamson, 1991). Empirically observed governance structures use a combination of different governance mechanisms (Hennart, 1993). For instance, Ouchi (1980) distinguished between the mechanisms market, bureaucracy and clan. "Markets, bureaucracies, and clans are therefore three distinct mechanisms, which may be present in differing degrees, in any real organization" (Ouchi, 1980: 132). Adler (2001) distinguished between market, hierarchy and trust, where, in fact, trust is a mechanism and not a structure as market or hierarchy. Bradach and Eccles (1989) emphasized that any governance structure combines, in different degrees, the instruments of price, authority and trust. In sum, it is the combination of, at least, market, hierarchy and community mechanisms that determines the efficiency enhancing function of a governance structure (Bijman et al., 2011).

In a recent study, Grandori and Furnari (2008) included democracy as the fourth mechanism (element) to the typology, by distinguishing between market, hierarchy, community and democracy mechanisms. Their framework was developed and applied empirically with the objective of showing that these mechanisms (mechanisms) are not discrete options but instead complementary, and most real organizations combine them in the proportion they consider appropriate to achieve their coordination goals.

The contribution of Grandori and Furnari (2008) is important in the domain of "organizational design", because it specifies the nature of 'building blocks' to be combined in any organization and answers how they can be linked to each other to produce different results. They showed that different combinations of governance mechanisms can determine efficiency or innovativeness (Grandori and Furnari (2008). Including the democracy element is conceptually important in the case of cooperatives because they are member-based, democratically governed organizations. By decomposing the organizational configuration into 'building blocks' of principles and practices, this approach can be linked to the ultimate managerial problem of an agricultural cooperative, mitigating free riding behavior and strengthening commitment. Moreover this integrative approach acknowledges the complementarity between the mechanisms used to govern the member-cooperative relationship.

Market

Pay-for-performance schemes that reward producers according to their efficiency and/or quality are practices related to the market mechanisms because they work as high powered incentives. Monetary incentives induce reliable behavior from members, where actions are elicited by rewards (Nooteboom, 2008).

On the one hand, market mechanisms are a good way to align interests and get members to be committed because they need to feel that their effort to maintain or elevate the quality of their products and production processes as a response to customer demands is being rewarded. Members of large heterogeneous cooperatives might perceive their importance in the democratic decision making as limited or even null. If members have fewer opportunities to influence the cooperative's decisions, through informal or formal processes, they might request more market governance in their individual transactions (Bijman et al., 2011).

H1.1.: The more members experience market mechanisms the *more* committed they are to customer orientation.

On the other hand, some external interventions as monetary incentives might undermine intrinsic motivation. In other words, they might damage the quality of exchange outcomes by discouraging individuals' voluntary willingness to cooperate, that is, member commitment. This substitution effect has received the name of 'motivation-crowding out' in economics (Frey 1997; Frey and Jegen, 2001). The effect is especially important when monetary incentives are applied to an activity that has been intrinsically motivated before, possibly

reducing the total available motivation to engage in the activity. As the outcome, engagement in the activity might well be reduced rather than increased.

H1.2.: The more members experience market mechanisms the *less* committed they are to collective action

Hierarchy

To be competitive the cooperative must have more control over members' inputs, outputs and production processes. The ability to use authority as a mechanism is not limited to intrafirm settings, but also can be achieved between organizations by means of contractual provisions, which essentially "produce the effects of hierarchies" (Stinchcombe 1985, p. 165). On the one hand, hierarchy mechanisms can be seen as giving farmers more security, because they know what to expect from the cooperative. Formalization represents not just duties but also rights, the cooperative's commitment to reward the quality of delivered farm products. If members in fact feel their investments are more safeguarded with more control and formalization, they probably recognize that following consumer trends and delivering high quality will determine the value of their production in the long-run. Moreover, if the cooperative has the authority to act unilaterally and decisively (Masten, 2006) upon members' production processes in response to unfolding events in the market, members might just not have options but to commit to whatever decision was made.

H2.1.: The more members experience hierarchy mechanisms the *more* committed they are to customer-oriented strategy

Members, however, do not want to be controlled. They can, therefore, develop a negative attitude towards their cooperative (Hogeland, 2006). Ghoshal and Moran (1996) have argued that making provisions against opportunism might destroy intrinsic motivation and thereby result in increased, rather than decreased, opportunism. When the relationship between principal (manager) and agent (farmer) is personal, the agent perceives increased monitoring as an indication of distrust and this induces him or her to reduce effort (Frey, 1993). Furthermore, too much authority has the drawback of weakening the incentives of subordinates to invest in relation-specific assets (Williamson, 1985) and to acquire information needed to make informed decisions (e.g., Aghion and Tirole, 1997). Therefore, strengthening hierarchy mechanisms in a cooperative might eventually erode the commitment of members and thereby even jeopardize the cooperative's existence (Bijman et al., 2011).

H2.2.: The more members experience hierarchy mechanisms the *less* committed they are to collective action

Community

Confidence in the other's cooperation depends on knowledge that the other's behavior is based on the same norms. Wherever there is a community of people, norms arise to coordinate

their interaction (Bowles and Gintis, 2002; Hayami, 2009). The frequency of interactions and shared knowledge or interests of its members are its most important characteristics (Masten and Prufer, 2011). Community mechanisms integrate actors by homogenizing judgments and interests through identity building and knowledge-sharing practices (Kogut and Zander, 1996). The strength of cooperative in inducing members' commitment to the organization resides, in principle, in the tendency to involve lower information asymmetries and greater trust in the relationship with farmers than would be the case with IOFs (Sykuta and Cook, 2001).

H3.1.: The more members experience the cooperative as being a community the *more* committed they are to collective action.

However, there is also work showing that too much community governance might lead to sub-optimal results. There is a risk that members will be ''locked-in'' into a low innovative or inefficient situation. Cooperative members might be subject to the 'paradox of embeddedness' (Uzzi, 1997), which means that an organization (farm) has difficulties to access new information, to learn new routines and skills, because it is too embedded in one network (cooperative). Successful vertical coordination in value chains requires more information exchange and more centralized decision-making. Community governance might work well to generate commitment to collective action, whereas it might be less suitable for commitment to customer orientation (Bijman et al., 2011).

H3.2.: The more members experience the cooperative as being a community the *less* committed they are to customer orientation.

Democracy

Recent theories of political governance view the establishment of credible commitments as the principal function of democratic governance (Masten, 2006). Equally distributed property and decision rights, participation and representation of different knowledge and interests in decision making and 'voice giving' procedures are typical ingredients of democratic governance, aimed at integrating different judgments and interests of multiple actors through representative devices (Harrison and Freeman 2004). Fenwick (2005) argues that increasing employees' 'voice' would lead to greater level of organizational commitment, which would further improve decisions' implementation rates and reduce dysfunctional behavior of employees. We assume this equally applies to member-cooperative relationships.

H4.1.: The more members experience the cooperative as being democratic the *more* committed they are to collective action.

Members are often interested in selling all of their products to the cooperative, no matter the quality, whereas the cooperative puts in place a strict quality control system to meet buyers' requirements. Democratic decision-making in cooperatives might hinder value chain coordination if the latter involves innovation and adjustments to stricter quality requirements.

In this type of decision-making structure the majority rules. However, the majority is usually rather conservative, that is, opposing change and refusing to agree to volume contracts and rigorous quality standards (Bijman et al., 2011). It is reasonable to expect, therefore, that the more members perceive the cooperative as a democratic organization in decision making and ownership the less they are willing to lose freedom at the farm level and commit to stricter vertical coordination strategies.

H4.2.: The more members experience the cooperative as being democratic the *less* committed they are to customer oriented strategy.

Table 3.1 Summary of the hypotheses

Governance mechanism	Expected relationship with Commitment to collective action	Expected relationship with Commitment to customer orientation
Market	-	+
Hierarchy	-	+
Community	+	-
Democracy	+	-

3.3 Methods and data

3.3.1 Background

The economic importance of agricultural cooperatives in Brazil goes beyond the number of cooperatives and jobs created; these organizations contributed 38.4 % of agricultural GDP and hold about 7.5 % of the total capacity of soybeans handlers in the country (OCB, 2009). Cooperatives in the state of Paraná (in the South) are a case of economic success, leading Brazilian exports of agricultural goods. The analyzed cooperative, Lar, from the state of Paraná, is a large multi-product processing agricultural cooperative. There are 6,779 members spread in eleven towns in the west of Paraná. Most of them are soybean producers. About half of the membership has at least one extra activity besides soybeans, such as hogs, broilers, vegetables, manioc or milk. There are 474 broiler producers and 40 vegetable producers spread among these eleven towns (Lar, 2008). Like most cooperatives in that state, Lar was founded in the 1960's initially by a very small number of farmers. Similar to other agricultural cooperatives in Brazil, Lar was forced to reorganize and set new focuses in the early 1990s because of the increasingly competitive market. That decade was characterized by the administrative modernization of the analyzed cooperative, with the introduction of practices such as strategic planning, reducing managerial costs, and emphasis on business performance. Lar was ranked in 1990 for the first time among the 500 biggest companies in terms of turnover in the country (Marschall, 2009). By the end of the 1990's the cooperative became definitely a food producer, with its own brand for frozen poultry meat and canned and frozen vegetables (Lar, 2008). After consolidating its processing units, the turnover jumped from US$ 55 million to US$ 900 million over a period of sixteen years (1995-2011). In 2011, the cooperative had over six thousand employees and owned thirteen supermarkets. About 600 members attended the General Assembly in 2011, which aimed to approve the balance

sheets of that year and the allocation of the surplus (US$ 4.7 million) between investment (US$ 2.8 million) and patronage refund (US$ 1.9 million) to the members according to the volume of their transactions with the cooperative (Lar, 2011).

3.3.2 Data gathering process

A survey method was used to collect data on organization elements and commitment. A questionnaire using a five point Likert scale (anchored between "Totally disagree" and "Totally Agree") was distributed among members of a cooperative between December of 2010 and April of 2011. Since the type of product that farmers deliver to their cooperative was expected to influence commitment, a disproportionate stratified sample was taken from broiler, vegetables and soybeans producers in seven (of the eleven) towns. The total sample of 148 producers consisted of 27 vegetable producers, 58 broiler producers, and 63 specialized soybeans producers. There is some overlapping because some vegetable producers also produce broiler and many vegetable and broiler producers also produce soybeans. For instance, from the 148 farmers, 105 produce soybeans, but 42 of these soybeans producers also produce either broiler or vegetables. In every county there is a cooperative unit for general purposes, such as for pre-assembly and committee meetings, selling inputs, mainly for soybean production, and serving also as a base for the technical advisors.

3.3.3 Measures

The dependent variables refer to two types of commitment. Member commitment is an outcome variable and some authors treat it as the visible dichotomous farmer behavior: continued patronage or defection (Pascucci et al., 2012). There is, however, a growing consensus that commitment is an attitude instead of behavior (Solinger et al., 2008). In cooperative studies (e.g. Österberg and Nilsson, 2009) member commitment has not always been measured as a multi-dimensional construct. Constructs as commitment, trust, and identification, however, are multidimensional and are usually not measured in a direct way (Solinger et al., 2008). Recent empirical studies on commitment in cooperatives (Foreman and Whetten, 2002; Barraud-Didiera et al., 2012) have been applying two of the three constructs developed by Allen and Meyer (1990) and revised by Meyer et al. (1993): affective, normative and continuance commitment. As it is hard to separate normative commitment from affective commitment empirically (Solinger et al., 2008) the former has been dropped in the empirical studies. However, within the cooperative, the farm is an independent entity. There is a transaction between the member's farm and the cooperative firm, that is, an inter-organizational relationship, and not an intra-organizational (employee-firm) relationship. Any measurement of commitment within agricultural cooperatives must consider that even if farmers continue being members they might eventually sell their products outside the cooperative because of higher prices. It is what Pascucci et al. (2012) called 'soft membership', members who do not necessarily deliver to their own cooperative.

In cooperative studies a common construct for commitment is "loyalty", which relates to retention and the farmer's willingness (or the actual behavior) to patronize the cooperative

(Bijman and Verhees, 2011). We added to this members' effort, the willingness to invest in the continuation and the cooperative's success (Bijman and Verhees, 2011). Together with the mitigation of exit and side selling, the members' effort towards the cooperative success, constitute what we called 'commitment to collective action'. Regarding 'commitment to customer orientation', the authors found only one study that attempted to operationalize this dimension of commitment. Borgen (2001) measured this dimension with indicators that gravitated around members' perceived importance and positive attitude towards quality control and pull based deliveries.

Our variables for commitment (see Table 2) were intended to capture two main attitudes from members: 1) positive attitude towards customer orientation and increased vertical coordination of the member-cooperative transaction; 2) willingness to make an effort and sacrifice short-term economic gains for the sake of the cooperative's long-term success.

Table 3.2 Measuring Commitment

Dimensions	Indicators	Sources
Commitment to customer orientation	(1) Perception that quality control will be increasingly important in the future (2) Perception that it is good to shift quality standards in accordance to customer preferences (3) Perception that it is good that the cooperative increasingly monitors members' processes	Borgen (2001)
Commitment to collective action	(1) Sells to the cooperative even if other firm offers better price (2) Better price is better than relationship with the cooperative (3) Willingness to invest if the cooperative requires (4) Willingness to receive lower price temporarily (5) Concern with the cooperative's future	Bijman and Verhees, (2011)

The measurement of the explanatory concepts (see Table 3) was largely based on Grandori and Furnari (2008), specifically on their table of correspondence between types of mechanisms and observable practices.

Market mechanisms were measured by focusing on the predominant practices and coordination devices of the ideal-type market structure: farmers' autonomy and incentives. *Hierarchy* mechanisms were measured by focusing on the predominant practices and coordination devices of the ideal-type hierarchy structure: formalization of agreements and control (Vlaar et al., 2007; Grandori and Furnari, 2008).

Democracy mechanisms were measured by focusing on members' perception of their participation in the governance of the cooperative (Osterberg and Nilsson, 2009), perception of ownership and trust in the cooperative's representative democracy. Diffusion of ownership, diffusion of decision and income rights, diffusion of representation rights are predominant organization practices embodying the democracy mechanisms (Grandori and Furnari, 2008). We looked at only one cooperative. Ownership, decision and representation rights are,

therefore, the same. The operationalization of principles and practices was, consequently, adapted to one cooperative organization.

Community mechanisms were measured by focusing on the following predominant practices and coordination devices of the ideal-type community: involvement and communication. Knowledge and value sharing and community building are predominant organization practices embodying the community mechanisms (Grandori and Furnari, 2008), which were measured as members' involvement with the cooperative's community and communication. Although communication is present in any organization, knowledge and value sharing and informal exchange are practices typical of communities (Grandori and Furnari, 2008).

Table 3.3 Measuring Governance mechanisms

Mechanism	Dimension	Indicators	Sources
Market	Autonomy	(1) Autonomy to decide how much to produce (2) Autonomy to choose farm technology (3) Autonomy to choose plant/animal variety	Grandori and Furnari, (2008)
	Incentives	(1) Perception that payment is proportional to effort (2) Satisfaction with price the cooperative pays for the product	
Hierarchy	Formalization	(1) Determination of quality standards in contract (2) Pre-determined deliverance dates (3) Formal rules and procedures for agreements (4) Written documents from the cooperative to inform about expected quality	Lu (2007)
	Control	(1) Perception that the cooperative controls rigorously quality of delivered product (2) Perception that the cooperative controls rigorously used inputs (3) Perception that the cooperative monitors rigorously productive activity on-farm (4) Perception that received value depends on quality control of delivered products	Hueth et al (1999)
Democracy	Voice	(1) Perception of influence on the cooperative's path when member participates (2) Perception of influence on own economic benefits when member participates (3) Perception that Strategic decisions are made by members (4) Perception that members can vote in every important decision	Osterberg and Nilsson (2009).
	Trust in representative democracy	(1) Perception that Board of directors considers members interests in their decisions (2) Acceptance of Board of directors deciding strategic issues without consulting members (3) perception of corruption in cooperative	
	Perception of ownership	(1) Perception of being the cooperative's co-owner	Borgen, 2001).
Community	Involvement	(1) Participation in general assemblies (2) Participation of son in activities of youth committee (3) Participation of wife in activities of women committees (Always/Sometimes/ Never) (4) Performing any function in the cooperative's governance (Yes or No) (5) Perception that members share same cooperative values	Borgen, (2001)
	Communication	(1) Frequency of information exchange on quality improvement between farmer and the cooperative (2) Informal means of (personal interaction) informing farmers about expected quality	Grandori and Furnari, (2008); Paulraj et al. (2008)

Finally we introduced some control variables to check their influence on the type of commitment. Members with a large farming operation are less dependent on the cooperative, and therefore might be less committed (Ollila, 1985; Ollila et al., 2012). *Size of farm* was included as a control and measured in hectares of own farm land. Members *past experience*

with the cooperative could also have an impact on commitment and is usually a control variable (Trechter et al 2002). Our variable for past experience was measured simply as the number of years of membership up to 2009. It has been found in the literature that the commitment level declines as the level of formal education of a member increases (Trechter et al., 2002). In our study, the variable "Education" was measured in a categorical way: (1) no formal education; (2) incomplete primary; (3) complete primary; (4) high school; (5) technical school; (6) college. Finally, a multi-productive cooperative might enter different types of agreement with its members depending on the commodity. Some transactions are governed through spot market, such as soybeans, in contrast with others, such as broiler, which are governed through quasi-vertical integration. If there was any correlation between members' productive activity and commitment it would be captured by the dummy variables for soybeans producer and broiler producer.

3.3.4 Empirical strategy

The dimensionality and reliability of organization element constructs were examined using principal component analysis with varimax rotation and Cronbach's alpha reliability analysis (Field, 2005). An Ordinary Least Squares (OLS) regression tested the relationships between organization element components and member commitment, according to our model:

(1) $Y_j = \beta 1 + \beta 2 * M_j + \beta 3 * H_j + \beta 4 * D_j + \beta 5 * C_j + \beta 6 * K_j + \varepsilon_j$,

where Y_j representing Commitment variables, both to collective action and to customer orientation, M_j representing Market governance mechanisms variables, operationalized through the two factors, incentives and autonomy; H_j representing Hierarchy governance mechanisms variables, operationalized through the two factors control and formalization; D_j representing Democracy governance mechanisms variables, operationalized through the only factor voice, C_j representing Community governance mechanisms variables, operationalized through the two factors involvement and communication, and finally, K_j representing the Control variables (Size of Farm, Past experience, Level of Education and Productive activity), with $j = 1...148$.

3.4 Results

The descriptive statistics for the main variables used in our study are summarized in Appendix 1. From our sample, 66 members (44.6% of the sample) had one activity and 82 (55.4%) had more than one activity, where soybeans, corn, wheat are considered one activity, and broiler and vegetables are the other activities. Size of the farm was assessed combining the size of members' own farmland and the size of rented farmland. The minimum size was two hectares, the maximum size was 580 hectares, and the average size was 36 hectares (standard deviation of 66 hectares). Regarding members past experience with the cooperative, some had joined that year (2009) while some had been members for 39 years (since 1970). The average length of membership was 17 years (standard deviation of 10 years). The cooperative was founded in 1964. The level of education of the members in our sample was

distributed in the following way: 0.7% had no formal education, 30.4% had incomplete primary school, 28.4% had complete primary school, 29.7% had high school, 2.7% had technical school, and 7.4% had been to college."

Separate Principle Component Analyses (PCA) were conducted for the dependent and for the independent variables. Factors with Eigenvalues greater than one were extracted (Appendix 2). Rotation optimizes the factor structure, equalizing the relative importance of the factors (Field, 2005). After rotation, all items had the greatest loading on the expected component (Table 4). Therefore, looking at the content of the questionnaire items that load onto the same factor we could identify the underlying commitment constructs. The PCA indicated that commitment can, in fact, be separated into two types of commitment. The first type is commitment to customer orientation. The second type is commitment to collective action, which captures a member's willingness to sacrifice short-term economic gains and make an effort towards the cooperative's long-term success. The item "Sells to cooperative even if another firm offers a better price", however, had a loading of 0.341 on the 'commitment to customer orientation' component and of 0.495 on the 'commitment to collective action' component. Even with a rather low loading we chose to keep the item as part of the 'commitment to collective action' factor. To be sure, we did a reliability analysis which showed that the Cronbach's Alpha would decrease if the item was deleted.

Table 3.4 Factor Structure for Commitment

Rotated Component Matrix*

	Component	
	1	2
Perception that it is good to shift quality standards in accordance to customer preferences	0.856	
Perception that it is good that cooperative increasingly monitors members processes	0.829	
Perception that quality control will be increasingly important	0.730	
Willingness to invest if cooperative requires		0.682
Willingness to receive lower price temporarily		0.654
Future of cooperative is part of concerns		0.638
Better price is better than relation with the cooperative(-)		0.548
Sells to cooperative even if another firm offers a better price	0.341	0.495

* All of the omitted item loadings on the components were lower than 0.3.

For the independent variables, initially factors with Eigenvalues greater than one were extracted (Appendix 3). With the exception of three items, all the others had the greatest loading on the expected component (see Table 5). The item "Perception of corruption in the cooperative" which was expected to have greater loading on (one of) the democratic component ('Trust in representative democracy'), actually had a greater loading in the 'market incentive' component (both loadings were lower than 0.5, see Table 5). There was no theoretical reason to believe it could be part of a 'market element' factor and deleting it from the 'market incentive' factor would increase reliability (Cronbach's alpha from 0.71 to 0.80). This item was dropped from the analysis. The other two items that did not correspond to our expectation were "Perception that Members share same Cooperative values", and "Acceptance of Board of directors deciding strategic issues without consulting members". The first was expected to have the greatest loading on the 'community involvement' factor,

whereas the second was expected to have the greatest loading on (one of) the democratic components ('Trust in representative democracy'). These two items formed a factor of their own, instead. The results of the PCA suggest that they are measuring some other unknown latent construct. Because the reliability (Cronbach's alpha) of this unknown factor (the eighth component in Table 5) was lower than 0.6 (0.433), the whole factor was dropped in the subsequent econometric analysis.

Therefore, looking at the content of the questionnaire items that loaded onto the same factor we could identify the underlying governance mechanisms constructs. Instead of three components for 'democracy', only one component emerged. That is, all the items supposed to measure different aspects of 'democracy element' were actually measuring the same latent construct (the first component in Table 5). There was at least one component for every organization element (Appendix 3 and Table 5). Table 6 relates the retained factors – which were used in the econometric analysis - with the number of corresponding items and the factor's reliability.

Table 3.5 Factor Structure for Governance mechanisms

Rotated Component Matrix *	Component							
	1	2	3	4	5	6	7	8
Perception that Members can vote in every important decision	0.731							
Perception that Strategic decisions are made by members	0.728							
Perception that Board of directors considers members interests in their decisions	0.636							
Perception of influence on own economic benefits when member participates	0.615							
Perception of being a co-owner of the Coop	0.570							
Perception of influence on coop's path when member participates	0.500							
Deliverance in made in pre-determined dates		0.821						
Agreements follow formal rules and procedures		0.787						
Quality standard is determined in contract		0.783						
Cooperative informs about expected quality through written docs		0.711						
Perception that the cooperative controls rigorously quality of delivered product			0.746					
Perception that the cooperative controls rigorously used inputs			0.724					
Perception that received value depends on quality control of delivered product			0.696					
Perception that the cooperative monitors rigorously productive activity on site			0.538					
Participation of wife in activities of women committees				0.776				
Occupation of any function in the cooperative governance?				0.755				
Participation in general assemblies				0.573				
Participation of son in activities of youth committee				0.561				
Perception of Autonomy to choose technology					0.860			
Perception of Autonomy to choose variety		- 0.420			0.734			
Perception of Autonomy to decide how much to produce					0.686			
Satisfaction with price the cooperative pays for the product						0.853		
Perception that Payment is proportional to effort						0.826		
Perception of corruption in the cooperative	0.421					0 .466		
Cooperative informs about expected quality in informal way/ (personal interactions)							0.851	
Information exchange on quality improvement with the cooperative is frequent							0.708	
Perception that Members share same cooperative values								0.650
Acceptance of Board of directors deciding strategic issues without consulting members								0.640

*Factor loadings lower than 0.4 were omitted from the table

TABLE 3.6 Factor reliability

Factors	Items	Cronbach's Alpha
Commitment to customer orientation	3	.770
Commitment to collective action	5	.607
Democracy voice	6	.803
Hierarchy formalization	4	.830
Hierarchy control	4	.710
Community involvement	4	.652
Market autonomy	3	.757
Market incentives	2	.795
Communication	2	.680

Data showed no multi-collinearity. This was checked using the Variance Inflation Factor (VIF). The individual values are lower than 10 and the average is not substantially greater

than 1, which indicates that there is probably no cause for concern. Furthermore, none of the values for the Tolerance statistics were below 0.2, which would have been reason for concern (Field, 2005). Individual correlations among variables are also important to check. Pair-wise correlations were not a concern because the matrix (Appendix 4) shows relatively safe correlations (Wooldridge, 2009), the highest one (0.447) being between the broiler production dummy and market autonomy.

The results of the regression analysis (Table 7) indicate that members who experienced greater *community* involvement and *democracy* representation were more committed to collective action. Members who experienced greater *market incentives* were more committed both to collective action and to a customer oriented strategy. Members who experienced greater *hierarchy control* were also more committed both to collective action and to a customer oriented strategy. Finally, members who experienced frequent and informal *communication* with cooperative were more committed to a customer oriented-strategy.

Table 3.7 Results of Regression Analysis of Commitment on Governance mechanisms[2]

	Commitment to Customer Orientation			Commitment to Collective Action		
Independent Variables	Unstandardized Coefficients			Unstandardized Coefficients		
	Beta	Std errors	Sig.	Beta	Std errors	Sig.
Governance mechanisms						
Democracy representation	0.128	0.094		0.238	0.078	**
Hierarchy formalization	-0.088	0.087		0.040	0.072	
Hierarchy control	0.212	0.090	*	0.188	0.074	*
Community involvement	-0.023	0.093		0.286	0.076	**
Market autonomy	0.137	0.102		0.042	0.083	
Market incentives	0.173	0.087	*	0.284	0.072	**
Community communication	0.223	0.086	*	0.082	0.069	
Control variables						
Broiler Producer	0.169	0.195		0.073	0.158	
Soybeans Producer	-0.138	0.235		-0.475	0.193	*
Past Experience	0.005	0.009		-0.002	0.007	
Level of Education	0.178	0.075	*	0.055	0.061	
Farm size	0.000	0.001		-0.002	0.001	*
R Square	0.301			0.564		
Adjusted R Square	0.226			0.518		

* $p < .0.5$, ** $p < .01$; All significance levels are based on 2-tailed tests

[2] Given the relative lack of theoretical guidance from the literature, we tested for the potential presence of interaction effects and of non linearities in the relationship between our main independent variables and the dependent variable. In these robustness checks we built empirical specifications which included variables that represent the interactions between pairs of governance mechanisms as well as non-linear relationships. The results of these robustness check revealed that our estimates are neither sensitive to the inclusion of interactions nor to the inclusion of non-linear relationships, and are not reported here for parsimony. Along the same lines, the newly included variables did not exhibit statistically significant influence on the dependent variables.

Regarding the control variables, members who were *soybeans producers* or had larger *farm size* were less committed to collective action, whereas members with a higher education level were more committed to customer orientation.

3.5 Discussion

In the present chapter, our objectives were two-fold: First, we attempted to disentangle the two dimensions of commitment; second, to answer how governance mechanisms used to govern the member-cooperative relationship relate to commitment. We have captured some insightful correlations that do not enable us to identify causal effects or impacts between governance mechanisms and commitment. Nevertheless, these correlations are useful to understand the complexity of governing the member-cooperative relationship.

Theoretically, members could be unwilling to change buyer not because of the "glue" of commitment but because the option they know is preferable to the unknown, or because they are risk averse or because of a lack of credible opportunities. However, so-called 'status quo bias' and risk aversion are not likely to be a problem in our study because 'soft membership' (Pascucci et al., 2012) - members who do not necessarily deliver to their own cooperative – is part of the story, especially among soybeans producers. They will not be forced to exit the cooperative just because of side selling.

Table 3.8 Expected and observed relationships

Governance mechanisms	Commitment to collective action (Expected)	Commitment to collective action (observed)	Commitment to customer orientation (expected)	Commitment to customer orientation (observed)
Market	-	+	+	+
Hierarchy	-	+	+	+
Community	+	+	-	NS
Democracy	+	+	-	NS

As expected, *market* governance mechanisms correlate positively, as expected, with commitment to customer orientation. Farmers who perceive they are being adequately financially rewarded are more committed to customer orientation. In our case, market incentives might be increasing commitment to voluntarily lose some autonomy at the farm level. However, contrary to what we expected, there is also a positive correlation between market incentives and commitment to collective action. This suggests that the perception of being adequately rewarded for effort and satisfaction with the offered price are not "crowding out" intrinsic motivation.

Hierarchy governance mechanisms correlate positively, as expected, with commitment to customer orientation. Members who experience more control from the cooperative, in product quality measurement, on-farm monitoring and direct control of inputs, have a more positive attitude towards customer orientation. Members might recognize that following consumer trends and delivering high quality will determine the value of their production in the long-run. However, contrary to what we expected, hierarchy control also correlates positively with

commitment to collective action. On the one hand, members who perceive more control might fear some punishment from the cooperative if they side sell. On the other hand, hierarchy control can support farmers by giving security, because in this way they know what to expect from the cooperative.

Democracy governance mechanisms correlate positively with commitment to collective action as Österberg and Nilsson (2009) have found. Voice giving procedures and the perception of ownership, which relate to democratic decision and income rights, lead to greater level of commitment, as posed by Fenwick (2005) and Harrison and Freeman (2004). No correlation was found with commitment to customer orientation though.

Community governance mechanisms correlate positively, as expected, with commitment to collective action. Involvement with the cooperative can maintain member commitment even when the cooperative is applying more hierarchical control over member transactions. Community building practices have the function of sharing knowledge and values. By creating social space for the members' families to participate in activities and training courses (e.g. about leadership, household management and cooperative principles), the cooperative is building and strengthening the community. When members and their family are involved, they realize that the cooperative also has an important social function: keeping and increasing social cohesion. This could explain the willingness to sacrifice short term economic gains, as higher prices from alternative buyers, and to make an effort towards the cooperative's long-term success. In fact, an important framework for strengthening social capital in cooperative firms are different sets of cooperative principles, such as the Rochdale principles (Barton, 1989), which contain a clearly discernible element of ideology even though these principles can also be argued to have an economic rationale (Nilsson et al., 2012). Nevertheless, no correlation was found with commitment to customer orientation.

Members who perceive greater frequency and informality of information exchange on quality improvements are more committed to customer orientation. Trechter et al. (2002) had found that good communication was positively related with commitment. The rationale is that good communication means an opportunity for member input and constant access to accessible and current information. Although Trechter et al. (2002) had objective measures for communication, such as the number of newsletters and press releases per year, website, member survey, communication with managers and employees, the authors did not disentangle commitment. Because communication was considered a community element our results are contrary to what we expected, in the sense that community was expected to positively correlate with collective action but negatively to customer orientation. Communication on quality improvement might not be a community element as involvement is. In contrast with horizontal communication, which can be seen as a community element, vertical communication (between the processing firm and its suppliers) could be considered a hierarchy element instead (Kogut and Zander, 1996).

Although empirical studies (e.g., Trechter et al., 2002) showed a negative relationship between level of education and commitment, the theoretical expected relationship is not straightforward and it is reasonable that the higher level of education of members the more knowledgeable they will be about the industry context, the quality standards, consumer trends, and, therefore, the more likely they will commit to a more customer-oriented strategy as our results have shown. Size of farm has shown to be negatively correlated with commitment to collective action. Farmers with greater production capacity are likely to be less dependent on the cooperative for market access and, therefore, less willing to be loyal when they see short-term economic benefits outside. Furthermore, they are more often considering exiting, because of their high threat potential (Ollila, 1985; Ollila et al., 2012). One productive activity is also correlated to commitment. Members who *do not* produce soybeans (in this case those who produce one or more of the following food products: vegetables, cassava, broiler, swine and milk) are more committed to collective action than members who produce soybeans. This might be because soybeans transactions are governed (in the transaction cost economics sense) by spot market, whereas the others are more strictly coordinated (Zylbersztajn and Farina, 1999). Members delivering soybeans decide on production and selling mainly on the basis of prices. As a result, they could be less willing to make an effort to invest in the cooperative. Note that these members' characteristics, which served as a control, are heterogeneous. This might be affecting their preferences with respect to the intra-organizational attributes of control and management (Kalogeras et al., 2009).

3.6 Conclusions

The bulk of research about agricultural cooperatives is based on economic theory. Recent theoretical frameworks for better understanding the nature of cooperatives are built upon transaction costs economics (Ménard, 2007). This perspective is limited because it does not go beyond the traditional notion of the discrete organization form and does not acknowledge the complementarity between formal and informal governance (Lazzarini, Miller and Zenger, 2004), coordination and motivation (Kogut and Zander, 1996) and the intrinsic importance of democratic 'voice' (Fenwick, 2005).

Following Österberg and Nilsson's (2009) call to re-direct the study on cooperatives, this chapter took a sociopsychological and organizational theory perspective. The results suggest that members' commitment can be affected by their perception about the various governance mechanisms besides the economic ones, such as those related to the social community, to democratic voice and degree of control over the transaction. We consider the agricultural cooperative as a multiple value system consisting of (at least) a normative (emphasizing traditions and symbols, internalization of an ideology and altruism) and a utilitarian system (economic rationality, maximization of profits, self-interest), (Albert and Whetten, 1985; Foreman and Whetten, 2002).

Nilsson et al. (2012) suggest that a social capital theoretical framework might contribute to explain some cases of failures of large and complex traditionally organized agricultural

cooperatives during the last decades. Our approach inspired by Grandori and Furnari (2008), provides a basis for linking governance mechanisms to member commitment, and ultimately to performance of modern cooperatives. Because the agricultural cooperative is a hybrid identity (Albert and Whetten, 1985), or a multiple-identity organization (Foreman and Whetten, 2002), it is the members' perception of the governance mechanisms that will affect commitment.

Limitations

This study has a number of caveats and limitations. The first limitation is a consequence of the cross-sectional analysis, which does not allow the understanding of the shifts in the relationship between governance mechanisms and commitment. Members' psychological state varies over time during the relationship with the cooperative. The second limitation is that the cross-sectional analysis is undertaken among members of one cooperative only. Consequently, it is more difficult to generalize the links between governance mechanisms and commitment to other cooperatives.

Managerial implications

Our results can contribute to solving the managerial problem of how to strengthen commitment in such a complex organization as the agricultural cooperative. A first implication for managers and directors of an agricultural cooperative is that, if the cooperative has to vertically coordinate in high-value supply chains, rewarding farmers appropriately is important for maintaining commitment both to collective action and to customer orientation. A second implication is that giving "voice" and building a social community for members and their families are important. Involved members are more committed to collective action, that is, more willing to sacrifice short-term economic gains for the sake of the cooperative's long term performance. This suggests that overcoming the traditional collective action dilemma is still important, especially if the cooperative has to vertically coordinate in high-value supply chains successfully. It is advised to combine at least the following organization practices: hierarchy control, market incentives, community involvement and democratic voice. Finally, communication is an important tool for enhancing farmers' commitment to customer orientation.

4. MEMBERSHIP MOTIVATIONS AND PARTICIPATION BEHAVIOUR[3]

[3] A version of this chapter was published as Cechin, A.; Bijman, J.; Pascucci, S.; Zylbersztajn, D; Omta, O. 'Drivers of pro-active member participation in agricultural cooperatives: evidence from Brazil'. Annals of Public and Cooperative Economics, Volume 84, Issue 4, 2013.

4. Membership motivations and participation behaviour

4.1 Introduction

Heterogeneity of membership has been claimed to have a negative effect on the efficiency of the collective action organization. The more heterogeneous the membership the more difficult to achieve goal congruence and, thereby, the higher will be the decision-making costs (Hansmann, 1996; 1999). Membership heterogeneity raises even more relevant concerns in agricultural cooperatives, since every resource allocation decision becomes a potential source of decision-making costs (Pozzobon and Zylbersztajn, 2013), due to potentially conflicting members' interests regarding the distribution of benefits (Sogaard, 1994). In addition, the more heterogeneous the membership the more members' will attempt to informally, that is, outside meetings, influence board and management decisions (Cook, 1995; Iliopoulos and Cook, 1999; Milgrom and Roberts, 1988), thereby increasing influence costs. According to Milgrom and Roberts (1999: 80) "influence costs arise first because individuals and groups within the organization spend time, effort, and ingenuity in attempting to affect others' decisions to their benefit and secondly because inefficient decisions result either directly from these influence activities or, less directly, from attempts to prevent or control them".

The problem of membership heterogeneity may become particularly problematic when cooperatives become larger and/or more diverse in their activities, and where different activities of the cooperative cater to different groups of members (Fulton and Giannakas, 2001). The basic assumption in most of the literature on member heterogeneity and its adverse effect on the process and outcomes of decision-making is that farmers pursue individual or subgroup interests when participating in the decision-making of the cooperative.

As cooperatives are organizations owned and controlled by the members (Dunn, 1988), active member involvement in cooperative decision-making is essential for its functioning and viability (Spear, 2004). Farmers, however, differ in their individual commitment to participate in the governance of the cooperative. Some farmers always attend the General Assembly (GA) and may even become involved in board activities, other farmers never or hardly ever show up at cooperative meetings. Obviously, farmers have different reasons to passively or actively participate.

Few studies exist on the motivations of farmers to participate in the governance of the cooperative (with the exception of Birchall and Simmons (2004) for consumer cooperatives, Romero and Perez (2003) for worker cooperatives, and Barraud-Didier et al. (2012) for farmer cooperatives). Farmers participate because they obtain direct and indirect benefits, most of which will be realized at the farm level.

Farmers make a variety of decisions related to their membership. The first decision is about membership itself; the farmer has particular reasons for becoming a member. These reasons are primarily economic. The second decision is about patronizing the cooperative. Not all members buy from or sell to the cooperative. In some countries and some cooperatives

patronizing is compulsory (particularly in single purpose marketing cooperatives), but in many countries and many multipurpose cooperatives farmers can choose to buy from and sell to the cooperative or to trade with non-cooperative firms. The third decision is about participating in the General Assembly and thus voting in elections and for major decisions. The fourth decision is about actively participating in the decision-making bodies of the cooperative, such as in the board of directors, the board of supervisors, or specialized committees.

If members primarily pursue individual economic interests, there may be a relationship between the economic reasons for becoming a member (and maintaining membership) and the motivation to participate in the governance of the cooperative. In a diversified cooperative even if members attribute the same importance to a certain economic motivation for their association, such as better prices, this already means a potential conflict in decision-making because different products will have different price policies and different margins for internal adjustments. Members producing different commodities might also dispute over the procedure of patronage refund distribution and the allocation of budget for technical assistance to member farms. To meet the assumption that members pursue individual interests when participating in the governance, there should be an empirically observable correlation between economic motivation for association and participation in the governance.

The objective of this chapter is to explore whether a large cooperative with diverse activities is necessarily incurring inefficiencies in the process and outcomes of decision-making. More specifically, the paper contends the assumption that farmers are pursuing individual or subgroup interests when participating in the decision-making of the cooperative. To meet this commonly held assumption, there should be an empirically observable correlation between economic motivation for association and participation in the governance. Thus, the specific research question this chapter wants to answer is: *How do farmers' economic motivations for continued membership*[4] *in a cooperative affect the likelihood of them participating pro-actively in the governance?* In order to do such an assessment we developed a typology of member participation with four categories: passive, occasional supporter, involved and pro-active. This chapter presents a case study of a large, diversified multi-purpose cooperative from the South of Brazil. We use primary data on the motivations of farmers to maintain their membership as well as on their participation at different levels in the governance of the cooperative.

This chapter is divided in four sections. **Section 4.2** presents the different ways of participating in the governance and explains the categories. **Section 4.3** presents the factors affecting participation and the hypotheses to be tested. **Section 4.4** describes the background of the study, the data gathering process, the measuring of the concepts and the empirical

[4] We use motivations for continued membership instead of motivations for becoming a member because our respondents were incumbent members, most for many years, and we were interested in current motivations not past motivations.

strategy. Results are presented in **Section 4.5** and the discussion and implications in **Section 4.6,** before the conclusion in **Section 4.7**.

4.2 From passive to pro-active participation

All around the world, internal decision-making structures of cooperatives consist of a General Assembly (GA) and a Board of Directors (Henrij, 2005). Historically the chairman of the Board of Directors (BoD) was also the manager of the cooperative. In some countries the chairman of the BoD continues to carry out the task of the CEO (Bialoskorski Neto, 2003; Costa et al., 2013). In other countries, and particularly in large cooperatives, management has been delegated to professionals who are appointed by the BoD. The role of the professional management, where it exists, has been to carry out what the BoD had decided (Liang and Hendrikse, 2013a).

It is possible to distinguish between two types of participation in the governance of the cooperative; one type consists of participating in the GA and the other type consists of occupying a position in a board or committee. A member can exert his formal decision rights by participating in the GA, which usually takes place once a year. Voting in the GA is an essential part of the democratic character of decision making in cooperatives, and most cooperatives apply the principle of "one-member-one-vote". In the GA, members elect the members of the BoD, vote on major strategic decisions, and approve the annual financial report of the cooperative. Cooperative decision making process is based on representative democracy, as most decisions are taken by the elected BoD. The control of the GA over the decisions of the BoD usually is ex-post, although cooperatives' bylaws may include the right of prior approval by the GA of major decisions by the BoD (Bijman et al., 2012). The choice of decision initiatives to be implemented by the BoD and the measuring of performance lays with the members in GA. Furthermore, besides exercising their formal decision power through voting, members of a cooperative participate in the GA to become informed, to express their opinions to share experiences and information. It is the main platform for discussions and for members to show their dissatisfaction with any policy.

In addition to participating in the GA, members can increase their role in decision-making by taking part in diverse committees and boards (Barraud-Didier et al., 2012), such as the BoD and the Supervisory Board (SB). This way a member has an opportunity to directly influence strategies, policies and projects of the cooperative. The generation of proposals for resource utilization and the execution of ratified decisions are the responsibility of the BoD (Minguez-Vera et al., 2010). The SB, which is appointed by the GA, is responsible for by looking after the interests of the company as a whole, not just the interests of members, by controlling ex-ante the activities and decisions of the BoD (Bijman et al., 2012).

In terms of participation in the governance of the cooperative, Birchall and Simmons (2004) proposed that members can be grouped into (1) 'believers' who are potential board members; (2) the 'supporters' who participate by attending annual meetings and social events; and (3) the members who do not participate, but are loyal suppliers and are satisfied if they are kept

informed. Although Birchall and Simmons' (2004) categories are based on the strength of members' beliefs, it is a useful point of departure for the categorization of members on the extent of their participation in the governance of the cooperative.

In this chapter, we jointly analyze two forms of participation in the governance of the cooperative, by combining both frequency of participation in the GA and occupation of management or representative position. For this, we propose the following typology of member participation: (1) Passive, who has merely an economic relationship with the cooperative, since this member is not interested in getting involved in decision making in any way; (2) Occasional supporter, who will sometimes vote in the GA, eventually on strategic decisions that affects him or her directly; (3) Involved, who will always vote in the GA, therefore is more involved in democratic decision making. Having a voice is intrinsically important for the involved member; (4) Pro-active, who believes he or she can influence the cooperative's performance in anyway, and who will, therefore, occupy positions at any board or committee at various levels exercising either managing functions or representative functions or both. They have been or are the potential leaders of the cooperative.

4.3 Theoretical Framework

Variance in members' age, in educational levels, and farm size are all sources of heterogeneity and therefore of influence and decision making costs. Variance in member' age means different preferences regarding long and short-term investments. Crucial business decisions require members' consensus and a large gap in education levels could threaten it. Finally, differences between members in terms of farm size have also been shown to be a major source of conflict of interests within cooperatives (Iliopoulos and Cook, 1999). However, in one cooperative with a heterogeneous membership, how do these factors relate to participation in the decision-making?

Since we are interested both in participating in the GA and in direct decision making of a democratic member organization, we base our working hypotheses on political theory. In their empirical analysis of participation in political parties, Whiteley and Seyd (1996) combined individual endowments, rational choice and social psychological factors as factors explaining participatory behavior. We expect that these general factors are also able to explain the categories of participation behaviour of members of a cooperative. We adapt, however, this general framework to agricultural cooperatives by separating the drivers into endowments, economic motivations for continued association and ideological motivation for continued association.

4.3.1 Endowments

It has been shown in political theory that people must have sufficient resources to be able to participate effectively in civic activities. Individuals with high levels of education and income are more likely to participate than those who lack these resources (Wolfinger and Rosenstone, 1980; Verba et al., 1993). Whiteley and Seyd (1996) refer to explanations that rely on

individual endowments (or resources) as a supply-side model of participation, where individuals who possess high levels of education, income and socio-economic status, will 'supply' higher levels of participation than individuals who do not have these characteristics. In agricultural cooperatives, farmers might have different attitudes towards the cooperative and participation behavior depending on their age, education, or the size of the farm under their responsibility (Hansen et al. 2002; Österberg and Nilsson 2009).

Duration of membership is likely to influence commitment[5] to the cooperative (Trechter et al., 2002). We expect that there is a positive relationship between duration of membership and pro-active participation. Young farmers are less interested in committing themselves to the cooperative, especially to the democratic process within the cooperative (Hakelius, 1996, 1999). Older farmers which have successors to take over the farm can devote more time and energy to non-farm activities. Becoming a director of the cooperative could be one of these non-farm activities. Farmers may also have personal ambitions to become politically active at local or regional level. Participation in the governance of the cooperative can be considered both a good training in decision-making in a democratic organisation and a vehicle for self-promotion. Occupying a representative or management position in a board or committee is then an investment in developing a political career (Whiteley and Seyd, 1996). The link between duration of membership and participation in the GA, however, is not as clear. Therefore, we can only expect that the longer is the *duration of membership,* the higher the likelihood of a member being pro-active.

When it comes to voting behavior, game-theoretic models suggest that those with a higher level of education have access to better information about candidates and issues, and therefore will vote in greater numbers (Feddersen, 2004). In fact, voter turnout has been shown to be empirically correlated with education and income levels (Wolfinger and Rosenstone, 1980).

Although Trechter et al. (2002) have shown that as the level of formal education of a member increases, the commitment level declines, the theoretical expected relationship with pro-active participation in the decision making of cooperatives could be a positive one. Members with a higher formal education level are likely to have better information on the (market) environment in which the cooperative operates and therefore to participate more frequently in General Assemblies, and more importantly, to feel more confident in pursuing a position in a board or committee. Farmers with greater human capital have a higher probability to obtain authority, economic benefits, or political benefits. In China, the education level of chairpersons was significantly higher than the average education level of farmers (Liang and Hendrikse, 2013b). Romero and Perez (2003) found that differences in the formal education level do affect the possibilities of participation. The least educated individuals perceived not

[5] This paper is not about commitment, which is different from what we are calling pro-active participation. However, due to a relative lack of theoretical guidance to build hypotheses, we borrowed from empirical studies on member commitment in agricultural cooperatives. Overcoming the free-rider problem is at the core of the cooperative's collective action dilemma, and the 'glue' of commitment (Fulton, 1999) mitigates this problem. Because commitment incorporates a willingness to make a sacrifice to contribute to the organization's success (Solinger et al., 2008), we expect some coincidence between the drivers of commitment and those of pro-active participation.

having any influence on the governance, felt deprived of information and perceived a lower level of participation. Therefore, we expect that the higher the *level of education*, the more likely that a member will be involved or pro-active. We expect that the lower the level of education the more likely that a member will be an occasional supporter.

Finally, farms with larger production capacity are likely to be less dependent on the cooperative for market access and, therefore, less willing to be loyal when they see short-term economic benefits outside (Ollila et al., 2012). Furthermore, they are more often considering exiting (Ollila et al., 2012). However, the same rationale that is used for loyalty is not necessarily applicable to participation. If farm size is taken as a proxy for number of employees, than we would expect that large farms are more likely to have the farmer in a full-time management position, which may give him or her more opportunity to participate in the governance of the cooperative. There is some evidence showing that usually it is larger farmers who set up cooperatives in the first place and later occupy a position in the Board. In the United States, for example, most one-member-one vote cooperatives prefer to elect directors from among the relatively largest farmers in their membership (Reynolds, 2004). About 63% of one member-one vote cooperatives elect directors who are among the largest half of farm operating size in the membership. Also evidence from China shows that farmers with large farms are the one that establish new cooperatives and become member of the BoD (Bijman and Hu, 2011). We expect that the larger the *size of the farm*, the more likely that a member will be pro-active.

The link between farm size and participation in the GA, however, is not as clear. In one-member-one-vote cooperatives, large farmers have the same voting power in the GA as a farmer with an economically insignificant contribution to the cooperative. On the one hand, this could work as a disincentive for the large farmer to be involved. On the other hand, large farmers are keen on networking and the GA is an important platform for this, so we could also expect larger farmers to participate in the GA. Therefore, we would expect the larger the farm size the more likely a member will be an occasional supporter who will attend the GA only in occasions of major strategic decisions that affect him or her more directly.

4.3.2 Economic motivations

As farmers are economic actors, their first motivation to be a member of a cooperative is gain economic benefits. Typical economic motivations for association[6] are improved bargaining power, reduced uncertainty related to input and output market access, reduced marketing costs, and the provision of technical assistance and credit. Also protecting specific

[6] The reason we use 'motivation for continued association' instead of the original motivation for joining the cooperative in the first place, is that we are interested in farmers who are already members, most for many years, and in current motivations not past motivations. Some of the motivations for joining a cooperative such as reduction of marketing costs and a secure market access are not likely to continue as motivations for continued membership. Furthermore, if members have joined a cooperative many years ago, the link between the motivations on that occasion and their current participation behavior in the decision making process is rather weak.

investments at the farm level has been claimed as a major reason for farmer to become members of a cooperative (Borgen, 2004), particularly in the dairy industry (Staatz, 1987).

Farmers' decision to participate in the governance of a cooperative implies direct and indirect costs (opportunity costs), by allocating time to stay informed, engage in decision-making processes and control managers (Sykuta and Cook, 2001; Bontemps and Fulton, 2009). These costs are only limited when participating in the GA is concerned but may be substantial when the member occupies a position in the cooperative governance. In return, there might be individual pecuniary or non-pecuniary advantages of being part of the core of members who make decisions (Hwang, 2005). By occupying a position in a board or committee, members access strategic information that can be used for the benefit of their own farm. Also they have a higher degree of influence on the strategy and policies of the cooperative, which may indirectly benefit their own farming activities (Bialoskorski Neto, 2006). To some extent, some economic motivations for continued association could affect both member participation in the GA and occupation of a management or representative position in the cooperative. We elected four economic motivations which might be related to participation, and they are lack of credible alternatives, better prices, technical assistance and patronage refunds.

Farmers need cooperatives particularly in a situation of uncompetitive markets (monopsony, monopoly, missing markets), since they allow farmers to build countervailing market power. This is a major reason to set up cooperatives. From a farmer's perspective, the lack of credible alternatives might be an important reason to join and to continue as a member of a cooperative. The degree of choice varies among farmers. Some farmers might prefer to transact with a cooperative for a number of reasons, whereas others might see in the cooperative their only alternative to a secure market access, due to their very lower technological level and scale which make them vulnerable, or to distance, for example. It is likely that the member who continues its association due to a *lack of credible alternatives* will not be interested in decision making once secure market access through the cooperative has been attained. Therefore we expect a negative relationship between lack of credible alternatives and participation. The lower is the importance of this motivation for continued association the more likely a member will be involved or pro-active.

It is reasonable to say that *better prices* for farm products is an ubiquitous economic motivation for continued association among farmers of a cooperative. Once the farmer has made specific investments at the farm level, he or she will try to reduce the risk of hold-up (Sykuta and Cook, 2001; Hendrikse and Bijman, 2002) by the cooperative firm. Therefore it is reasonable to expect that members will demand, at least, that prices are not compressed. Trying to influence the price paid for farm products is particularly important in a multi-product cooperative. Different products have different price policies and, therefore, different margins of maneuver. Prices for some commodities depend heavily on the international market environment, while for other products there is room for internal adjustments. The odds of affecting prices by voting in the GA are very small, but members who are not satisfied with the prices received for their products might attempt to influence managers and representatives

during the GA meetings. Therefore we expect that better prices as an important motivation for continued association will increase the likelihood of being an involved member. Moreover, there might be some room for affecting prices at higher level of decision making. Therefore, we also expect that better prices as an important motivation for continued association will increase the likelihood of being a pro-active member.

On the other hand, *technical assistance* and *patronage refunds* are more subject to members' influence particularly at higher levels of decision making. At the BoD and SB levels consensus norms facilitates the dialogue which involves several points of view (Reynolds, 1997; 2000). If the cooperative increases quality requirements from its suppliers, the members, it should also provide them with more technical assistance (Cechin et al., 2013b). Because the cooperative as a firm could be reluctant to provide any extra technical assistance, farmers might informally attempt to influence the provision of technical assistance to their individual benefit, through participating more in the GA meetings. Particularly in a multi-product cooperative, with different demands on quality, farmers who have made investments in improving quality at the farm level are likely to demand more assistance. Moreover, by occupying a representative or management position a farmer might try to influence the decision on the provision of technical assistance to benefit the whole group of farmers that the member is part of. Therefore, we expect that *technical assistance* as an important motivation for continued association will increase the likelihood of being an involved or a pro-active member. In this case, since budget allocated to technical assistance is of strategic interest and is more subject to members' influence, it might be a sufficient reason for the occasional supporters to participate. We expect, therefore, that technical assistance as an important motivation for continued association will also increase the likelihood of being an occasional supporter.

Patronage refund concerns the distribution of profits both in absolute and in relative terms. There is the decision on how much of the profit will be distributed as patronage refunds and how much will be re-invested in the cooperative, and the decision on what is the procedure to distribute profit among members. Influencing rent distribution (Bontems and Fulton, 2009) might be an important reason to participate both in the GA and at higher levels of decision making. We expect, therefore, that members who consider patronage refunds as an important motivation for their continued association will be more likely to participate frequently in the GA and to have occupied a position, that is, it increases the likelihood of being an involved or pro-active member. Moreover, because in extra ordinary occasions the cooperative might need to change the proportion of profit that is distributed as patronage refund and this must be voted upon in the GA, we also expect that the higher is the importance attributed to patronage refunds as a motivation for continued association, the higher the likelihood of being an occasional supporter. This type of member only participates in the GA when there is some major decision on issues that affect them more directly.

4.3.3 Ideology

Since people are embedded in a network of social norms, values and beliefs, there are also socio-psychological factors affecting the choice of participation. There is considerable evidence that voters are motivated to vote by a sense of civic duty (Blais, 2000). Furthermore, it has been shown that voters base their choice on overall social assessments (Kinder and Kiewiet, 1979; Markus, 1988), motivated by altruistic or ethical concerns for the welfare of others rather than narrowly defined self-interest (Feddersen, 2004). These socio-psychological motivations can be understood as ideology. As Parsons defined it, "ideologies are the shared framework of mental models that groups of individuals possess that provide both an interpretation of the environment and a prescription as to how that environment should be structured" (1951: 24).

From a socio-psychological perspective, ideologies may function as pre-packaged units of interpretation that spread because of basic human motives to understand the world, avoid existential threat, and maintain valued interpersonal relationships (Jost et al., 2008). Ideology as a motivation for pro-active involvement cannot be seen as maximizing net individualistic benefits for farmers since is not the outcome of some utility calculus (Whiteley and Seyd, 1996).

Cooperative ideology refers to the set of ideas and values as expressed by cooperative principles (for instance the ones by the ICA), which are guidelines for how to put ideals and values into practice. Two principles are of special interest in understanding member pro-active participation in the governance: democratic member control and concern for community. The principle of democratic member control defines the way in which members will make decisions. It assumes that members will participate in setting policy and giving broad direction to cooperative activities in a way in which no member has more "voice" than any other member. Grounded in the values of social responsibility and caring for others, the principle of concern for community refers to providing for all members and making contributions to a better society at large.

Fulton (1999) argues that historically cooperative ideology is the very source of farmers' commitment[7] to the cooperative. Cooperatives are more needed in uncompetitive markets (monopsony, monopoly, missing markets), since they allow farmers to build countervailing market power. In competitive markets, however, there might be less need for cooperatives. Therefore, those who decide to continue as committed members, and particularly those who participate pro-actively in the decision making are likely to have cooperative ideology as an important motivation for their continued association. Hakelius (1996, 1999) found that fairness and solidarity were the top ranking reasons to participate in the cooperative's democratic process, at least for older farmers.

[7] See footnote n. 2 on page 5.

We expect that the more important cooperative ideology as a motivation for continued association, the more likely a member will be involved or pro-active. Members who have incorporated cooperative ideology are less likely to omit themselves form the decision making process, and the more likely to participate in the GA and even serve as a representative. If cooperative ideology is not an important reason for continuing the association, it is more likely that the member will be passive or an occasional supporter.

In Table 1 we summarize the expected relationships (and strength) between factors and our categories of participation in the governance of the cooperative.

Table 4.1 Drivers of member participation

Factors affecting participation	Dimensions	Occasional supporter	Involved	Pro-active
Endowments	Duration of membership	(+/-)	(+/-)	(++)
	Level of Education	(-)	(+)	(++)
	Total farm size	(+)	(+/-)	(++)
Economic motivations for continued association	Lack of alternatives	(+/-)	(--)	(--)
	Better price	(+/-)	(+)	(++)
	Technical assistance	(+)	(+)	(++)
	Patronage refund	(+)	(+)	(++)
Ideological motivation for continued association	Cooperative ideology	(-)	(+)	(++)

Source: own elaboration

As a control we use members' farm products. In a multi-product cooperative the specific farm product a member delivers or the fact of being specialized rather than diversified at the farm level could be an important driver of participation**.**

4.4 Methods and data

In Brazil, ownership rights are defined by federal law 5764/71, which closely follows traditional cooperative principles. Costa et al. (2013) have found that only 8% of their sample of Brazilian agricultural cooperatives had complete separation of decision control from decision management functions, following a model that is common in North America, northern Europe, and Oceania (Chaddad & Iliopoulos, 2013). Only farmer-members compose the board, and, in most cases, the direct administration of the cooperative is also done by the Chairman of the Board, who is usually a farmer-member. The Chairman of the Board has the functions of CEO in Brazilian cooperatives, including the civil responsibilities of this position. The supervisory board (SB) is also composed by members only, who may not be members of the BoD (and vice versa). The main role of the SB is internal auditing (Chaddad and Iliopoulos, 2013). It is also common that agricultural cooperatives from southern Brazil

have the so-called Educational Committee, which has the function of advising the administration board and informing the membership (Bialoskorski Neto, 2003; 2006).

The cooperative in the case study is Lar, a large multi-product processing agricultural cooperative, with 6,779 members distributed among eleven towns in the state of Paraná. Most of them are soybeans producers. About half of the membership has at least one extra farm product besides soybeans, such as swine, broilers, vegetables, cassava or milk (Lar, 2008; Marschall, 2009). Like most cooperatives in that state, Lar was founded in the 1960's initially by a very small number of farmers. Lar was ranked in 1990 for the first time among the 500 biggest companies in terms of turnover in the country. By the end of the 1990's Lar became definitely a food producer, with its own brand for frozen poultry meat (Marschall, 2009), and the turnover jumped from US$ 55 million to US$ 900 million over a period of sixteen years (1995-2011). The most important businesses within the cooperative in terms of turnover share are soybeans (24%) and broiler (19%), (Lar, 2011).

About 600 members attended the General Assembly in 2011, which aimed to approve the balance sheets of that year and the allocation of the surplus (US$ 4.7 million) between investment (US$ 2.8 million) and patronage refund (US$ 1.9 million) to the members according to the volume of their transactions with the cooperative (Lar, 2011).

In cooperative Lar, the structure in which a member can occupy a position is divided into several boards and committees. Besides the BoD and its executive directory, there is a supervisory board, different advisory boards (legal, education, and internal audit) and several committees (education, mothers, youth). Finally, in every town there is a cooperative unit for general purposes, such as for pre-assembly and committee meetings, selling inputs, mainly for soybean production and serving also as a base for the technicians.

4.4.1 Data collection

A survey method was used to collect data on participation and motivation. A questionnaire using a five-point Likert scale (anchored between "Not important at all" and "Very important") items for motivation, three-point scale ("never", "sometimes" and "always") items for participation in GAs, and a dichotomous scale ("yes" or "no") for occupying a position in the decision making structure, was distributed among members of the analyzed cooperative between December of 2010 and April of 2011. A disproportionate stratified sample was taken from members in seven (of the eleven) towns. The total sample of 148 producers consisted of vegetable, broiler, soybeans, cassava, milk, and swine producers. Approximately half of this sample are diversified producers (more than one farm product), which reflects the proportion within the total membership population (Marschall, 2009).

4.4.2 Measurements

The two original dependent variables were 1) Participation in General Assemblies ("never"=0; "sometimes"=1; "always"=2), and 2) Occupying a position at any board of

committee (No=0; Yes=1). Merging attendance in GA with occupation in a position, by summing the scores (see Table 2), resulted in five combinations of member types: the passives, who never participate in GAs and have never occupied any function, the supporters who sometimes participate in GAs and have never occupied a position (occasional supporters), those who sometimes participate in GAs and have occupied a position, the supporters who always participate in GAs and have never occupied a position (involved), and the pro-actives, members who always participate in GAs and have occupied a position. Those who sometimes participate in GAs and have occupied a position were considered pro-active members. It is reasonable that occupying a position more than compensates the fact of participating "sometimes" instead of "always", in terms of pro-activeness. So in the end we had four categories.

Table 4.2 Measuring Pro-activeness

	Passive	Occasional supporter	Involved	Pro-active
"Have you ever occupied a position in a board or committee (as representative or manager at any level)?" (Yes or No) (0;1)	0	0	0	1
"How often do you vote in General Assemblies?" (Never/Sometimes/Always) (0;1;2)	0	1	2	1 or 2
Final score	0	1	2	3

Source: own elaboration

Endowments were measured with three variables: 1) length of membership (number of years of membership); 2) level of education (where (i) no formal education; (ii) incomplete primary; (iii) complete primary; (iv) complete high school; (v) technical school; (vi) college); and 3) size of farm (size of own farmland plus rented farmland in hectares).

Economic motivations for continued association were measured with six variables: 1) lack of alternatives, 2) better prices for farm products, 3) technical assistance, and 4) patronage refunds. In the questionnaire members were posed the question "What *is* the importance of (...) as a motivation for your continued association?" (Five-point scale of importance from "Not important at all" to "Very important").

For Ideology, members were posed the question "What *is* the importance of Cooperative ideology as a motivation for your continued association?" (Five-point scale of importance from "Not important at all" to "Very important").

For the member's farm product, our control, we had two dummies. One indicating whether a member is a specialized soy producer and another dummy indicating whether a member is a poultry producer (not necessarily specialized). This means our omitted variable for the type of

production includes non-specialized soybeans producers (which might have also cassava, milk or swine) and vegetable producers.

4.4.3 Empirical strategy

A multinomial logit regression was undertaken for the new variable that combines both types of participation into four categories of pro-activeness.

$$PART_j = \beta_1 + \beta_2*ENDOW_j + \beta_3*ECON_j + \beta_4*IDEO_j + \beta_5*PROD_j + \varepsilon_j \quad (1)$$

Where $PART_j$ represents all of four categories of participation (or pro-activeness), $ENDOW_j$ represents the endowments (size of farm, duration of membership, level of education), $ECON_j$ represents the economic motivations for continued association, $IDEO_j$ represents cooperative ideology as a motivation for continued association, and $PROD_j$ represents the control dummy variables (specialized soy, broiler), with j = 1...148.

The goodness of fit and prediction was examined by examining McFadden's pseudo-R^2. Importantly, we control for the case of errors being clustered. If observations within each town are correlated due to some common unobserved factor, standard errors could be inflated leading to incorrect inference. For this reason, the errors of observations from the same town were modelled as correlated with each other.

4.5 Results

First, the frequencies of the two components – participation in GAs and occupation of a position – and the resulting dependent variable – pro-activeness - are presented. Second, we present the frequencies of endowments variables. Third, the explanatory variables that are dependent on members' perceptions – economic motivations for continued association - are presented in Table 3. Finally, the results of the multinomial logit are presented.

The number of members who "never" attends GAs was 15 (10.1%), those who attend "sometimes" were 70 (47.3%), and 63 (42.6%) members said they "always" participate. From our sample, 23% of members had occupied a position in the decision-making structure of the cooperative. After adding the two variables, fifteen members were passive, 65 were occasional supporters, 36 were involved and 32 were pro-active members. That is, 18.5% of the members are pro-active in the sense that they always (or sometimes[8]) participate in GAs and have occupied a position in the decision-making structure.

From our sample, 47 members (31.7%) are specialized soy producers and 58 (39.2%) are broiler. The remaining 43 members are either vegetable producers or non-specialized soy

[8] Five members had occupied a position and attend GAs "sometimes" instead of always. They were, nonetheless, considered pro-active members.

producer (besides soy, one or more of the following activities: swine, milk or cassava). The minimum farm size was two hectares, the maximum size was 580 hectares, and the average size was 36 hectares (standard deviation of 66 hectares). Regarding duration of membership, some farmers had joined that year (2010) while some had been members for 40 years (since 1970). The average length of membership was seventeen years (standard deviation of ten years). The cooperative was founded in 1964. The level of education of the members in our sample was distributed in the following way: 0.7% had no formal education, 30.4% had incomplete primary school, 29.1% had complete primary school, 29.7% had high school, 2.7% had technical school, and 7.4% had been to college (for the table with descriptive statistics, see Appendix 5).

Table 3 shows the explanatory variables that are dependent on members' perceptions – motivations for continued association - where the degrees of importance of each motivation for continued association are related to the percentage of members who attributed that score.

Table 4.3 Frequencies of 'Motivation for continued association' (being a member) responses

	Coop ideology	Better prices	Lack of alternative	Technical assistance	Patron refund
			Percent		
Not important at all	5.4	0.7	21.6	1.4	4.8
Not important	6.8	6.1	35.8	4.1	6.8
Neutral	12.8	12.8	12.2	2.0	7.4
Important	48.6	48.0	20.9	48.6	43.2
Very Important	26.4	32.4	9.5	43.9	37.8
Total	100.0	100.0	100.0	100.0	100.0

Source: own elaboration

A Hausman-McFadden (1984) test statistic has been proposed to test this assumption of Independence of Irrelevant Alternatives (IIA), that is, membership in one category cannot be related to the membership of another category (i.e., the dependent variable). The test statistic is a chi-square and significant values would indicate that the IIA assumption has been violated. All the four P values were non-significant.

Multi-collinearity was checked using the Variance Inflation Factor (VIF) and the Condition Index. The individual VIF values are lower than 10 and the average is not substantially greater than 1, none of the values for the Tolerance statistics were below 0.2 (Field, 2005), and the condition index is smaller than 30 (see Appendix 6), which means multi-collinearity is not a serious concern. Pair-wise correlations were also not relevant since the highest one was of -0.4, between duration of membership and education.

Table 4 shows the variables that correlate with the different categories of member participation in the governance of the cooperative. The longer was the duration of membership, the higher the likelihood of being an involved ($\beta = 0.084$) or pro-active ($\beta = 0.172$) member. The lower is the level of formal education obtained by a member of this

cooperative, the higher the likelihood of being an occasional supporter (β = -0.929). The more important are better prices as a motivation for continued association, the higher the likelihood of being an occasional supporter (β = 0.510) or an involved member (β = 0.617). The more important is technical assistance as a motivation for continued association, the higher the likelihood of being an occasional supporter (β = 0.516) or an involved member (β = 0.540). Finally, the more important is cooperative ideology as a motivation for continued association, the higher the likelihood of being a pro-active member (β = 1.312). Our control variables were positively related to participation. Being a specialized soy producer or a broiler producer increases the likelihood of a member being in any of the three categories that have some degree of participation.

Table 4.4 Pro-activeness[9]

	Occasional supporters		**Involved**		**Pro-active**	
	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.	Coef.	Robust Std. Err.
Duration of membership	0.050	0.043	0.084**	0.036	0.172***	0.022
Level of Education	-0.929*	0.476	-0.572	0.408	0.288	0.489
Farm size	-0.003	0.002	-0.007	0.006	-0.001	0.009
Lack of alternatives	-0.170	0.131	-0.371	0.249	-0.636	0.387
Better price	0.510*	0.263	0.617**	0.313	1.000	0.686
Technical assistance	0.516*	0.282	0.540*	0.307	1.073	0.655
Patronage refunding	0.186	0.286	-0.003	0.265	-0.119	0.482
Coop ideology	-0.074	0.338	0.450	0.394	1.312**	0.568
Specialized Soy	3.242**	1.315	3.289**	1.546	2.970**	1.488
Broiler	1.148**	0.555	0.753	0.561	1.191**	0.548
Constant	-0.864	2.471	-4.073**	1.968	-15.485***	4.435

Number of obs.	148
Log pseudo-likelihood	-142.245
Pseudo R2	0.24

* $p < 0.1$; ** $p < 0.05$. ; *** $p < 0.01$. All significance levels are based on two-tailed tests.

For logistic regressions, the value of the pseudo-R2 between 0.2 and 0.4 represents a good fit (McFadden, 1979: 307).

4.6 Discussion

The objective of this chapter was to explore whether a large cooperative with diverse activities is necessarily experiencing inefficiencies in the process and outcomes of decision-making, by contesting the common assumption that farmers are pursuing individual or subgroup interests when participating in the decision-making of the cooperative. The chapter attempted to answer how farmers' economic motivations for continued membership in a cooperative affect the likelihood of them participating pro-actively in the governance of the cooperative. We evaluated four economic motivations – lack of alternatives, better prices,

[9] Passive is the base outcome, that is, the comparison group.

technical assistance and patronage refunds - that could be a source of decision-making costs in a heterogeneous multi-product cooperative. Two of these economic motivations - better prices and technical assistance - affected positively the likelihood of participating in the GA, but not of being pro-active in boards and committees. Duration of membership and cooperative ideology seem to be more important drivers of pro-active participation than the economic motivations for continued association.

Endowments

The longer was the *duration of membership*, the higher the likelihood of a member being involved or participating pro-actively. Although we did not measure the age of the farmer, the duration of membership is probably highly related to it. Older members often can afford to spend time on non-farm activities such as participating in the governance of the cooperative. The fact that some members as they get older seek to pursue political careers might explain why duration of membership increased the likelihood of being pro-active by occupying a position. Older members might see greater value in networking in the GA, which would help explain why duration of membership also increased the likelihood of always participating in the GA.

That the likelihood of farmers to be in boards or committees is higher when their association has lasted longer is not surprising. However, there is no reason to expect this relationship to be linear across the membership. It is more likely that pro-active members are a specific subset of the membership. In addition, several interesting observations can be made on the possible implications of members' age for the influence costs problem. Age is usually associated with particular psychological predispositions. On the one hand, passivity, risk aversion and reluctance to change of older directors may result in low monitoring activity and decreased cooperative performance. On the other hand, older board members tend to seek greater amounts of information when making a decision and to estimate the value of information more accurately (Taylor, 1975; Cook and Burress, 2011). This might produce less volatility in returns (Child, 1974), and, more importantly, older members have higher ability to resist being ethically bent by political pressure (Muth and Donaldson, 1998). Therefore, if members who occupy positions in boards and committees are older, then, it is likely that they will be less flexible towards influence activities and they might even find it easier to take "necessary but painful decisions" (Iliopoulos and Hendrikse, 2008).

Although the education level did not predict the likelihood of a member being pro-active, the lower was the *education level*, the higher was the likelihood of being an occasional supporter, as we expected. Members with a low education level might perceive themselves as less knowledgeable about technology, strategy and marketing. This is in line with Romero and Perez (2003), who found that a high percentage of members of workers' cooperatives with only basic and elementary education perceived having a lower level of participation than those with higher education.

Economic motivations

The same two economic motivations - *better prices* and *technical assistance* - increased the likelihood of participating in the GA, that is, both of a member being an occasional supporter and an involved member. However, they did not increase the likelihood of a member being pro-active. Membership motivations are often predominantly economic. Economic motivations for association might be drivers of members' voting and even influencing activities in the GA. In a heterogeneous multi-product cooperative this might lead to additional decision making costs at the GA level, what Pozzobon and Zylberstajn (2013) called democratic costs. When farmers are already members of a cooperative they might still decide to participate in the democratic process because they expect the cooperative will increase their economic benefits at farm level. On one hand, the more homogeneous is the membership the more these economic motivations have characteristics of public goods, since demanding better prices or higher proportion of budget allocated to technical assistance will affect the whole membership in a similar fashion. On the other hand, these are benefits the individual member expects at the farm level and in a multiproduct cooperative, economic decisions might favor one subgroup and disfavor another group. Here lies the potential for influence activities by the members. This might not necessarily be costly, though, if members are motivated to participate in the GA by a sense of civic duty and driven by overall social assessments concerning the membership's welfare. Furthermore, membership heterogeneity might not necessarily be a source of inefficiency if the organizational goal is precisely to satisfy diverse members' interests.

Finally, if cooperative ideology is important and economic motivations are not important drivers for the member who participates pro-actively in the governance by occupying positions in boards and committees, decision-making costs at the Board level might not be relevant. Although out of our scope in this study, personal or political ambitions might also be important drivers of pro-active participation.

Cooperative ideology

Regarding *cooperative ideology*, the more a member considers it as an important motivation for continued association, the more likely she is a pro-active member. Cooperative ideology as a motivation for continued association, in contrast, increased the likelihood of being pro-active, but not the likelihood of being an occasional supporter or an involved member. Indeed, participating in any committee or board is more demanding for an individual member than attending the General Assembly, and might coincide with a stronger ideological motivation for continued association. This relationship might mean that cooperative ideology, as expressed by the ICA principles of democratic member control and concern for community, has become the broad mission statement for individual members who participate pro-actively in the governance, who had the opportunity to directly influence strategies, policies and projects of the cooperative. As a result, pro-active member might have a pro-social behavior

or act as stewards (Davis et al., 1997) of the cooperative community instead of pursuing their own private benefits.

4.7 Conclusion

Most conceptualizations of decision-making problems and influence costs derive from organizational economics, where agency theory has been quite influential. Agency theory makes assumptions that people are fully rational, behave according to stable risk preferences, and maximize their self-interests (Jensen and Meckling, 1976). It has been employed in the analysis of cooperatives to understand some of the "costs of ownership" that are incurred when farmer-suppliers are the joint owners of the firm (Hansmann 1999). From an agency theory perspective, the full membership of the cooperative (as principals) delegates authority to the boards and committees (the agents), and the welfare of the membership as a whole is affected by the choices of those who effectively make decisions. The influence cost problem occurs when different groups of members with opposing interests engage in internal lobby activities to promote their own selfish interests. The common assumption in the literature on corporate governance is that "individuals at subordinate levels are motivated solely by concern for their expected money incomes and that decision makers in the organization seek to maximize the organization's profits" (Milgrom and Roberts, 1988) and that within organizations there is goal conflict among members. Milgrom and Roberts (1988) explicitly say that there is no room in their assumptions for decision-makers at higher levels to act in a fashion inconsonant with the organizational goal, which is profit maximization.

That is why, when the reasoning is applied to cooperatives, a heterogeneous membership would also increase influence and decision-making costs: individual members who participate in high level decision-making are doing so to pursue indirect individual benefits at the farm level or by seeking benefits of all sorts the rank-and-file member would attempt to influence managers and board, who, in turn, would have the objective of maximizing the cooperative's net returns. Either one or the other situation would result in a loss of efficiency for the cooperative as a whole. It is argued that this is the reason why most agricultural cooperatives have restricted their areas of business to a particular type of product.

While agency theory is useful for structuring and informing an analysis of the influence of members (the principals) over the representatives and managers (agents) in democratic member organizations (Spear, 2004), its relevancy might be questioned particularly when management is undertaken by members, which is the case in most Brazilian cooperatives (Costa et al., 2013), when cooperative success depends more on satisfying diverse members' interests than on maximizing net returns and when cooperative ideology has been successfully incorporated into the organizational culture. Members typically have diverse economic interests, and consensus is the process of building cohesiveness and incentives for members to support the decision (Reynolds, 1997). The survival of agricultural cooperatives most likely depends on their capability of satisfying and maintaining their base of farmer members

(Hernández-Espallardo et al., 2012) rather than maximizing aggregate patron surplus, which do not necessarily coincide.

Current thinking on member-cooperative relationships may put too much emphasis on heterogeneity as a source of inefficiency, by assuming opportunism and misalignment between individual motives and organizational objectives. Organizational economics has prescribed solutions as tightening control through more hierarchical structures or pay for performance, to align individual motives and organizational objectives (Lazear and Shaw, 2007). However, these prescriptions might increase costs without guaranteeing the expected efficiency (Frey and Osterloh, 1999). More importantly, this type of solution increases the distance between membership and management and might crowd out intrinsic motivations (Frey and Jegen, 2001) of those who have representative or management positions in the cooperative. Behavioural and experimental economics have renewed the interest in the motivational side of organizations (e.g. Charness and Rabin, 2002; DellaVigna, 2009). Both laboratory and field experiments indicate that individuals often show concern for the welfare of others in their decision-making, and that intrinsically motivated individuals are less likely to free-ride on the delivery of public goods (Degli Antoni, 2009). Although opportunism is a potential obstacle to the alignment of individual and collective objectives, theory development on these relationships may have to start from the assumption that members who occupy representative and managing functions are intrinsically motivated, allegiant to the organization, genuinely seeking to further organizational goals rather than to follow private motives (Muth and Donaldson, 1998), that the organizational goal is satisfying diverse members' interests rather than maximizing net returns (Cyert and March, 1963), and that the members are more likely to have a user mentality than an investor mentality (Borgen 2004)

Although the model presented a good fit (pseudo-R2 of 0.24), its independent variables can only partly explain members' pro-activeness. An alternative explanation is that their attitude towards the cooperative and participation behaviour varies in time and with the ability of the cooperative to generate and distribute surplus. The dynamics of the cooperative's economic success is likely to affect member participation in the General Assembly and in Boards and Committees. Furthermore, this relationship is likely to be negative; that is, if the cooperative's economic results were bad in the previous period, the members might want to actively participate in the decision making.

Limitations

This study has a number of caveats and limitations. The first limitation is that conclusions based on correlations result in a lower degree of internal validity than conclusions drawn on the basis of direct manipulation of independent variables. It is likely that experiments as those used by behavioural economics would lead to a higher degree of internal validity, particularly in explaining participation behaviour in terms of cause and effect relationships. The second limitation is a consequence of the cross-sectional analysis, which does not allow the understanding of the shifts in the relationship between cooperative ideology, economic

motivations for continued association and participation in the governance. Members' psychological state varies over time during the relationship with the cooperative. The third limitation is that the cross-sectional analysis is undertaken among members of one cooperative only. Consequently, it is more difficult to generalize the links between endowments, economic motivations, cooperative ideology and participation to other cooperatives.

5. COOPERATIVE VERSUS INVESTOR-OWNED FIRM: QUALITY RELATIONSHIPS IN THE BROILER INDUSTRY[10]

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5. Cooperative versus Investor-Owned Firm: Quality Relationships in the Broiler Industry

5.1 Introduction

The coexistence of different governance structures for the same kind of transaction is common in agricultural markets throughout the world (Hendrikse, 2007). In the broiler industry, investor-owned firms (IOFs) and farmer-owned cooperatives coexist using the same contractual arrangements and being subject to the same quality requirements from buyers. The key distinction between an IOF and a cooperative is that the owners of the processing and marketing cooperative are also the suppliers of the raw material. In fact, farmers have a threefold relationship with their cooperative (Barton, 1989): a transaction relationship, an ownership relationship and a control relationship. While the transaction relationship is an individual one, where each farmer-member delivers his own farm products to the cooperative, the ownership and control rights are held collectively. These rights are exercised in a democratic decision-making process usually adhering to the one-member-one-vote principle. Farmers delivering to an IOF have only a transaction relationship with the processing firm. This chapter focuses on the individual farmer's delivery to the processing firm, since the supplier-buyer relationship is a reality for both farmers supplying to a cooperative and those supplying to an IOF; farmer control and ownership are not an issue within the IOF.

The organizational structure of a cooperative has implications for its quality management (Hanf and Kühl, 2005). As a cooperative decides on its strategy in a democratic (and often consensus-oriented) decision-making process, the outcome in terms of quality standards is likely to be lower than the standards that an IOF imposes on its suppliers. The standards an IOF applies are decided upon unilaterally, mainly on the basis of a profit objective function. A cooperative, however, is not a profit-driven organization, as its main objective is to provide the best service to its members. A cooperative is more likely to accept low quality deliveries than an IOF because it has a statutory obligation to accept and find a market for all deliveries of its members. In addition, a cooperative is set up to support farmers and will not easily dismiss members that do not comply to quality standards. As a result, relative to an IOF processor, a cooperative processor is more likely to receive a heterogeneous supply of raw material. This poses major challenges for a cooperative in a competitive environment that increasingly demands close quality coordination in the supply chain (Bijman, 2009; Hanf, 2009).

Most of the organizational economics literature considers the cooperative as an inherently less efficient form when compared to an IOF, mainly due to a number of property rights constraints (Cook, 1995; Fulton, 1995). Exploring the implications of these constraints for maintaining and improving product quality, Mérel et al. (2009) found a number of disadvantages of the cooperative. First, cooperatives face a horizon problem. This means that members as owners are more likely to pursue short term goals at the expense of long term

investments. Second, as selective terms of delivery cannot, in principle, be enforced by cooperatives, members can deliver all the commodities which alternative buyers do not accept. Third, the pooling practices of cooperatives often fail to adequately reward producers of the highest quality products, causing an adverse selection problem with reductions in product quality and/or the exit of the high-quality producers from the cooperative. Fourth, cooperatives are not likely to exclude 'marginal' members. Thus, many cooperatives have problems to be competitive in an environment where quality requirements of final customers (e.g., retailers) are becoming stricter.

Although Fulton (1995) questions whether cooperatives can adapt to a rapidly changing environment characterized by technological change and industrialization of agriculture, Hanf and Schweickert (2003) suggest that by grouping members into homogeneous clusters cooperatives may be able to successfully master the quality and quantity demands of the retailers. In order to achieve this, a larger degree of centralized decision-making is needed than what cooperatives traditionally apply. Central or hierarchical decision-making enables cooperatives to define and effectively apply quality norms for their supply, to control the quality of delivered products, to monitor members' production processes and, on the limit, to exclude a member of further deliveries. Thus, cooperatives may be mimicking IOFs in applying more hierarchical coordination mechanisms. Other authors, however, have posed that cooperatives have unique organizational characteristics that could provide them with competitive advantage. For instance, Sykuta and Cook (2001) have argued that agricultural cooperatives may use the tight relationship between members and cooperative as a competitive differential since it may enable less costly coordination of the transaction.

In the Brazilian broiler industry, suppliers delivering to a cooperative are performing better in terms of quality than suppliers delivering to an IOF. If a cooperative's formal arrangement with its suppliers is the same as in an IOF, that is, cooperative and IOF have the same incentive and control mechanisms for production efficiency and high-quality chicken meat, what then could explain the cooperative's advantage over the IOF in terms of suppliers' quality performance? Our conjecture is that the difference in terms of product quality between the cooperative and the IOF is influenced by the characteristics of the supplier-buyer relationship and their effect on transaction costs.

The chapter is structured in 7 sections. **Section 5.2** describes the broiler industry in Brazil, emphasizing our region of study, Paraná, and the main characteristics of broiler production and the contractual arrangements applied between slaughterhouses and producers. **Section 5.3** reviews the literature on relationship characteristics and their impact on transaction costs. It also elaborates on the implication of relationship characteristics for the production and delivery of high-quality products, when comparing cooperatives and IOFs, and formulates hypotheses. **Section 5.4** explains the measures and the methods for data collection and analysis. We present our results in **Section 5.5** and discuss the implications of our findings in **Section 5.6**. Finally, in **Section 5.7** we conclude and provide a number of suggestions for further research.

5.2 The broiler industry in Brazil

Broiler production in Brazil has grown substantially in the last decades, with exporting following the same trend, which led the country to be the world's largest exporter. Large integrators making contracts with several individual producers are present in the Brazilian broiler business, which has made remarkable technological and organizational improvements in the last two decades.

5.2.1 Broiler production

The Brazilian production of chicken meat had a rapid development and increased Brazil's position as a leading world producer, from about 2 million tons in 1989 to over almost 11 million tons in 2009, right after the USA and China (Abef, 2009). In terms of exports, Brazil is in the first position, exporting 3.6 million tons in 2009. The production of chicken meat is highly concentrated in the states of southern Brazil and in São Paulo. The state of Paraná has historically been highlighted as a major producer and exporter of broiler in Brazil. In 2002, the state assumes the absolute leadership in production, and in 2009, the state of Paraná exported 954,653 tons of chicken meat, 26% of Brazil's exports (Abef, 2009).

The existing market structure at the national level is characterized by a competitive oligopoly both for the whole chicken (either frozen or fresh) and for special cuts (leg, wing, breast), and companies compete primarily through price since there are not many ways to differentiate the product (Silva, 2003). From a list of 25 largest chicken meat exporters in 2009, the first 4 had a combined share of more than 70% of exports. From these 25 largest exporters, 6 of them were cooperatives, of which 4 from the state of Paraná (Abef, 2009). There is also a significant concentration in the broiler industry of Paraná, with a higher participation of cooperatives among the largest slaughterhouses. In 2002, the eight largest slaughterhouses (including three cooperatives) did approximately 75% of the slaughtering from a total of 27 companies in Parana. Two important IOFs had 47% of the activity in this state (Ipardes, 2002). In 2004, cooperatives' participation in broiler production in the state of Paraná was of approximately 23%.

In the broiler industry, quality requirements concern conforming both to meat quality standards, i.e., quality that is intrinsic to the product, and to sanitary and animal welfare standards, i.e., quality of the production processes (Aramyan et al., 2006). Both the European Union and Japan, two large importers from Brazil, set requirements demanding Brazil to adapt to European quality standards regarding animal welfare and environmental responsibility. Performance on these requirements depend to some extent on the management of broiler litter (Moura et al., 2010). Other standards, such as avoiding chicken feet callus in order to export to China, for instance, also require specific management techniques at the farm level.

Processing companies that are exporting chicken feet to China and/or are supplying McDonalds, for example, need to avoid receiving broilers with lesions on the feet, either

because these animals cannot be sold or because of animal welfare standards for which the companies are audited. Foot pad dermatitis (FPD), also known as foot callus, is influenced by a number of practices. The single largest factor is wet or damp bedding; several studies have shown that high moisture litter alone was enough to cause foot callus in birds (e.g., Pagazaurtundua and Warris, 2006). The quality of the litter and the equipment used (i.e., technology level) also influence the incidence of callus, to a lower extent though.

As most farmers consider chicken feet as a waste product, the actual incidence of foot callus in the batch often goes unnoticed. If foot callus is reported, the information is only about the number of injured animals and will not distinguish between large or small lesions, or give an indication of the depth of lesions. The key approach to minimizing the potential welfare problems associated with foot callus is through high levels of bedding management, for instance by regularly topping up all bedding to keep it dry (a minimum of once a week is recommended) and checking drinkers to make sure they are not leaking and that birds are not spilling water (Basset, 2009).

5.2.2 Broiler contracts

Coordination needs are high in the broiler industry due to safety and quality requirements, but also due to specific production risks. The producer bears a production risk since the relation between output and inputs is affected both by chicken raising techniques and by unexpected factors such as diseases. Part of the production risk affects only a single producer and part of it is affecting many producers (Knoeber and Thurman, 1995). Production is organized by large integrator companies that provide chicks, feed, veterinary services and technical advice, and they have contracts with producers to raise the chicks. Being vertically integrated into breeding and feed production, most of the major processors directly control the genetics of the chicks (Martinez, 1999) as well as the feed given to the chicks. This enables them to lower and standardize the risk associated with production.

Specific contractual arrangements are applied to address transactional risks related to the fact that producers do not pay for the feed or for the chicks. Producers provide the chicken houses and labor, and their main job is to raise the animals in a controlled environment. Neither cooperative suppliers nor IOF suppliers can deliver occasionally to the IOF since they have a production contract determining that the inputs are provided and owned by the slaughtering firm. There is a clause in the contract which explicitly states that in case outside delivery before the time of agreed delivering or private use of inputs is discovered by the slaughtering firm, the producer is subject to administrative penalties and will have to refund the processor. Administrative penalties range from suspension of production for a given period to the final sanction of termination of the contract.

The contractual arrangement is a production contract with a payment formula that links the remuneration of the farmer to his production efficiency observed in the batch of chickens supplied (Knoeber and Thurman, 1995) and on the compliance with the quality requirements. The larger the average weights and survival of the batch and the lower the age of slaughter of

birds and the feed conversion ratio (amount of feed converted into chicken meat), the greater the compensation received by the producer. The total number of kilograms is multiplied by the price of meat at the day of delivery (Ipardes, 2002).

If the feed conversion ratio is higher for one individual producer than for the average of the producers supplying to the integrator company, the individual producer will get a lower price per kilogram of meat. Therefore, no individual producer bears that part of production risk that is common to all producers. In line with the practices in other parts of the world (Knoeber and Thurman, 1995), producers bear only the idiosyncratic part of production risk, while the common part of the risk is shifted from individual producers to the integrator company. In addition, contracts specify the discount schemes for low quality. Incentive clauses like these control moral hazard by deterring shirking behavior and giving incentives for improved production practices (Martinez, 1999). Contracts generally provide management services and may require each farm to apply the same equipment. Producers are further trained in proper management practices.

In terms of the specific quality attribute "chicken feet with no callus", if the percentage for one producer is higher than the target percentage, that is, the tolerated proportional amount of chicken feet in a batch with the incidence of callus, the producer will get discounted. In 2011, suppliers of the analyzed cooperative were allowed a maximum of 6% of their broiler batch with feet callus without being discounted for low quality. Suppliers delivering to the IOFs were allowed to have up to 15% of the batch with feet callus without being discounted. This means the cooperative is stricter than the IOFs in terms of controlling chicken feet callus. Quality targets are usually fixed a priori in terms of a percentage. Since the processing company will not get the maximum value if its supply has quality defections, the producers face discounts. Getting discounted means, therefore, not being able to comply fully with the quality requirements of the processing company.

In sum, large integrators are strictly monitoring the production processes and providing information and assistance to the contracted individual producers. Monitoring takes place not only to measure and keep track of production efficiency but also to assure compliance to quality requirements. We found that suppliers delivering broilers to the cooperative have a higher quality performance than suppliers delivering to the IOFs since the former had a proportionally lower amount of discounts due to feet callus than the latter. What could explain these differences?

5.3 Theoretical framework

Relationship Characteristics and Transaction Costs

Quality performance may be influenced by relationship characteristics, through their effect on transaction costs (Lu et al., 2009; Coronado et al., 2010). Transaction costs can be distinguished into transactional risks and coordination costs (Grover and Malhotra, 2003). Transactional risks, or exchange hazards, relate to the potential opportunistic behavior of the

contract parties. Coordination costs arise when actors are unaware that their actions are interdependent and when there is uncertainty about the others' actions (Gulati et al, 2005). Coordination costs relate particularly to information exchange between the contract parties. Particular governance mechanisms enhance transactional efficiency as they reduce both transaction risks and coordination costs (Mesquita and Brusch, 2008).

Early Transaction Costs Economics (TCE) focused almost exclusively on the minimization of transactional risks. The main solution to high transactional risks is, according to TCE, choosing a hierarchical governance structure for the transaction (Williamson, 1991). More recent studies showed that repeated bilateral transactions have as important consequence the development of trust and increased knowledge about the partners' reliability and competences (Lazzarini, Miller and Zenger, 2004; Sporleder and Wu, 2006). Thus, reduced coordination costs through relationship development is now considered an important source of transactional efficiency.

A similar development can be found in the organizational economics literature on agricultural cooperatives. The traditional argument is that increases in the specificity of assets in agricultural transactions will require more vertically integrated systems. As the open membership policy and the lack of individualized rewards for farmers impede a more hierarchical relationship between cooperative and members, the cooperative would ultimately loose its coordination role in the sector (Fulton, 1995). However, economic and managerial research on cooperatives has largely ignored that the cooperative, besides being an enterprise, is also a social community (Borgen, 2004; Valentinov, 2004; Osterberg and Nilsson, 2009). Being a community should give the cooperative, at least in theory, an advantage over investor-owned firms in terms of trust development and increased knowledge about the partners' reliability and competences. In other words, particular characteristics of the farmer-cooperative relationship have the potential to counterbalance the claimed coordination disadvantage (Mérel et al., 2009).

The following subsections will elaborate on relationship characteristics that are likely to differ when comparing cooperatives with IOFs and which may have an implication for quality. For each relationship characteristic there is a hypothesis comparing IOF and cooperative.

Investment requirements

Distinctive techno-economic characteristics of broiler production require investments specific to this industry, not necessarily to one buyer. If two buyers require the same quality characteristics there is, in principle, a relation between the required investments at the farm level and the quality delivered. It would be reasonable to expect that the level of on-farm investments required by the buyer is the same for suppliers of different firms (Dorward, 2001). Nevertheless, cooperative suppliers may make lower on-farm investments than IOF suppliers for at least two reasons. First, being an organization that aims to provide benefit to its members, the cooperative could be more willing than the IOF to make particular investments (such as in sorting equipment) at the processing unit, thereby reducing the need

for investments at the farm level. Second, the cooperative is likely to be more tolerant regarding required investments at the farm level because of its open membership and member orientation. For instance because it takes into account the history of the producer, who may have been a pioneer in the establishment of the cooperative, long time before the cooperative firm engaged in the broiler business.

H1. The degree of investments required is likely to be higher for IOF suppliers than for cooperative suppliers.

Dependence

Dependencies are asymmetrically distributed in most transactions (Loader, 1997). In agrifood transactions, this unbalance in the mutual dependencies usually disfavors farmers. Suppliers that perceive themselves as more dependent are more likely to behave less opportunistically due to the expectation of continuity (Coronado et al., 2010), the fear of losing the only buyer or the fear of losing indispensable services. That is, if the current exchange partner is providing better services than an alternative exchange partner, this increases dependence and the costs of switching (Heide and John, 1988). The implication for quality, when comparing cooperatives and IOFs, is that (more) dependent suppliers are likely to shirk less in terms of delivering quality.

Cooperative suppliers are likely to be more dependent on their buyer than IOF suppliers because of specific services offered by the cooperative that are not offered by the IOF and/or because of ownership reasons. Members of the cooperative, which own assets at two stages of the supply chain (at farm and processing firm level), face higher switching costs than farmers delivering to an IOF.

H2. Buyer dependence is likely to be higher for producers supplying to a cooperative than for suppliers of an IOF.

Communication

Coordination costs can be reduced through communication (Paulraj et al, 2008; Coronado et al., 2010). Frequency of information exchange on quality requirements is expected to reduce coordination costs. Thus, a more frequent communication of the processing firm's managers and technicians with the suppliers is likely to result in the latter's higher awareness of the quality requirements and the associated farm management techniques. Communication is a powerful coordination mechanism precisely because in most situations it is the quickest means of establishing the necessary shared knowledge among those who wish to coordinate their actions to each other (Gulati and Puranam, 2011). Better communication with farmers is considered as one of the managerial advantages of the cooperative, especially in the case of small and medium-sized cooperatives (Briscoe and Ward, 2006). Therefore a more frequent communication on quality improvement between producers and their cooperative (when

compared to communication between IOF suppliers and the IOF) is expected to result in a higher quality.

H3. Communication on quality improvement is likely to be more frequent in supplier-cooperative relationships than in supplier-IOF relationships.

Uncertainty

If producers perceive that it is easy for buyers to distort facts to their own interests, that is, if they do not trust the buyer's good faith, this can have a negative impact on their own effort and on the commitment to the relationship. Behavioral uncertainty may increase suppliers' propensity to shirk in terms of quality. Contracting is likely to be less costly with producers supplying to their own cooperative for the advantage of cooperatives in reducing transactional risks resides, in principle, in their tendency to involve lower information asymmetries and greater trust in their relationships with farmers than would be the case with IOFs (Sykuta and Cook, 2001). If behavioral uncertainty is lower for cooperative suppliers, this may increase their rate of compliance with quality requirements.

H4. Uncertainty regarding buyer's behavior is likely to be lower for cooperative suppliers than for IOF suppliers.

Market risk

Reducing farmers' market risk has been a traditional role of agricultural cooperatives. The member's objective function is normally multidimensional, but the overall objective of a member as a user is to secure market access over time, at best possible product prices. In fact, the underlying motivation for a member to enter a mutually binding agreement with a cooperative is to reduce uncertainty related to market access (Borgen, 2004). If prices are volatile, a processing cooperative is able to adjust the producer price afterwards using patronage refunds, whereas an IOF would attempt to pass the risk to producers. We can hypothesize that even if the broiler transaction is the same and the contractual arrangement is similar, a cooperative will bear a larger share of market risk than an IOF would do, for instance, by paying the same price to producers even in times of crisis. Lower market risk for cooperative producers may lead to higher producer commitment. Since cooperative members are less worried about losing value due to market fluctuations, they are likely to be more committed to improving process quality such as animal welfare, whereas IOF suppliers may ignore animal welfare in their effort to maximize output.

H5. A cooperative is likely to reduce market risk for producers more than an IOF.

Adaptation support

With a more direct implication for quality, the technical support given by buyers to producers in adapting their production processes to new quality requirements is likely to be higher in a

cooperative since it is a member-oriented organization. Adaptation support involves intensifying information exchange and technical assistance in order for producers to adapt to a specific quality requirement. Balbach (1998) suggested that since sugar beet growers owned the processing plants, producers could adopt the most accurate method of measuring sucrose content because their ownership reduced information and monitoring costs. In doing so, they could also provide economic incentives for producers to supply sugar beets with greater sucrose content.

Quality requirements may change suddenly with a change in consumer preferences. A cooperative is likely to have an advantage in terms of communicating consumer preferences back to farmers and training them to comply with different or higher quality standards (Mérel et al., 2009). Cooperatives often have decentralized committees which organize information meetings about specific farm management techniques, in order to help members to improve the quality of their production processes and the quality of the delivered products.

H6. Suppliers delivering to a cooperative are likely to receive more technical support from their buyer for adapting to new quality requirements than IOF suppliers.

5.4 Methods and data

To analyze the role of relationship characteristics in broiler suppliers' compliance with quality requirements, a survey of broiler producers was carried out over the period December 2010 and June 2011. This survey was preceded by qualitative research during the period March 2010 to October 2010, which included in-depth interviews with producers and managers of the cooperative. This methods and data section is divided in three parts. First we describe our variables. Second we provide a description of the data collection procedure. Finally, we explain how we have analyzed our data.

5.4.1 Measures

Our criteria for performance both in terms of production efficiency and quality are based on commercial criteria used by the slaughterhouses.

Production efficiency performance - Producers' revenue is determined by a formula which takes into account the average weight, the survival rate, the feed conversion ratio and the age of the batch at the time of delivery. If a producer has a higher than average rate of rejection due to injuries and/or diseases, or if the feed conversion ratio is higher than the average for all producers, he will get a lower price per kilogram. When the producer's batch is discounted it means that he had a higher than average feed conversion and/or rejections. In other words, discounted batches indicate a lower than average production efficiency performance. Our indicator for production efficiency is the proportion of transactions discounted for rejection, mortality and/or high food conversion. Thus, we measure production efficiency by dividing the number of delivered batches that had discounts due to one or more of the above causes by

the total number of delivered batches. The unit of measurement here is a ratio from zero to one.

Quality performance - If the amount of feet callus from a sample is higher than the level tolerated by the slaughterhouse, producers are discounted for lower quality. Our indicator for quality performance is the proportion of transactions discounted due to chicken feet callus. The proportion is defined as the number of delivered batches that had discounts due to chicken feet callus divided by the total number of delivered batches. As with production efficiency, the measure for quality performance is a ratio from zero to one. The lower the ratio, the higher is the quality.

The relationship characteristics were measured on the basis of producers' perception, ranging from (1) totally agree to (5) totally disagree. **Required investments** – The extent to which the producer was required to make investments in order to start/continue delivering to current buyer. **Dependence** – The extent to which the producer depends on the current buyer. **Communication** – Since we wanted to capture communication frequency subjectively, we measured the extent to which the producer is regularly informed about how to improve the quality of his broilers. **Behavioral uncertainty** – We measured the producer's perception of the easiness of opportunistic behavior from the buyer, through the extent to which it is easy for the buyer to distort facts to his advantage. **Market risk reduction** - The extent to which the buyer maintains the price paid to producers even in times of crisis. **Adaptation support** - The extent to which the buyer technically supports the producer in adapting to specific quality requirements. **Past experience** - Finally, as an objective measure of relationship characteristic we measured the producers' past experience delivering to the same buyer in number of years. Prices would have been used as a control variable if we had access to this information. However, in Brazil, as in the rest of the world, prices paid by the slaughterhouses to the broiler producers are determined by the former and are not disclosed.

5.4.2 Data collection

Our study is based on a comparison between broiler producers supplying either to a cooperative or to an IOF, in the west of the state of Paraná, Brazil. The selected cooperative – Lar - is a multi-product cooperative, processing and/or marketing broiler, pork, soybeans, and vegetables. The cooperative has 6,779 members which are located in eleven different municipalities. There is no IOF slaughterhouse in any of the 11 municipalities. Still, some broiler producers within this region are delivering to an IOF, either to Sadia or to Globoaves.

Sadia is one of the largest food processors in Brazil. In 2008, it had 21 processing plants, 5,496 integrated broiler producers and 54,000 employees. In the 1950's Sadia experimentally launched the integration raising system (the slaughtering company provides the farmers with young animals and feed) which soon became essential for business growth in the broiler industry. As a result, the experiment was implemented all over Brazil, even among Sadia's competitors. Currently, the integrated raising system accounts for 90% of Brazil's broiler production (Miranda et al., 2009). Globoaves was founded in 1974, in Paraná. The company

has experienced significant growth in terms of exports. Among the top 250 exporters of Brazil in 2011 there are eight IOFs and four cooperatives that partially or fully concentrate on marketing of chicken meat. Globoaves is one of the three companies that increased their export turnover with more than 40% from 2010 to 2011. Both the IOFs and the cooperative are among the twelve largest chicken meat exporters and are subject to the same quality requirements from foreign customers.

A survey method was used to collect data on the difference between the cooperative (from here on "Coop") and the IOF in their relationship with producers. A questionnaire using a 5 point Likert scale (anchored between "Totally disagree" and "Totally Agree") items was distributed among broiler producers that are members of the Coop and broiler producers that supply to an IOF, both in the state of Paraná - Brazil. We had access to a list of IOF broiler suppliers in the west region of Paraná through the regional syndicate of farmers. In order to delineate the population of broiler producers supplying to an IOF, the producers had to be located in one of the same municipalities where the cooperative is operating, and they had to be delivering to an IOF subject to the same quality requirements as the Coop. The Paraná association of broiler processors (Sindiavipar, 2009) classifies them according to the following licenses: (1) licensed to export; (2) licensed to export to China; (3) licensed to export to the European Union; and (4) Halal slaughtering method. After selecting the proper municipalities and the IOFs with the proper licenses, the resulting list constituted the sampling frame.

There are a total 53 broiler producers located in the same municipalities where the Coop is located and supplying to one or more of the IOFs that have the same export licenses as the Coop. For practical reasons, six suppliers in a distant municipality were not surveyed. In addition, some farmers in the list had ceased to be suppliers of broilers. Eventually, the questionnaire was applied, between April and June 2011, among 42 broiler producers that supply either of the two IOFs. There are 474 broiler producers delivering to the Coop which operates in 11 municipalities of this region. From the eleven we surveyed the eight most representative locations (one town plus one district) in terms of broiler production, and a non-proportionate stratified sample was taken from each municipality (either ten or five producers). Those municipalities that had more than 10% participation in the total Coop's broiler production had ten producers surveyed, while those between five and 10% had five producers surveyed. The surveyed producers from each of the eight locations were randomly selected from a list with all broiler producers per municipality delivering to the cooperative. We surveyed 55 Coop broiler producers between December of 2010 and April of 2011. The total number of surveyed broiler producers was 97; 55 Coop suppliers and 42 IOF suppliers.

5.4.3 Data analysis

To compare means of the two groups we would have used independent t-tests if the data were normally distributed, which was not the case (all variables had significant Kolmogorov-Smirnov and Shapiro-Wilk test statistics). Therefore, we had to use nonparametric tests to

compare the conditions: being an IOF or a Coop supplier. The nonparametric equivalents to the independent t-test are the Mann-Whitney and the Wilcoxon rank-sum tests (Field, 2005: 522). The Mann-Whitney test relies on scores being ranked from lowest to highest.

The group with the highest mean rank should have a greater number of high scores within it, which is useful in order to interpret a significant result. When samples are small or the data is poorly distributed, there are more accurate methods for analyzing the significance of these tests than the asymptotic method. The most accurate is to ask SPSS for an exact test, which calculates the significance of the Kruskal-Wallis test exactly.

For each group of variables we organized the output in two parts. The first part of the output summarizes the descriptive statistics and the mean rank. The group with the highest mean rank is the group with the largest number of higher scores in it. From this we can ascertain which group had the highest scores. The second part of the output provides the actual test statistics for the Mann-Whitney test, the Wilcoxon procedure and the corresponding Z score. Since predictions have been made we need to look at the one-tailed probability.

5.5 Results

Although the mean proportion of *efficiency discounts* is higher for IOF suppliers (34% > 23%; Table 1), the Mann-Whitney test indicates that both groups of producers – IOF and cooperative - report statistically comparable (p=0.316; Table 2) proportions of efficiency discounts, that is, discounted transactions due to rejections and high feed conversion. This proportion is related directly to the production efficiency formula upon which all producers' payment is based. That is to say, the higher the food conversion and the number of rejections, the lower will be the producer's share of the total production. Therefore, producers have a strong incentive for staying as close as possible to the efficiency frontier, minimizing these direct economic loss factors, regardless whether they are Coop or IOF suppliers. Furthermore, production efficiency is likely to be highly dependent on technology applied at the broiler house. The level of technology varies among producers, which might be reflected in the high standard deviation (compared to the mean) both within the IOF and Coop group.

Table 5.1 Descriptive Statistics

Performance Variables	Mean		Std. Deviation		N		Mean Rank	
	Coop	IOF	Coop	IOF	Coop	IOF	Coop	IOF
Efficiency discounts	.23	.34	.26	.40	55	42	47.84	47.84
Quality discounts	.31	.42	.28	.26	55	42	42.96	56.90

Table 5.2 Summary of non-Parametric Tests

Performance Variables	Mann-Whitney U	Wilcoxon W	Z	Exact Sig. (1-tailed)
Efficiency discounts	1091.000	2631.000	-.482	.316
Quality discounts	823.000	2363.000	-2.433	.007

On the other hand, the proportion of *quality discounts*, i.e., transactions that had discounts due to callus, was significantly higher for IOF suppliers (p=0.07, Table 2 and Mean Rank 56.90 > 42.96, Table 1). While the mean indicates that the average proportion of quality discounts was 31% for Coop suppliers versus 42% for IOF suppliers, the value of the mean rankings indicates that IOF suppliers had the greatest number of higher scores (considering the 0-1 ratio) (Table 1). Thus, producers that deliver to the Coop have on average higher quality performance regarding the avoidance of chicken feet callus.

Table 5.3 Descriptive Statistics

Relationship Characteristics	Mean		Std. Deviation		N		Mean Rank	
	Coop	IOF	Coop	IOF	Coop	IOF	Coop	IOF
Required investment	3.74	4.83	1.231	.377	55	42	37.22	63.00
Dependence	4.18	3.67	.925	1.162	55	42	54.41	41.92
Communication frequency	4.45	4.24	.603	.932	55	42	50.62	46.88
Behaviour uncertainty	3.09	3.45	1.191	1.292	55	42	45.33	53.81
Market risk reduction	4.05	3.00	1.079	1.325	55	42	58.13	37.05
Adaptation support	3.89	3.64	1.133	1.055	55	42	52.45	44.49
Past experience	8.47	14.88	2.93	9.16	55	42	41.80	58.43

Table 5.4 Non Parametric Tests

Relationship Characteristics	Mann-Whitney U	Wilcoxon W	Z	Exact Sig. (1-tailed)
Required investment	525.000	2010.000	-5.016	.000
Dependence	857.500	1760.500	-2.320	.010
Communication frequency	1066.000	1969.000	-.725	.228
Behavioural uncertainty	953.000	2493.000	-1.521	.065
Market risk reduction	653.000	1556.000	-3.833	.000
Adaptation support	965.500	1868.500	-1.482	.071
Past experience	759.000	2299.000	-2.903	.002

We found that Coop suppliers on average (mean higher than 3) agree that they were required to make investments in order to sell to their current buyer. Nevertheless, IOF suppliers perceive a significantly higher (p=0.00, Table 4 and Mean Rank 63.00> 37.22, Table 3) degree of *investment requirements* at the farm level than Coop suppliers do. It is important to note that the standard deviation within the Coop group was almost 4 times higher than in the IOF group (Std. Deviation 1.231 > 0.377, Table 3). This shows heterogeneity among Coop producers, which could mean that some producers might have made the required investments while others have not.

Our results show that the supplier's perceived *dependence* on the buyer is significantly higher for Coop suppliers than for IOF suppliers (p=0.01, Table 4 and Mean Rank 54.41 > 41.92, Table 3). *Communication frequency* did not show statistically significant differences between the two groups of suppliers, but *behavioral uncertainty* did. IOF suppliers had a significantly higher score on the uncertainty of buyer's behavior variable, the one regarding suppliers' perception of the easiness of buyers distorting facts to their own advantage (p=0.065, Table 4 and Mean Rank 53.81 > 45.33, Table 3).

Market risk reduction showed to be significantly higher for Coop suppliers (p=0.00, Table 4 and Mean Rank 58.13 > 37.05, Table 3). *Adaptation support* also showed to be significantly higher for Coop suppliers (p=0.71, Table 4 and Mean Rank 52.45 > 44.49, Table 3). Finally, *past experience* showed to be higher for IOF suppliers. IOF suppliers have been delivering to the same buyer for a longer period than Coop suppliers (14 years versus 8 years, on average).

Table 5.5 Summary of Results

Hypothesis	Support?	Significance
H1. The degree of investment required is likely to be higher for IOF suppliers than for cooperative suppliers.	YES	***
H2. Buyer dependence is likely to be higher for producers supplying to a cooperative than for suppliers of an IOF.	YES	**
H3. Communication on quality improvement is likely to be more frequent in supplier-cooperative relationships than in supplier-IOF relationships.	NO	---
H4. Uncertainty regarding buyer's behaviour is likely to be lower for cooperative suppliers than for IOF suppliers.	YES	*
H5. A cooperative is likely to reduce market risk for producers more than an IOF.	YES	***
H6. Suppliers delivering to a cooperative are likely to receive more technical support from their buyer for adapting to new quality requirements than IOF suppliers.	YES	*

*Significant at a 10% level, ** significant at a 5% level, *** significant at a 1% level.

5.6 Discussion

The results for each of the hypotheses are presented in Table 5. We will now discuss each of these results, including possible explanations for the findings that did not support what was expected on the basis of theory or previous empirical research.

Required Investment

When quality improvements require investments in broiler production processes one would expect that farmers who did invest more would have a higher quality performance. Our results showed exactly the opposite. Those who had a higher degree of investments required (IOF suppliers) had a lower quality performance, that is, a higher rate of discounts due to feet callus (*pododermatitis*). Although on-farm quality management is not explicitly looked into in this chapter, from our results we can interpret that quality is more dependent on management than on facilities and equipment. In fact, it is known from poultry production literature that the single largest factor influencing foot callus is wet or damp bedding and that the key approach to minimizing the animal welfare problems associated with foot callus is through high levels of bedding management, for instance, by keeping the bedding dry and regularly checking whether the drinkers are working properly.

IOF suppliers showed a higher level of required investments, but cooperative suppliers were more heterogeneous in the required investments (standard deviation 4 times higher than within IOF suppliers). While some cooperative producers have made on-farm investments specific for the buyer of their broilers, others have not. Although the quality control system in the cooperative seeks to standardize the measurement, the absence of specific technology in the broiler houses is more tolerated by the cooperative than by the IOF. Therefore, the higher degree of required investments for IOF suppliers and the higher heterogeneity among cooperative suppliers can be interpreted as a higher level of tolerance by the cooperative. By tolerating different levels of investment at the farm level, the cooperative's quality control is likely to be influenced by the relationship between farmers and the cooperative, such as the farmers' ties with technical assistants, quality managers and production managers.

Dependence

The fact that cooperative members jointly own assets at the processing stage of the supply chain creates interdependence between the parties of this transaction, which is reflected in relational contract agreements with no termination date. IOF suppliers, in contrast, have contract only for two years. Farmers owning assets at the processing stage have higher switching costs, hence higher dependence, than farmers delivering to an IOF. Farmers that value the quality of services and market risk reduction are probably more dependent because these services and guarantees would probably not be available outside the cooperative. Heide and John (1988) already found that in case of high dependence the threat of switching to another buyer to induce-non-opportunistic behavior is not that credible for the supplier. In the case of a cooperative, the mutual dependence is more balanced. Not only the member is

dependent on the cooperative buyer, also the cooperative depends on member patronage and loyalty.

Communication

The IOFs and the cooperative are communicating information on quality improvements with the same frequency, contrary to what we expected. Although communication is a powerful coordination mechanism, when shared knowledge already exists, communication becomes less necessary. The theoretically superior knowledge transfer properties of a cooperative when compared to an IOF are conceptually not inconsistent with the equal levels of information sharing (in terms of frequency) to coordinate quality improvement. If cooperatives, because they are also social communities, possess unique advantages in creating and maintaining a shared cognitive framework (Kogut and Zander, 1996), this common ground may eliminate the need for information flows in coordinating specialized activities (Gulati and Puranam, 2011).

Behavioral uncertainty

The hypothesis that uncertainty regarding buyer's behavior is lower for members of the cooperative than for suppliers to the IOF was corroborated. Cooperative suppliers do not perceive that it is easy for their buyer to distort facts. This result can be explained in terms of trust and lower information asymmetry (Sykuta and Cook, 2001). Cooperatives can improve transparency by providing information that would otherwise be unavailable or insufficient. Cooperative suppliers may trust the intentions of the buyer more than IOF suppliers do and are probably more aware of the relevant information that guide the cooperative's strategic and operational decision making. Cooperative suppliers perceive themselves as more dependent than IOF suppliers, thus trust in the exchange partner is crucial for them. Trust, or the lower behavioral uncertainty that results from it, may be mitigating producers' shirking on quality.

Market Risk reduction

As expected, the cooperative reduces market risk for producers more than the IOF does, by maintaining prices even in times of crisis, that is, when market prices for chicken meat fluctuate substantially. One possible link between market risk reduction and quality performance is that by feeling relatively safe in terms of market risks, producers can commit more to quality improvements such as avoiding feet callus. IOF suppliers, who have to bear more market risk, will be putting more effort in maximizing output even at the expense of animal welfare, since they never know if prices will suddenly be reduced.

Adaptation support

The results showed that cooperative suppliers are receiving more technical support from their buyer in order to adapt to specific quality requirements. The technical support cooperatives give to their members in terms of adapting to a specific quality requirement through its

decentralized committee meetings may counterbalance adverse selection, a traditional problem in agricultural cooperatives. A cooperative may have a strict quality control and may even exclude members from the business branch if the member performs badly. However, what seems to be important here is that although starting with greater heterogeneity in terms of producers' capacity to produce high-quality products, the cooperative may allocate resources in providing training to the lower quality producers so as to raise quality to a higher and more uniform level.

5.7 Conclusion

What could explain the delivery of higher quality by cooperative suppliers when compared to suppliers to an IOF? In seeking an answer to this question, we focused on a number of seller-buyer relationship characteristics. By using this focus our study is mainly explorative, without aiming to provide final answers on what explains differences in quality. As the literature on this issue is rather thin, and theories point into different directions, we did not seek to establish causality between governance structure or relationship characteristics and quality performance.

Still, our results show that there are some important differences regarding relationship characteristics that could account for this higher performance. Despite the investment requirements being lower for cooperative than for IOF suppliers, cooperative farmers' production practices are resulting in a higher rate of compliance and higher average quality. Relationship characteristics which result in producers' higher commitment and competence explain the advantage of the cooperative over the IOF in terms of quality performance. Dependence on current buyer, which is higher for cooperative members, uncertainty regarding buyer's behavior, which is lower for cooperative members, and market risk reduction by the buyer, which is higher for cooperative members, can help explain the higher rate of compliance to the "feet callus" quality standard. These three features of the supplier-cooperative relationship are likely to prevent suppliers from shirking behavior and to induce commitment. Moreover, cooperative suppliers receive more technical support from their buyer for adapting to new quality requirements than IOF suppliers do; this is likely to positively affect farmers' competence in complying with quality standards.

On the basis of the discussion of our results we suggest a research agenda on issues that have received little attention in studies on agricultural cooperatives. First, it is worth studying the multiple causes of suppliers' dependence on their buyer and the potential benefit for the supplier, with a special emphasis on comparing whether the causes are different between cooperative and IOF. Contrary to what is argued in TCE, dependence does not have to lead to a hold-up situation where part of the value can be appropriated by one of the parties. Asymmetric dependence arising from asset specificity is different from the mutual dependence associated with higher exchange performance (Heide and John, 1988), particularly if the buyer provides specific services like technical support, market risk reduction, and guaranteed market access. That is, dependence may be due to "negative"

factors as lack of alternatives but also to "positive" factors as good services and ownership of assets at the downstream level of the supply chain. Dependence *per se* does not lead to commitment, especially if the only cause is a "negative" one. However, when the suppliers own the assets of the processing firm, as in a cooperative, and benefit from the provision of services by that processing firm, the balanced mutual dependence has a positive impact coordination and thereby on quality performance.

A second future research topic is the potential advantage of agricultural cooperatives over IOFs in delivering credence quality attributes. Credence attributes are those for which even the consumption does not bring information on the real quality. They include diverse issues like animal welfare and environmental concerns, but also food safety issues like the use of antibiotics and hormones. The agency problem with credence attributes is that the supplier has an information advantage and may gain from withholding this information. According to Barzel (2000), when attributes are non-observable or costly to measure the transaction will be efficiently governed internally by a firm or by a long term buyer-seller relationship where relational norms play an important role. It is worth investigating whether the member-cooperative relationship characteristics are able to mitigate agency problems related to information asymmetry in the production of credence quality attributes in the agrifood sector.

Finally, much has been said about the weaknesses of cooperatives in terms of producing higher quality products (Hanf and Kühl, 2005; Hanf 2009). One of these weaknesses relate the adverse selection problem resulting in reduced product quality and/or the exit of the high-quality producers from the cooperative (Hendrikse and Bijman, 2002). However, cooperative mechanisms for supporting the adaptation of members to specific quality requirements need to be understood better, especially as they can counterbalance the adverse selection problem. What seems to be an important future research topic is the cooperative's choice to allocate resources to training the lower quality producers in order to raise product quality to a higher level. That is, despite starting with larger heterogeneity in terms of producers' capacity to produce high-quality products, cooperatives may achieve high quality products through superior coordination and adaptation support.

6. DISCUSSION AND CONCLUSIONS

This last chapter of the thesis discusses the overall findings and their implications for management and policy and provides suggestions for further research. In **Section 6.1** the empirical basis of the thesis is discussed. The overall conclusions are presented in **Section 6.2** in order to assess the added value of putting the different research topics together. To do so, the research problem that forms the basis of this thesis is addressed. **Section 6.3** presents the theoretical contributions of this thesis. **Section 6.4** discusses some limitations of the approach taken by this thesis. Management and policy implications are presented in **Section 6.5**. Finally, **Section 6.6** suggests a number of topics for further research.

6.1 Empirical basis

The empirical base of this thesis was a survey among members of one cooperative, Lar. This cooperative has 6,779 members distributed among eleven towns in the west of the state of Parana, Brazil. Most of them are soybean producers. About half of the membership has at least one extra activity[11] besides grain agriculture (particularly soybeans), such as swine, broilers, vegetables, cassava, or milk. The most important business activities within the cooperative in terms of turnover share are soybeans (24%) and broiler (19%), (Lar, 2011). In the broiler, vegetables and soy businesses, Lar operates in all stages of the supply chain, coordinating production and selling of inputs, crop and animal production at the farm level, processing and distribution in wholesale and retail. Therefore, the sampling strategy was, first, to include members that are involved in these three businesses.

There were 474 broiler producers and 40 vegetable producers spread among these eleven towns (Lar, 2008). The decision was to survey the most representative towns in terms of membership, but simultaneously in terms of broiler and vegetable production. Seven towns (out of the eleven) plus a district of one of them were chosen. A non-proportional stratification (Kumar, 2005) of soy and broiler producers was done for each of the seven towns (eight locations). From a list with all broiler and soy producers per municipality delivering to the cooperative, either five or ten of broiler producers, and either five or ten of soy producers were randomly selected (Kumar, 2005) from each of the eight locations. Regarding the vegetable producers, the strategy was to sample them all, since they were few, but especially because they are relatively more diversified in productive activities. This would ensure that the sample had a considerable number of diversified members.

Based on this sampling strategy, the final number of surveyed members was of 148 producers. From the sample, 47 members (31.7%) were specialized soy producers, 58 (39.2%) were broiler producers and 27 members (18.2%) were vegetable producers. Broiler and vegetable producers were not necessarily specialized. Instead, some also produced cassava, swine and/or milk. The remaining 16 members were non-specialized soy producer (besides soy, one

[11] Activity is different from crop. The Cooperative considers the following as different activities (with these exact names): broiler, swine, cassava, milk, vegetables (carrots, broccoli, cauliflower, sweet corn) and agriculture (soybeans, wheat and maize).

or more of the following activities: swine, milk or cassava). Approximately half of the sample were diversified producers (more than one farm production activity), which reflects the proportion within the total membership population (Marschall, 2009). In terms of farm size, the average in the sample was larger than that of the population (36 > 22), however the range of size was rather similar, where the minimum farm size was two hectares, the maximum size was 580 hectares, and the standard deviation was of 66 hectares in the sample[12]. The sample can, nonetheless, be said to be representative of the population of members. It is difficult to sample such a diversified cooperative, in which some members are specialized in one product, some are specialized in other products, and most members are diversified at the farm level. Moreover, among those who are diversified, there are many possible combinations of productive activities. The choice in this thesis was to filter this complex population of members and businesses based on whether the cooperative operated in all stages of the supply chain. Even if the particular agreements with members were different when comparing soy, vegetable and broiler, the "institutional structure of production" (Coase, 1992) was very much alike.

6.2 Conclusions

To properly assess the added value of this collection of chapters, the research problem which forms the basis of this thesis must be addressed. The problem, as stated in the **Introduction** of this thesis, is: In the face of stricter quality requirements and stronger interdependencies in the food value chain, what are the governance mechanisms that can be used by the cooperative to strengthen the member-cooperative relationship, and what are the implications of the different governance mechanisms for the coordination of members' adjustments to higher quality levels?

In the face of the quality requirements from downstream customers, the cooperative has the potential to adjust to higher quality levels more efficiently than Investor-Owned Firms (IOF's) because of its direct relationship with its suppliers (Chapter 5). The enhancement of commitment to customer orientation is likely to play an important role in the member's willingness to adjust to higher quality standards. Democracy and community turned out not to be relevant in explaining this type of commitment whereas market and hierarchy were. On the one hand, this means that in face of strict quality requirements cooperatives need to strengthen monetary incentives related to quality, productivity and effort, as well as strengthen input control and on-farm monitoring to assure members' compliance. On the other hand, democracy and community do have an important role in enhancing commitment to collective action which is a *sine qua non* condition for the viability of the cooperative (Chapter 3). Therefore, the overall conclusion is that all four mechanisms are needed by cooperatives in face of vertical coordination in the food value chain.

[12] Regarding the population of members, 19.0% have up to 10 hectares, 31% have between 11 and 20 hectares, those 19% have between 21 and 30 hectares, 16% have between 31 to 60 hectares, 5% have between 61 and 100 hectares, 8% have between 101 and 500 hectares, and 2% have more than 500.

The thesis emphasized the role of the often neglected governance mechanisms democracy and community in motivating and coordinating members' production and marketing decisions. Moreover, besides the role of social mechanisms in enhancing commitment to collective action, there seems to be a role of social mechanisms in enhancing members' control of their cooperative (Chapter 4). Members who participate in boards or committees are not actuated to participate by the same economic motivations that drive their association to the cooperative. Cooperative ideology, in turn, appears to be an important motivation for them to actively participate.

6.3 Theoretical contributions

The main contributions this thesis provides to organizational economic theories on cooperatives concern the relationship between members and cooperative, and the governance of this relationship. The point of departure for the approach to the relationship between members and cooperative organization has been that of Dunn (1988), who divided this relationship into three dimensions: ownership (or financing), control (or decision-making), and use (or transaction). This has been used to differentiate cooperatives from investor-owned firms (IOFs) since members of cooperatives are simultaneously users, owners and decision-makers of the organization. Feng and Hendrikse (2008) differentiate agricultural cooperatives from IOFs by the attribute that the cooperative owners are also its input suppliers. According to Feng and Hendrikse (2008: 16), "this transaction attribute is one of the fundamental elements distinguishing a cooperative from an IOF".

On the one hand, this thesis is in line with Feng and Hendrikse (2008) in approaching the parties involved in an agricultural cooperative (members and downstream enterprise) as "legally distinct entities". That is, the member-cooperative relationship is a form of inter-organizational relationship. On the other hand, this thesis does not consider the relationship to be as loose as posed by Feng and Hendrikse (2008: 16), when they say that the relationship between members and cooperative is even looser than that between franchisor and franchise, since "in cooperatives only the products of the downstream cooperative use the brand name, while the products of the member farms do not". While this looseness might be true in terms of the economic transaction, it is probably not in terms of social ties.

The bulk of research about agricultural cooperatives is based on economic (organisation) theory. An influential theoretical framework for better understanding the nature of cooperatives is built upon Transaction Costs Economics (TCE), (Ménard, 2007). TCE's characterization of a cooperative as a 'hybrid' governance structure (Ménard, 2007) conceals the coexistent governance mechanisms within the cooperative (Chaddad, 2012). Moreover, this perspective is limited because it does not go beyond the traditional notion of the discrete organizational form and does not acknowledge the complementarity between formal and informal governance (Lazzarini et al., 2004), coordination and motivation (Kogut and Zander, 1996) and the intrinsic importance of democratic voice (Fenwick, 2005).

The first and main scientific contribution of this thesis is the use of the 'chemistry of organizations' framework proposed by Grandori and Furnari (2008) in seeking a better understanding of the governance of the member-cooperative relationship (Chapter 2 and 3). By adopting that framework the thesis addressed in an integrated way the role of social capital (Ostrom, 1999) and community governance (Bowles and Gintis, 2002; Hayami, 2009) in facilitating collective action, and the role of relational contracts (Poppo and Zenger, 2002; Lazzarini, Miller and Zenger, 2004) in assuring commitment from parties in a transaction. Furthermore, with that framework, the thesis addressed the cognitive role of governance mechanisms, such as knowledge exchange (Conner and Prahalad, 1996; Grant, 1996) and competence enhancing (Nooteboom, 2004).

It is true that other organizational forms also use the four mechanisms proposed by Grandori and Furnari (2008) which are market, hierarchy, community and democracy. However, agricultural cooperatives most likely present an advantage over other inter-firm arrangements (Davis and Bialoskorski, 2010) regarding the role of democracy and community mechanisms in facilitating both 'cooperation and coordination' (Gulati et al., 2012).

Cooperation can be facilitated in cooperative by enhancing member commitment as it has already been posed in the literature (Fulton, 1995; Nilsson et al., 2012). The contribution of this thesis to the theory on member commitment in cooperatives is the disentangling of two dimensions (Chapter 2 and 3). This thesis found that member commitment in agricultural cooperatives can be disentangled conceptually and empirically into two types: commitment to collective action and commitment to customer orientation. Commitment to collective action is related to Fulton's (1995) definition: the willingness to patronize a cooperative even when the cooperative's price or service is not as good as that provided by an IOF. It is an attitude that precedes loyal behaviour; it is the making of a sacrifice or an effort in the name of the relationship and the success of the organization. Commitment to customer orientation, in turn, is the willingness to give up a part of the autonomy at the farm level for the sake of the cooperative's compliance with the requirements from downstream customers. It is a positive attitude of members towards the re-orientation of the cooperative and is related to Borgen's (2001) view on commitment.

When it comes to decision-making problems and influence costs, most conceptualizations derive from Agency Theory, which makes assumptions that people are fully rational, behave according to stable risk preferences (Jensen and Meckling, 1976), are motivated solely by concern for their expected money incomes at subordinate levels, that the organization's goal is to maximize profits and that within organizations there is goal conflict among members (Milgrom and Roberts, 1988). These assumptions are the basis of the argument that membership heterogeneity can lead to inefficient results. An alternative theory of corporate governance is Stewardship theory, which departs from different assumptions (Davis et al., 1997; Muth and Donaldson, 1998). If applied to cooperative governance, members who occupy representative and managing functions might have a pro-social behavior or act as stewards of the cooperative community instead of pursuing their own private benefits. The

contribution of this thesis is to question (empirically) the assumptions from Agency Theory, presenting a different perspective on membership heterogeneity. Heterogeneity might not be a source of inefficiency in decision-making if the organizational goal is precisely to satisfy diverse members' interests, and if members who occupy representative and managing functions are genuinely seeking to further organizational goals rather than to follow private motives (Chapter 4).

On a general level, this thesis makes a contribution to the literature on the implications of the organization of the food value chain for food quality, by presenting a different perspective on heterogeneity as a source of overall low product quality in cooperatives and contributing to the theory of adverse selection applied to cooperatives. The literature on the implications of the cooperative structure for quality management (Hanf and Kühl, 2005; Mérel et al., 2009) emphasizes that cooperatives often fail to adequately reward the highest quality producers, often causing the reductions in product quality and/or the exit of the high-quality producers from the cooperative. However, this thesis found that despite starting with larger heterogeneity in terms of producers' capacity to produce high-quality products, cooperatives may achieve high quality products through superior coordination and adaptation support (Chapter 5).

The cooperative's potential superior coordination lies in the relationship characteristics which eventually result in producers' higher commitment and competence. In fact, as established in the literature, repeated bilateral transactions have as important consequence the development of trust and increased knowledge about the partners' reliability and competences (Granovetter, 1985; Uzzi, 1997; Lazzarini et al., 2004; Sporleder and Wu, 2006). The findings of this thesis are also in line with other empirical studies outside the domain of cooperatives that found that quality performance may be influenced by relationship characteristics, through their effect on transaction costs (Lu et al., 2009; Coronado et al., 2010).

6.4 Limitations

Since it is a case study of one cooperative in Brazil, there are important limitations when it comes to generalizing the conclusions. The degree to which the conclusions of this thesis would hold for cooperatives in other countries with a different cultural and socioeconomic background, is hard to assess. Farmers embedded in different cultures are likely to have different motivations and perceptions. Moreover, socioeconomic factors or even climate and geographical factors might influence the farmers' economic vulnerability and thereby commitment. We assume that our conclusions can be extended to similar cooperatives (i.e., large, multiproduct cooperatives), in similar socio-economic and cultural conditions. Thus, other cooperatives in the South of Brazil, but also cooperatives in other Latin American countries and in Southern Europe, may experience the same issues regarding member commitment (Chapter 3) and participation (Chapter 4). There are at least two groups of agricultural cooperative that are quite distinct from the cooperative investigated in this case study, and for which our results may not apply. The first group consists of the cooperatives

from North America, North-West Europe and Oceania, who commonly apply the governance model of complete separation between decision control and decision management (Chaddad and Iliopoulos, 2013). In these cooperatives, management of the cooperative firm has been delegated to professionals who are then controlled by the Board of Directors. However, in Brazil as well as in most Southern European countries, cooperatives usually have the CEO function exercised by the president of Board. The second group consists of the cooperatives in the North of Brazil, but also in Africa and many other parts of the world, where very few farmers have the capabilities to pro-actively participate in the cooperative, and cooperatives often receive substantial outside support. In this group, commitment could be a necessity rather than an option, due to the extreme economic vulnerability of individual farmers coupled with very restrict options for accessing markets.

Regarding the internal validity of our findings, causal relations between the variables in this thesis are not fully demonstrated since the 'cause' does not precede the 'effect' in time. That is, this thesis could not observe and measure temporal precedence since it relies on a cross sectional survey. Two out of three empirical studies in this thesis found significant correlations between variables that were considered 'cause' and 'effect'. However, there might be alternative explanations for the observed correlations. It is, therefore, worthwhile mentioning that other phenomena might help to explain the findings, even if they were not considered in this thesis. The dynamics of the cooperative's economic success is likely to affect members' commitment, that is, their willingness to sacrifice short-term economic gains for the sake of the relationship (Chapter 3). Members' attitude towards the cooperative most likely varies in time and with the ability of the cooperative to generate and distribute surplus as patronage refunds. A similar causality is likely to happen with members' participation in the General Assembly and in Boards and Committees (Chapter 4). The dynamics of the cooperative's economic success is likely to affect member participation in the decision-making. Furthermore, this relationship is likely to be negative; that is, if the cooperative's economic results were bad in the previous period, the members are more likely to want to actively participate in the decision making. The alignment or divergence of business interests between farmer and cooperative firm is also likely to be important in explaining participation behavior. Finally, unobserved technological differences between Cooperative and IOF suppliers might explain some of the difference in quality performance (Chapter 5).

In sum, there are some limitations to the external validity of this thesis, and the conclusions based on correlations result in a lower degree of internal validity than if the conclusions were drawn on the basis of direct manipulation of the independent variables. On the one hand, it is likely that experiments as those used by behavioural economics would lead to a higher degree of internal validity, particularly in explaining participation behaviour and commitment. On the other hand the approach taken by this thesis presents a new way of relating and operationalizing concepts like governance mechanism, commitment and participation.

6.5 Management and policy implications

Even if the management and policy relevance of the findings were not tested, at least three issues related to broader societal debates arise from this thesis.

First, rewarding farmers appropriately and controlling and monitoring delivery and production processes are important for enhancing commitment both to collective action and to customer orientation. Giving "voice" and building a social community for members and their families are important for enhancing commitment to collective action, since these mechanisms are likely to prevent members' free-riding and selling "outside". The implication for managers of cooperatives is that to successfully engage in vertical coordination in food value chains, it is advised to combine at least the following governance mechanisms: hierarchy control, market incentives, community involvement, communication and democratic voice.

Second, cooperatives can participate in high-quality value chains and be as efficient and effective as other organizational arrangements in the agri-food sector. More importantly, cooperatives might even have an advantage in the production and marketing of goods with credence attributes, such as animal welfare, organic and fair trade. Therefore, policies aiming to promote sustainable food production may target cooperatives, as this organisational form is more effective in lowering the risks associated with farmer' opportunistic behavior.

Third, the findings might imply the inclusion of the intangible social assets in any performance analysis of collective action organizations. The seven principles of cooperative identity, developed by the International Cooperative Alliance (ICA) - voluntary and open membership; democratic member control; member economic participation; autonomy and independence; education, training and information sharing; cooperation among cooperatives; and concern for community – might serve as guidelines for other performance criteria. Member participation, commitment, satisfaction with leadership and with the cooperative's strategy are just a few examples of what could be additional performance criteria besides reported profits, which taken alone could be misleading. An important implication for cooperative managers and rural development policy-makers relates to the fact that the cooperative's objectives are beyond the economic viability of the collective enterprise, since they include its ability in promoting the sustainable development of the communities in a particular territory (Birchall and Ketilson, 2009). Therefore, the intangible social assets should be assessed in order to evaluate the performance of the cooperative, and thereby to compare cooperatives with investor-owned firms and among cooperatives themselves.

6.6 Recommendations for further research

An approach to the governance of the member-cooperative relationship which looks at the four mechanisms and their effect on commitment and cognition opens at least three veins for further research. First, future research might focus on the evolution of the relative importance of each mechanism. How does the mix of governance mechanisms evolve to adapt to changing market circumstances? How does the evolving mix of governance mechanisms affect commitment and

cognition through time? This thesis did not address the interaction among governance mechanisms, and the effect of their interplay on members' adjustment to higher quality levels. This can only be done if (i) a score is given to the strength of each mechanism used within the cooperative, and (ii) a comparison between cooperatives is made, so that the effect of particular combinations can be assessed.

Second, an underexplored topic in general, and particularly in cooperative studies, is *crowding effects*. Cooperative members' compliance with an agreement regarding a specific transaction has to be managed in a way that the required commitment is not crowded out. If commitment, understood as an attitude, is open to management (Osterloh and Frey, 2000) as motivation is, it might be crowded in or out (Frey, 1997), depending on the mix of governance mechanisms and how members perceive each mechanism. More control and incentives do not necessarily align interests and make individuals respond with more motivation to cooperative and less motivation to free ride, shirk or breach a contract. They might even have the opposite effect if they crowd-out intrinsic motivation (Frey and Jegen, 2001). For further empirical studies, we suggest the dynamics of the interaction between governance mechanisms and the non-linear effects of these interactions on commitment.

Third, the role of governance mechanisms used by the cooperative in promoting innovation and learning of individual farmers and of the collective enterprise deserves more attention. What is the effect of the four governance mechanisms – market, hierarchy, community and democracy - on innovation performance? This is an important direction for future empirical research on cooperative innovation and collective entrepreneurship (Cook and Plunkett, 2006; Bijman and Doorneweert, 2010).

The ability of the cooperative to support the adaptation of members to specific quality requirements deserves more attention. What needs to be better understood is the cooperative's choice to allocate resources to provide training to the lower quality producers in order to raise product quality to a higher level. This fourth recommendation for further research is important since the cooperative's potentially superior coordination and adaptation support might counterbalance the "adverse selection" problem, which would otherwise lead to reductions in product quality and/or the exit of the high-quality producers (Mérel et al., 2009).

Finally, a fifth future research topic is the potential advantage of agricultural cooperatives over IOFs in delivering credence quality attributes. Credence attributes are those for which even the consumption does not bring information on the real quality. It is worth investigating whether there are characteristics of the member-cooperative relationship characteristics which are able to mitigate agency problems related to information asymmetry in the transaction of credence quality attributes in the agri-food sector.

As a more general suggestion, future studies in cooperatives could benefit from opening the black box of the governance structure and borrowing more from economic sociology, social psychology and organization theory, as does the literature on inter-firm networks (Gulati and Singh 1998; Gulati et al., 2005; Gulati and Puranam, 2011; Gulati et al., 2012; Grandori,

1997; Grandori and Soda, 1995; Grandori and Furnari, 2008; Nooteboom, 2000; Nooteboom, 2004; Nooteboom et al., 2007).

Summary

Recent events in the agri-food sector increased the demand for quality attributes, from healthy and safe products to sustainable agricultural practices (Grunert, 2005). Particularly challenging is the connectedness of transactions between farmers, traders, processors, retailers and final customers in order to comply with quality requirements, which implies a need for value chain coordination. Combined with increased consumer demand for variety and convenience, these changes in sector have led to stronger sequential interdependencies, in which the output of one part is the input for another part. The increasing connectedness between transactions demands more vertical coordination. A major challenge for the agricultural cooperative is to combine horizontal coordination among the members with vertical coordination in the value chain (Bijman 2009; Hanf, 2009). Since they are member-oriented, agricultural cooperatives traditionally buy the farm products of its members regardless of its quality. Increasingly, however, cooperatives need to guarantee product quality towards their customers, and thus assure that members supply products of the right quality.

The objective of this thesis is to disentangle the governance mechanisms that can be used by the cooperative to strengthen the member-cooperative relationship, and to assess the impact of the different governance mechanisms on the coordination of members' adjustments to higher quality levels. The attempt to organize the participating farmers and firms along the food value chain generates transactional risks and coordination costs in the relationship between agricultural cooperative and farmer-member. This leads to the first research question of this thesis.

R.Q. (1): What are the mechanisms for governing the member-cooperative relationship, and how do they affect transactional risks and coordination costs?

This thesis (Chapter 2) poses that four governance mechanisms - market, hierarchy, community and democracy affect coordination costs and transactional risks through their effect on member commitment and cognitive heterogeneity. It is important that members of an agricultural cooperative are committed to customer orientation; otherwise the involved transactional risks would make vertical coordination more costly. It is necessary to disentangle two types of commitment: to collective action and to customer orientation. Member commitment to collective action prevents side selling, in particular, and free-riding behaviour in general. This leads to the second research question of this thesis.

R.Q. (2): How do the four governance mechanisms - market, hierarchy, community and democracy - affect both types of commitment?

One of the conclusions stemming from this thesis was that, on the one hand, a cooperative may assure members' compliance in a less costly way if market incentives related to quality, productivity and effort are strengthened, as well as (hierarchy) input control and on-farm monitoring, since these mechanisms are positively related to commitment to customer

orientation. On the other hand, democracy and community mechanisms do have an important role in enhancing commitment to collective action which is a *sine qua non* condition for the viability of the cooperative (Chapter 3).

A large multi-product cooperative in which different activities of the cooperative cater to different groups of members, as the case that was chosen as the empirical basis of this thesis, may face problems related to membership heterogeneity (Hansmann, 1996; Fulton and Giannakas, 2001). The basic assumption in most of the literature on the impact of member heterogeneity on the process and outcomes of decision-making is that farmers pursue individual or subgroup interests when participating in the decision-making of the cooperative. If members primarily pursue individual economic interests, there might be a relationship between the economic reasons for becoming a member (and maintaining membership) and the motivation to participate in the governance of the cooperative. This leads to the third research question of this thesis.

R.Q. (3): How do economic motivations for association affect members' participation in the governance of a cooperative?

The conclusion of this thesis, regarding this research question, was that besides the role of social mechanisms in enhancing commitment to collective action, there seems to be a role of social mechanisms in enhancing members' control of their cooperative. Members who participate in boards or committees are not actuated to participate by the same economic motivations that drive their association to the cooperative. Cooperative ideology, in turn, appears to be an important motivation for them to actively participate (Chapter 4).

The ability of cooperatives to adapt to a rapidly changing environment characterized by technological change and industrialization of agriculture has been questioned Fulton (1995). The organizational structure of the cooperative is said to have negative implications for its quality management (Mérel et al., 2009). On the one hand, cooperatives may be mimicking Investor-Owned Firms (IOFs) in applying more hierarchical mechanisms which enable them to define and effectively apply quality norms for their supply, control the quality of delivered products and monitor members' production processes. On the other hand, cooperatives have unique organizational characteristics that could provide them with competitive advantage, such as the tight relationship between members and cooperative, which may enable less costly coordination of the transaction (Sykuta and Cook, 2001). This leads to the fourth and last research question of this thesis.

R.Q. (4): What are the differences in quality performance between a cooperative and an IOF, and can these differences be explained by relationship characteristics?

In the Brazilian broiler industry, suppliers delivering to a cooperative are performing better in terms of quality than suppliers delivering to an IOF. Cooperative and IOF have the same incentive and control mechanisms for production efficiency and high-quality chicken meat. The cooperative's advantage over the IOF in terms of suppliers' quality performance could be

influenced by the characteristics of the supplier-buyer relationship. This thesis shows (Chapter 5) that there are some important differences regarding relationship characteristics that could account for this higher performance. Dependence on current buyer, which is higher for cooperative members, uncertainty regarding buyer's behavior, which is lower for cooperative members, and market risk reduction by the buyer, which is higher for cooperative members, can help explain the higher rate of compliance to the "feet callus" quality standard. These three features of the supplier-cooperative relationship are likely to prevent suppliers from shirking behavior and to induce commitment. Moreover, cooperative suppliers receive more technical support from their buyer for adapting to new quality requirements than IOF suppliers do; this is likely to positively affect farmers' competence in complying with quality standards.

The main methodological approach of this thesis is quantitative. Qualitative data were collected through semi-structured interviews with professional managers of the industrial division, directors and farmers in order to guide the design of the questionnaire. The data that is analyzed in this thesis were collected by using a survey questionnaire applied among 148 farmers, all members of the same multi-product cooperative in Brazil, and 42 broiler suppliers of two major buyers in the same region.

This thesis makes several theoretical contributions, which can be listed as follows:

(1) Member commitment in agricultural cooperatives can be disentangled conceptually and empirically into two types. Commitment to collective action is related to Fulton's (1995) definition: the willingness to patronize a cooperative even when the cooperative's price or service is not as good as that provided by an IOF. It is an attitude that precedes loyal behaviour; it is the making of a sacrifice or an effort in the name of the relationship and the success of the organization. Commitment to customer orientation, in turn, is the willingness to give up a part of the autonomy at the farm level for the sake of the cooperative's compliance with the requirements from downstream customers. It is a positive attitude of members towards the re-orientation of the cooperative and is related to Borgen's (2001) view on commitment.

(2) Membership heterogeneity might not be a source of inefficiency in decision-making if the organizational goal is precisely to satisfy diverse members' interests, and if members who occupy representative and managing functions are genuinely seeking to further organizational goals rather than to follow private motives. Most conceptualizations of decision-making problems and influence costs derive from organizational economics, where agency theory has been quite influential. The findings of this thesis (Chapter 4) suggest that assumptions from agency theory, which are often adopted by cooperative studies, could better be treated as an empirical matter.

(3) This thesis presents a different perspective on the comparative advantage of the cooperative in producing food products with higher quality attributes. The literature on the implications of the cooperative structure for quality management (Mérel et al., 2009)

emphasizes that cooperatives often fail to adequately reward the highest quality producers, often causing the problem of "adverse selection". However, despite starting with larger heterogeneity in terms of producers' capacity to produce high-quality products, cooperatives may achieve high quality products through superior coordination and adaptation support. The findings of this thesis are in line with other empirical studies outside the domain of cooperatives that found that quality performance may be influenced by relationship characteristics, through their effect on transaction costs (Lu et al., 2009; Coronado et al., 2010).

(4) Overall, the main scientific contribution of this thesis is the use of the 'chemistry of organizations' framework proposed by Grandori and Furnari (2008) in seeking a better understanding of the governance of cooperatives. By adopting that framework the thesis addressed in an integrated way the role of social capital (Ostrom, 1999) and community governance (Bowles and Gintis, 2002; Hayami, 2009) in facilitating collective action, and the role of relational contracts (Poppo and Zenger, 2002; Lazzarini, Miller and Zenger, 2004) in assuring commitment from parties in a transaction. Furthermore, with that framework, the thesis addressed the cognitive role of governance mechanisms, such as knowledge exchange (Conner and Prahalad, 1996; Grant, 1996) and competence enhancing (Nooteboom, 2004).

The implications of this thesis for management and policy are listed in the three following groups:

(1) Rewarding farmers appropriately and controlling and monitoring delivery and production processes are important for enhancing commitment both to collective action and to customer orientation. Giving "voice" and building a social community for members and their families are important to prevent members' free-riding and selling "outside". It is advised to combine at least the following governance mechanisms: hierarchy control, market incentives, community involvement and democratic voice. Finally, communication is an important tool for enhancing farmers' commitment to customer orientation.

(2) Cooperatives can participate in high-quality value chains and be as efficient and effective as other organizational arrangements in the agri-food sector. More importantly, cooperatives might even have an advantage in the production and marketing of goods with credence attributes, such as animal welfare, organic and fair trade. Therefore, policies aiming to promote sustainable food production may target cooperatives, as this organisational form is more effective in lowering the risks associated with farmer' opportunistic behavior.

(3) Member participation, commitment, satisfaction with leadership and with the cooperative's strategy are examples of what could be additional performance criteria besides reported profits, which taken alone could be misleading. Because the cooperative's objectives are beyond the economic viability of the collective enterprise, (Birchall and Ketilson, 2009), the intangible social assets should be assessed in order to evaluate the performance of the cooperative, and thereby to compare cooperatives with investor-owned firms and among cooperatives themselves.

Samenvatting (Dutch summary)

Huidige ontwikkelingen in the agri-food sector verhogen de vraag naar kwaliteit van producten, van gezonde en veilige producten tot duurzame landbouwpraktijken (Grunert, 2005). Voldoen aan kwaliteitseisen van consumenten, overheid en bedrijven, vraagt om versterking van de relaties tussen boeren, handelaren, verwerkers, en retailers Met andere woorden, dit vraagt om ketencoördinatie, oftewel verticale coördinatie. Gecombineerd met een toegenomen consumentenvraag naar variatie en gemak hebben deze veranderingen geleid tot sterkere wederzijdse afhankelijkheid tussen opeenvolgende schakels van de keten, waarbij het eindproduct van de ene schakel het beginproduct voor de volgende vormt.

Daarmee staat de landbouwcoöperatie staat voor de uitdaging om horizontale coördinatie tussen leden te combineren met verticale coördinatie in de keten (Bijman 2009; Hanf, 2009). Vanuit haar ledenoriëntatie koopt een landbouwcoöperatie van oudsher alle producten van haar leden ongeacht de kwaliteit. Echter, coöperaties moeten in toenemende mate de productkwaliteit garanderen richting klanten en moeten daarom zich ervan verzekeren dat haar leden de producten in de juiste kwaliteit aanleveren.

De doelstelling van dit proefschrift is enerzijds om de sturingsmechanismen te ontrafelen die een coöperatie kan gebruiken om de relatie met haar leden te versterken en anderzijds om de impact van de verschillende sturingsmechanismen op kwaliteitsverbetering te analyseren. Elke transactie tussen verkopers en kopers, en dus ook tussen boeren en hun coöperatie, brengt transactierisico's en coördinatiekosten met zich mee. Dit leidt tot de eerste onderzoeksvraag van dit proefschrift.

(1) Wat zijn de mechanismen voor sturing van de transactie tussen leden en de coöperatie en hoe beïnvloeden deze mechanismen transactierisico's en coördinatiekosten?

Hoofdstuk 2 van dit proefschrift stelt dat de vier ideaaltypische sturingsmechanismen – markt, hiërarchie, gemeenschap en democratie – de coördinatiekosten en transactierisico's beïnvloeden via hun effect op betrokkenheid van leden en cognitieve heterogeniteit. Het is belangrijk dat leden van een landbouwcoöperatie zich committeren aan klantgerichtheid omdat anders de transactierisico's te hoog worden. Het is noodzakelijk om twee typen betrokkenheid te onderscheiden, die bij collectieve actie en die bij een klantgerichte strategie. Betrokkenheid bij collectieve actie voorkomt verkoop buiten de coöperatie om en meer algemeen meelift-gedrag. Dit leidt tot de tweede onderzoeksvraag van dit proefschrift.

(2) Hoe beïnvloeden de vier sturingsmechanismen – markt, hiërarchie, gemeenschap en democratie – betrokkenheid bij collectieve actie en betrokkenheid bij een klantgerichte strategie?

Een van de conclusies van dit proefschrift (hoofdstuk 3) is dat een coöperatie geen hoge kosten hoeft te maken om naleving door leden van kwaliteitsafspraken af te dwingen, omdat individuele economisch prikkels, het controleren van gebruik van inputs en het monitoren van activiteiten op de boerderij positief gerelateerd zijn aan ledenbetrokkenheid bij een klantgerichte strategie. Daarnaast, hebben de mechanismen van democratie en gemeenschap

een belangrijke rol in het bevorderen van betrokkenheid bij collectieve actie, een *sine qua non* voorwaarde voor de levensvatbaarheid van een coöperatie.

Volgens de literatuur ondervindt een grote coöperatie die zich kenmerkt door meerdere producten en verschillende activiteiten gericht op verschillende groepen leden problemen gerelateerd aan de heterogeniteit van het ledenbestand (Hansmann, 1996; Fulton en Giannakas, 2001). Het uitgangspunt in de meeste literatuur over de invloed van heterogeniteit op het proces en de uitkomsten van de besluitvorming is dat boeren streven naar individuele of subgroepbelangen wanneer zij deelnemen aan de besluitvorming van de coöperatie. Als leden voornamelijk individuele economische belangen nastreven, is er mogelijk een verband tussen de economische motieven om lid te worden (en te blijven) en de motivatie om deel te nemen aan het bestuur van de coöperatie. Dit leidt tot de derde onderzoeksvraag van dit proefschrift.

(3) Hoe beïnvloeden de economische drijfveren om te lid worden de deelname van de leden aan het besturen van een coöperatie?

De conclusie van dit proefschrift (hoofdstuk 4), met betrekking tot deze onderzoeksvraag, was dat naast de rol van de sociale mechanismen bij het vergroten van betrokkenheid bij collectieve actie, er een rol lijkt te zijn voor sociale mechanismen in het versterken van de controle van leden over hun coöperatie. Leden die deelnemen aan bestuur of commissies doen dit niet vanuit dezelfde economische motieven die hen lid maken van de coöperatie. Coöperatieve ideologie blijkt een belangrijke motivatie voor hen om actief deel te nemen aan besluitvorming.

Het vermogen van coöperaties om zich aan te passen aan een snel veranderende omgeving die wordt gekenmerkt door technologische veranderingen en de industrialisatie van de landbouw is in twijfel getrokken door Fulton (1995). Aan de organisatiestructuur van de coöperatie worden negatieve gevolgen voor management van kwaliteit toegeschreven (Merel et al., 2009). Aan de ene kant kunnen coöperaties de Investor-Owned Firms (IOFs) nabootsen in het toepassen van meer hiërarchische mechanismen die hen in staat stellen kwaliteitsnormen voor de productieprocessen van haar leden definiëren en effectief toe te passen op hun aanbod, de kwaliteit van de geleverde producten te controleren en te bewaken. Aan de andere kant, hebben coöperaties unieke organisatiekenmerken die mogelijk een concurrentievoordeel opleveren, zoals de nauwe relatie tussen de leden en de coöperatie, die minder kostbare coördinatie van de transactie vergt (Sykuta en Cook, 2001). Dit leidt tot de vierde en laatste onderzoeksvraag van dit proefschrift.

(4) Wat zijn de verschillen in kwaliteit van de prestaties tussen een coöperatie en een IOF, en kunnen deze verschillen worden verklaard uit verschillen in relatiekenmerken?

In de Braziliaanse vleeskuikenindustrie presteren boeren die leveren aan een coöperatie beter in termen van kwaliteit dan boeren die leveren aan een IOF. Coöperatie en IOF hanteren dezelfde economische prikkels en controlemechanismen voor de productie-efficiëntie van hoogwaardig kippenvlees. Het voordeel van de coöperatie ten opzichte van de IOF in termen

van kwaliteitsbevordering, is gelegen in de kenmerken van de leverancier-afnemer relatie. Dit proefschrift laat zien (hoofdstuk 5) dat er een aantal belangrijke verschillen met betrekking tot de relationele kenmerken zijn die verantwoordelijk zouden kunnen zijn voor deze hogere prestaties. De mate van afhankelijkheid van de koper, welke hoger is voor leden van de coöperatie dan voor de leveranciers van een IOF, de onzekerheid over het gedrag van de koper, welke lager is voor leden van de coöperatie, en de reductie van marktrisico van de koper, welke groter is voor leden van de coöperatie, helpen de hogere mate van naleving van de kwaliteitsnorm te verklaren. Deze drie kenmerken van de relatie tussen boer en coöperatie voorkomen waarschijnlijk lijntrek-gedrag door de boeren en vergoten betrokkenheid. Bovendien krijgen de boeren die leveren aan de coöperatie meer technische steun van hun koper voor aanpassing aan nieuwe kwaliteitseisen dan leveranciers aan de IOF. Dit heeft waarschijnlijk een positieve invloed op de deskundigheid van boeren bij het voldoen aan kwaliteitsnormen.

De belangrijkste methodologische aanpak van dit proefschrift is kwantitatief; gegevens werden verzameld via een vragenlijst onder 148 boeren die allemaal lid zijn van dezelfde multi-product coöperatie in Brazilië, alsmede onder 42 vleeskuikenleveranciers van twee grote afnemers in dezelfde regio. Daarnaast werden kwalitatieve gegevens verzameld door middel van semi-gestructureerde interviews met professionele managers van de coöperatie, met bestuurders en met boeren om het ontwerp van de vragenlijst te begeleiden.

Dit proefschrift maakt een aantal theoretische bijdragen, die als volgt kunnen worden opgesomd:

(1) De betrokkenheid van boeren bij hun coöperatie kan conceptueel en empirisch ontrafelt worden in twee soorten. Betrokkenheid bij collectieve actie is, volgens de definitie van Fulton (1995): de bereidheid om bij de coöperatie te blijven, zelfs wanneer de prijs of de dienst van de coöperatie niet zo goed is als die van een IOF. Betrokkenheid is een houding die voorafgaat aan loyaliteit; het offer in naam van de relatie zelf en het succes van de organisatie. Echter, betrokkenheid bij een klantgerichte strategie betekent dat de boer de bereidheid heeft om een deel van de autonomie van het landbouwbedrijf op te geven in het belang van de naleving van de eisen van de klanten van de coöperatie. Het is een positieve houding van de leden ten aanzien van de heroriëntatie van de coöperatie.

(2) Heterogeniteit van het ledenbestand zou geen bron van inefficiëntie in de besluitvorming hoeven zijn als het organisatorische doel juist is om de belangen van heterogene leden te behartigen, en als leden die representatieve en managementfuncties bezetten daadwerkelijk streven naar verbetering van organisatorische doelen in plaats van individuele doelen. De meeste conceptualiseringen van de besluitvormingsproblemen en invloedkosten zijn gebaseerd op economische organisatietheorie, waar de agency-theorie vrij invloedrijk is geweest. Uit de bevindingen van dit proefschrift (hoofdstuk 4) blijkt dat aannames van agency-theorie, die vaak in onderzoek naar coöperaties als aanname worden gebruikt, beter kunnen worden behandeld als een empirische kwestie.

(3) Dit proefschrift presenteert een ander perspectief op het comparatieve voordeel van de coöperatie in het produceren van voedingsmiddelen met hoogwaardige kwaliteitsattributen. De literatuur over de gevolgen van de coöperatieve structuur voor kwaliteitsmanagement (Merel et al., 2009) benadrukt dat coöperaties de producenten met de hoogste kwaliteit vaak niet adequaat belonen, wat vaak het probleem van averechtse selectie wordt genoemd. Echter, ondanks de grotere heterogeniteit in termen van de capaciteit van producenten om hoge kwaliteit te produceren, kunnen coöperaties producten van hoge kwaliteit bereiken door middel van superieure coördinatie en ondersteuning in de aanpassingen van haar leden. De bevindingen van dit proefschrift zijn in lijn met andere empirische studies buiten het domein van de coöperaties die vonden dat de kwaliteit van de prestaties kunnen worden beïnvloed door relatiekenmerken, en hun effect op de transactiekosten (Lu et al., 2009; Coronado et al., 2010).

(4) Samenvattend is de belangrijkste wetenschappelijke bijdrage van dit proefschrift het toepassen van het kader van 'chemie van organisaties', van Grandori en Furnari (2008), bij het zoeken naar een beter begrip van de *governance* van coöperaties. Door het gebruiken van genoemd kader behandelt het proefschrift op geïntegreerde wijze de rol van sociaal kapitaal (Ostrom, 1999) en *community governance* (Bowles en Gintis, 2002; Hayami, 2009) in het stimuleren van collectieve actie, en de rol van relationele contracten (Poppo en Zenger , 2002; Lazzarini, Miller en Zenger, 2004) in het verzekeren van betrokkenheid van partijen in een transactie. Bovendien, met dat kader, behandelt het proefschrift de cognitieve rol van sturingsmechanismen, zoals kennisuitwisseling (Conner en Prahalad, 1996; Grant, 1996) en competentieverhoging (Nooteboom, 2004).

De implicaties van dit proefschrift voor het beheer en beleid van coöperaties kunnen worden samengevat in de volgende drie groepen:

(1) Het adequaat belonen van boeren en het regelen en bewaken van leverings- en productie-processen zijn belangrijk voor het verbeteren van betrokkenheid zowel bij collectieve actie als bij een klantgerichte strategie. Het geven van inspraak en het opbouwen van een sociale gemeenschap voor de leden en hun gezinnen zijn belangrijk om meeliftgedrag en het "verkopen-buiten-de-coöperatie-om" te voorkomen. Het wordt aangeraden om ten minste de volgende sturingsmechanismen te combineren: hiërarchische controle, economische prikkels, maatschappelijke betrokkenheid, en democratische inspraak. Tot slot, de communicatie is een belangrijk instrument voor het verbeteren van de betrokkenheid van de leden bij een klantgerichte strategie.

(2) Coöperaties kunnen deelnemen aan hoogwaardige ketens en net zo efficiënt en effectief zijn als andere contractuele arrangementen in de agri-food sector. Wat nog belangrijker is, coöperaties kunnen zelfs een voordeel hebben in de productie en marketing van goederen met *credence* attributen, zoals dierenwelzijn, biologisch en fair trade. Daarom zou beleid gericht op duurzame voedselproductie zich kunnen richten op coöperaties, omdat deze organisatievorm effectiever is in het verlagen van de risico's van meeliftgedrag van boeren.

(3) Ledenparticipatie, betrokkenheid, tevredenheid met de leiding en met de strategie van de coöperatie zijn voorbeelden van extra prestatiecriteria naast gerapporteerde winst. Omdat de doelstellingen van de coöperatie verder reiken dan de economische levensvatbaarheid van de collectieve onderneming (Birchall en Ketilson, 2009), moeten de immateriële activa worden meegenomen om de prestatie van de coöperatie te evalueren, en daarmee coöperaties te vergelijken met IOF's en met andere coöperaties onderling.

References

Abef - Associação Brasileira dos Produtores e Exportadores de Frango, 2009. Annual Report 2009/2010. Available online: http://www.abef.com.br/noticias_portal/exibenoticia.php?notcodigo=2264 [Accessed in September 2011].

Adler, P. S., 2001. Market, Hierarchy, and Trust: The Knowledge Economy and the Future of Capitalism. Organization Science, 12, (2), 215-234.

Aghion, P., and Tirole, J., 1997. Formal and real authority in organizations. The Journal of Political Economy, 105, 1–29.

Albert, S. and Whetten, D. A., 1985. Organizational Identity. In: Staw, B. and Cummings, L. L. (eds.), Research on Organizational Behavior, 7, 263-295.

Allen, N. J. and Meyer, J. P., 1990. The measurement and antecedents of affective, continuance, and normative commitment to the organization. Journal of occupational Psychology, 63, 252-276.

Aramyan, L. H., Ondersteijn, C. J. M., Van Kooten, O. and Oude Lansink, A. G. J. M., 2006. Performance Indicators in production chains, in Quantifying The Supply Chain. In: Ondersteijn, C. J. M., Wijnands, J. H. M., Huirne, R. B. M. , Van Kooten, O. (eds). Springer, Dordrecht, the Netherlands; 47-64.

Arrow, K. J., 1974. The limits of organization. NY: WW Norton.

Baker, G. P., Jensen, M. C. and Murphy, K. J., 1988. Compensation and Incentives: Practice vs. Theory". The Journal of Finance, 43, 593–616.

Balbach, J. K., 1998. The Effect of Ownership on Contract Structure, Costs, and Quality: The Case of the U.S. Beet Sugar Industry. In: Royer, J. S. and Rogers, R. T. (eds) The Industrialization of Agriculture: Vertical Coordination in the U.S. Food System. Aldershot, 155-184.

Barraud-Didiera, V., Henninger, M. C. and Akremic, A., 2012. The relationship between members' trust and participation in the governance of cooperatives: The role of organizational commitment. International Food and Agribusiness Management Review, 15, 1–24.

Barton, D. G., 1989. What is a cooperative? In: Cooperatives in agriculture, Cobia, D.W. (ed). Englewood Cliffs, NJ: Prentice Hall, 1-20.

Barzel, Y., 1982. Measurement cost and the organization of markets. Journal of Law and Economics, 25, 27-48.

Barzel, Y., 2000. The Role of Contract in Quality Assurance. A Journal of the Canadian Agricultural Economics Society, 1, 1-10.

Basset, A., 2009. Foot Pad Dermatitis in Poultry. Technical paper no. 7. Animal Welfare Approved 2009. Available online: http://www.animalwelfareapproved.org/wp-content/uploads/2009/10/TAFS7.pdf Accessed in September, 2011.

Bialoskorski Neto, S., 2003. Corporate Governance and the Role of the Managers in Brazilian Cooperatives. In: International Centre of Research and Information on the Public, Social and Cooperative Economy, 2003, Oxford England.

Bialoskorski Neto, S., 2006. Member participation and relational contracts in agribusiness co-operatives in Brazil. The International Journal of Co-operative Management, 3, 20-26.

Bijman, J., 2005. Cooperatives and heterogeneous membership: eight propositions for improving organizational efficiency. Chapter presented at the EMNet-Conference. Budapest, Hungary, September 15 – 17, 2005.

Bijman, J., 2009. Vertical coordination in the agrifood supply chain; structure and strategy of the agricultural cooperative. In: Zylbersztajn, D. and Omta, O. (eds), Advances in supply chain analysis in agro-food systems. Sao Paulo: Editora Singular, 55-87.

Bijman, J., 2010. Agricultural cooperatives and market orientation: a challenging combination? In: Lindgreen, A., Hingley, M., Harness, D. and Custance, P. (eds), Market Orientated? The Metamorphosis of Food and Agricultural Production and Marketing, Aldershot: Gower Publishing, 119 – 136.

Bijman, J. and Wollni, M., 2009. Producer Organizations and vertical coordination. An economic organization theory perspective. In: Rosner, H. J. and Schulz-Nieswandt (eds.) Beiträge der genossenschaftlichen Selbsthilfe zur wirtschaftlichen und sozialen Entwicklung. Berlin: LIT Verlag, 2009, 231-252.

Bijman, J. and Doorneweert, B., 2010. Collective Entrepreneurship and the Producer-Owned. Co-operative Journal of Co-operative Studies, 43, (3), 5-16.

Bijman, J. and Hu, D., 2011. The Rise of New Farmer Cooperatives in China: Evidence from Hubei Province. Journal of Rural Cooperation, 39, (2), 98-113.

Bijman, J. and Verhees, F., 2011. Member or customer? Farmer commitment to supply cooperatives. Paper presented at the International Conference on the Economics and Management of Networks (EMNet), 1-3 December, 2011, Limassol, Cyprus.

Bijman, J., Muradian, R. and Cechin, A., 2011. Agricultural cooperatives and value chain coordination: Towards an integrated theoretical framework. In: Helmsing, B. and Vellema, S. (Eds.), Value chains, inclusion and endogenous development: Contrasting theories and realities (pp. 82–101). London: Routledge.

Bijman, J., Hendrikse, G. and Oijen, A. van, 2013. Accommodating Two Worlds in One Organization: Changing Board Models in Agricultural Cooperatives. Managerial and Decision Economics, 34, (3-5), 204-217.

Birchall, J. and Simmons, R., 2004. The involvement of members in the governance of large-scale co-operative and mutual businesses: A formative evaluation of the co-operative group. Review of Social Economy, 62, 487–515.

Birchall, J. and Ketilson, L. H., 2009. Resilience of the cooperative business model in times of crisis. International Labour Office, Job Creation and Enterprise Development Department. - Geneva: ILO, 2009.

Blais, A., 2000. To Vote or Not to Vote: The Merits and Limits of Rational Choice Theory. Pittsburgh: University of Pittsburgh Press.

Bontemps, P. and Fulton, M., 2009. Organisational structure, redistribution and the endogeneity of cost: cooperatives, investor-owned firms and the cost of procurement. Journal of Economic Behavior & Organisation, 72, 322–343.

Bonus, H., 1986. The cooperative association as a business enterprise: a study in the economics of transactions. Journal of Institutional and Theoretical Economics / Zeitschrift für die gesamte Staatswissenschaft, 142, (2), 310-339.

Borgen, S. O., 2001. Identification as a Trust-Generating Mechanism in Cooperatives. Annals of Public and Cooperative Economics, 72, (2), 209–228.

Borgen, S. O., 2004. Rethinking incentive problems in cooperative organizations. Journal of Socio-Economics, 33, (4), 383-393.

Bowles, S. and Gintis, H., 2002. Social Capital and Community Governance. Economic Journal, 112, 419-436.

Bradach, J. L. and Eccles, R. G., 1989. Price, authority and Trust: From Ideal Types to Plural Forms. Annual Review of Sociology, 15, 97-118.

Briscoe, R. and Ward, M., 2006. Is small Both Beautiful and competitive? A Case Study of Irish Dairy Cooperatives. Journal of Rural Cooperation, 34 (2), 113-134.

Cechin, A., Bijman, J., Pascucci, S. and Omta, O., 2013. Decomposing member-coop relationships in agricultural cooperatives: implications for member commitment. Agribusiness, 29, (1), 39–61.

Cechin, A., Bijman, J., Pascucci, S., Zylbersztajn, D. and Omta, O., 2013. Quality in Cooperatives versus Investor Owned Firms: Evidence from broiler production in Paraná, Brazil. Managerial and Decision Economics, 34, (3-5): 230–243.

Cechin, A., Bijman, J., Pascucci, S., Zylbersztajn, D. and Omta, O., 2013. Drivers of pro-active member participation in agricultural cooperatives: evidence from Brazil. Annals of Public and Cooperative Economics, 84, (4).

Chaddad, F. R., 2012. Both Market and Hierarchy: Understanding the Hybrid Nature of Cooperatives. Annals of Public and Cooperative Economics, 83, (4): 445-461.

Chaddad, F. R. and M. L. Cook., 2004. Understanding new cooperative models: An ownership-control rights typology. Review of Agricultural Economics, 26, (3), 348-60.

Chaddad, F. and Iliopoulos, C., 2013. Control Rights, Governance, and the Costs of Ownership in Agricultural Cooperatives. Agribusiness, 29, (1), 3–22.

Charness, G. and Rabin, M., 2002. Understanding Social Preferences with Simple Tests. Quarterly Journal of Economics, 117, (3), 817-69.

Child, J., 1974. Managerial and Organizational Factors Associated with Company Performance-Part I. Journal of Management Studies, 11, (3), 175-189.

Clark, H., 1996. Using Language. Cambridge, UK: Cambridge University Press.

Coase, R., 1937. The Nature of the Firm. Economica 4, 386–405.

Coleman, J. S., 1987. Norms as Social Capital. In: Radnitzky, G. and Bernholz, P. (ed.). Economic Imperialism: The Economic Approach Applied Outside the Field of Economics. New York: Paragon House.

Conner, K. and Prahalad, C. K., 1996. A Resource Based Theory of the Firm: Knowledge vs. Opportunism. Organization Science, 7, (5).

Cook, M. L., 1995. The future of U.S. agricultural cooperatives: A neo-institutional approach. American Journal of Agricultural Economics, 77, 1153–1159.

Cook, M. L. and Plunkett, B., 2006. Collective Entrepreneurship: An Emerging Phenomenon in Producer-Owned Organizations. Journal of Agricultural and Applied Economics, 38, (2), 421-428.

Cook, M. and Burress M., 2011. Director Development and Board-CEO Relations: Do Recommendations from Corporate Governance Apply to the Agribusiness Cooperative?. International Food & Agribusiness Management Annual World Symposium, 20-21 June, 2011, Frankfurt, Germany.

Coronado, J. J. A. and Bijman, J., Omta, O. and Lansink, A. O., 2010. Relationship characteristics and performance in fresh produce supply chains: the case of the Mexican avocado industry. Journal on Chain and Network Science, 10, (1), 1-15.

Costa, D. M. and Chaddad, F. and De Azevedo, P. F., 2013. The Determinants of Ownership Structure: Evidence from Brazilian Agricultural Cooperatives. Agribusiness, 29, (1), 62–79.

Cyert, R. M., and March, J. G., 1963. A Behavioral Theory of the Firm. Englewood Cliffs, NJ: Prentice Hall

Davis, P. and Bialoskorski Neto, S., 2010. Governança e Gestão de capital social em cooperativas: uma abordagem baseada em valores. ESAC. Economia Solidária e Ação Cooperativa (UNISINOS), 5, 1-24.

Davis, J. H., Schoorman, F. D. and Donaldson, L., 1997. Toward a Stewardship Theory of Management. Academy of Management Review, 22, (1), 20–47.

Deci, E. L. and Koestner, R. and Ryan, R. M., 1999. A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. Psychological Bulletin, 125, (6), 627–668.

Dellavigna, S., 2009. Psychology and Economics: Evidence from the Field. Journal of Economic Literature, 47, (2), 315-372.
Degli Antoni, G., 2009. Intrinsic vs. Extrinsic Motivations to Volunteer and Social Capital Formation. Kyklos, 62, (3), 359-70.
Demsetz, H., 1988. The Theory of the Firm Revisited. Journal of Law, Economics & Organization, 4, (1), 141.
Dorward, A., 2001. The Effects of Transaction Costs, Power and Risk on Contractual Arrangements: A Conceptual Framework for Quantitative Analysis. Journal of Agricultural Economics, 52, (2), 59-73.
Dunn, J. R., 1988. Basic cooperative Principles and their Relationship to Selected Practices. Journal of Agricultural Corporation, 3, 83-93.
Eckert, P., 2006. Communities of Practice. Encyclopedia of Language and Linguistics (2nd Ed), 683-685.
Eisenhardt, K.M., 1989. Agency Theory: an Assessment and Review. The Academy of Management Review, 14, (1), 57–74.
Enzle, M. E. and Anderson, S. C., 1993. Surveillant intentions and intrinsic motivation. Journal of Personality and Social Psychology, 64, 257-266.
Fama, E. and Jensen M., 1983. Separation of ownership and control. Journal of Law and Economics, 26, 301–326.
Feddersen, T. J., 2004. Rational Choice Theory and the Paradox of Not Voting. The Journal of Economic Perspectives, 18, (1), 99-112.
Feng, L. and Hendrikse, G. W. J., 2008. On the Nature of a Cooperative: A System of Attributes Perspective. In: Hendrikse, G. W. J. and Tuunanen, M. (Eds.), Strategy and Governance of Networks (pp. 13-26). Heidelberg: Physica-Verlag.
Fenwick, T., 2005. Conception of critical human resource development: Dilemmas for theory and practice. Human Resource Development International, 8, 225–238.
Field, A., 2005. Discovering Statistics Using SPSS, Sage Publication, 2nd Edition.
Foreman, P. O. and Whetten, D. A., 2002. Members' Identification with Multiple-Identity Organizations. Organization Science, 13, 618-635.
Frey, B. S., 1993. Does Monitoring Increase Work Effort? The Rivalry with Trust and Loyalty. Economic Inquiry, 31, (4), 663-70.
Frey, B.S., 1997. A constitution for knaves crowds out civic virtues. Economic Journal, 107, (443), 1043–1053.
Frey, B. S., and Jegen, R., 2001. Motivation crowding theory. Journal of Economic Surveys, 15, 589–611.
Frey, B. S, and Osterloh M., 1999. Yes, Managers Should Be Paid Like Bureaucrats. Journal of Management Inquiry, 14, 96-111.
Fulton, M., 1995. The future of Canadian agricultural cooperatives: A property rights approach. American Journal of Agricultural Economics, 77, (5), 1144-1152.
Fulton, M. E., 1999. Cooperatives and Member Commitment. The Finnish Journal of Business Economics 4, 1999.
Fulton, M. E. and Giannakas, K., 2001. Organization Commitment in a Mixed Oligopoly: Agricultural Cooperatives and Investor-Owned Firms, American Journal of Agricultural Economics , 83, (5), 1258-1265.
Ghoshal, S., and Moran, P., 1996. Bad for practice: A critique of the transaction cost theory. The Academy of Management Review, 21, 13–47.
Grandori, A., 1997. Governance Structures, Coordination Mechanisms and Cognitive Models. The Journal of Management and Governance 1, 29–47.

Grandori, A. and Soda, G., 1995. Inter-Firm Networks: Antecedents, Mechanisms and Forms. Organization Studies, 16, (2), 183–214.
Grandori, A. and Furnari, S., 2008. A Chemistry of Organization: Combinatory Analysis and Design. Organization Studies, 29, (3), 459–485.
Granovetter, M., 1985. Economic action and social structure: the problem of embeddedness. American Journal of Sociology, 91, (3), 481–510.
Grant, R. M., 1996. Toward a knowledge based theory of the firm. Strategic Management Journal, 17, 109-122.
Grover, V. and Malhotra, M. K., 2003. Transaction cost framework in operations and supply chain management research: theory and measurement". Journal of Operations Management, 21, 457–473.
Grunert, K. G., 2005. Food quality and safety: consumer perception and demand. European Review of Agricultural Economics, 32, (3), 369–391.
Gulati, R., and Singh, H., 1998. The architecture of cooperation: Managing coordination costs and appropriation concerns in strategic alliances. Administrative Science Quarterly 43, (4), 781-814.
Gulati, R., Lawrence, P. R and Puranam, P., 2005. Adaptation in vertical relationships: beyond incentive conflict. Strategic Management Journal, 26, (5), 415-440.
Gulati, R. and Puranam, P., 2011. Coordination in Vertical Relationships: the (Un)Importance of Information Flows. Harvard Business School Working Chapter: Cambridge.
Gulati, R., Wohlgezogen, F. and Zhelyazkov, P., 2012. The Two Facets of Collaboration: Cooperation and Coordination in Strategic Alliances. The Academy of Management Annals, 6, (1), 531-583.
Hakelius, K., 1996. Cooperative values: farmers' cooperatives in the minds of the farmers. PhD thesis, Swedish University of Agricultural Sciences, Uppsala, Sweden.
Hakelius, K., 1999. Farmer cooperatives in the 21st century: Young and old farmers in Sweden. Journal of Rural Cooperation, 27, (1), 31–54.
Hanf, J., 2009. "Challenges of a vertical coordinated agri-food business for cooperatives". Journal of Co-operative Studies, volume 42, (2), 5-13
Hanf, J., 2009. Challenges of a vertical coordinated business for cooperatives. Journal of Co-operative Studies, 42, (2), 5-13
Hanf, J., Schweickert, E., 2003. Co-operative Success by Forming a Strategic Member Group. Paper presented at the Conference Vertical Markets and Co-operative Hierarchies, Bad Herrenalb, Germany.
Hanf, J., Kühl, R., 2005. Branding and its consequences for German agribusiness, Agribusiness: an International Journal, 21, (2), 177-191
Hanf, J., Schweickert, E., 2007. Changes in the Wine Chain - Managerial Challenges and Threats for German Wine Co-Ops. American Association of Wine Economics, September, 2007.
Hansen, M. H., Morrow, J. L. and Batista, J. C., 2002. The impact of trust on cooperative membership retention, The International Food and Agribusiness Management Review, 5, (1), 41-59.
Hansmann, H., 1996. The ownership of enterprise. The Belknap Press of Harvard University Press, Boston.
Hansmann, H., 1999.'Cooperative Firms in Theory and Practice. Finnish Journal of Business Economics, 4, 387-403.
Harrison, J. S. and Freeman, E. R., 2004. Democracy in and around organizations. Academy of Management Executive 18, (3), 49–53.

Hayami, Y., 2009. Social Capital, Human Capital and the Community Mechanism: Toward a Conceptual Framework for Economists. Journal of Development Studies, 45, (1), 96 - 123.

Hayek, F. von, 1945. The Use of Knowledge in Society. American Economic Review, 35, 519–530.

Heide, J. B. and John, G., 1988. The Role of Dependence Balancing in Safeguarding Transaction-Specific Assets in Conventional Channels. The Journal of Marketing, 52, (1), 20-35.

Hendrikse, G. W. J., 2007. On the co-existence of spot and contract markets: the delivery requirement as contract externality. European Review of Agricultural Economics, 34, (2), 257-282.

Hendrikse, G. W. J. and Bijman, J., 2002. On the emergence of new growers' associations: self-selection versus market power. European Review of Agricultural Economics, 29, (2), 255-269.

Hendrikse, G. W. J. and Bijman, J., 2002. Ownership Structure in Agrifood Chains: The Marketing Cooperative. American Journal of Agricultural Economics, 84, 104-119.

Hennart, J. F., 1993. Explaining the Swollen Middle: Why Most Transactions Are a Mix of "Market" and "Hierarchy. Organization Science, 4, (4), 529-547.

Henrij, H., 2005, Guidelines for cooperative legislation. Second revised edition. International Labour Organization, Geneva.

Henson, S. and Reardon, T. 2005. Private Agri-food Standards: Implications for Food Policy and Agri-food Systems. Food Policy Volume, 30, (3), 241-253.

Hernández-Espallardo, M. and Arcas-Lario, N. and Marcos-Matás, G., 2012. Farmers' satisfaction and intention to continue membership in agricultural marketing co-operatives: neoclassical versus transaction cost considerations. European Review of Agricultural Economics. DOI: 10.1093/erae/jbs024

Hobbs, J. E. and L. M. Young. 2000. Closer Vertical Coordination in Agri-food Supply Chains: A Conceptual Framework and Some Preliminary Evidence. Supply Chain Management 5, (3 & 4), 131-142.

Hodgson, G. 2004. Opportunism is not the only reason why firms exist: why an explanatory emphasis on opportunism may mislead management strategy. Industrial and Corporate Change, 13, (2), 401-418.

Hofstede, G. 1991. Cultures and Organizations: Software of the Mind. McGraw-Hill, Londres.

Hogeland, J. A. 2006. The economic culture of U.S. agricultural cooperatives. Culture & Agriculture, 28, (2), 67–79.

Holmstrom, B., and Milgrom, P. 1991. Multi-task principal-agent analysis: Incentives, contracts, asset ownership, and job design. Journal of Law, Economics and Organization, 7, 24-52.

Hueth, B., Ligon, E., Wolf, S. and Wu, S. 1999. Incentive Instruments in Fruit and Vegetable Contracts: Input Control, Monitoring, Measuring, and Price Risk. Review of Agricultural Economics, 21, (2), 374-389.

Iliopoulos, C. and Cook M. L., 1999. The Efficiency of Internal Resource Allocation Decisions in Customer-owned Firms: The Influence Costs Problem. 3rd Annual Conference of the International Society for New Institutional Economics, Washington D.C., September, 16-18.

Iliopoulos, C. and Hendrikse, G. W., 2008. Influence Costs in Agribusiness Cooperatives: Evidence from Case Studies. ERIM Report Series Reference N. ERS-2008-040-ORG. Available at SSRN: http://ssrn.com/abstract=1290926

Ipardes - Instituto Paranaense de Desenvolvimento Econômico e Social. 2002. Análise da competitividade da cadeia agroindustrial de carne de frango no estado do Paraná. Curitiba, 2002. Available at: http://www.ipardes.gov.br/webisis.docs/cadeia_agroindustrial_aves_sumario_executivo.pdf [accessed in August 2011].

Jensen, M. C. and Meckling, W. H., 1976. Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. Journal of Financial Economics, 3, 305-360.

Jones, C., Hesterly, W. S. and Borgatti, S. P. 1997. A General Theory of Network Governance: Exchange Conditions and Social Mechanisms. The Academy of Management Review, 22, (4), 911-945.

Joshi, A. W., and Stump, R. L. 1999. Determinants of commitment and opportunism: Integrating and extending insights from transaction cost analysis and relational exchange theory. Canadian Journal of Administrative Sciences, 16, 334–352.

Jost, J. T., Ledgerwood A., and Hardin C. D., 2008. Shared reality, system justification, and the relational basis of ideological beliefs. Social and Personality Psychology Compass, 2, 171-186.

Kalogeras, N., Pennings, J. M. E., van der Lans, I. A., Garcia, P. and van Dijk, G. 2009. Understanding Heterogeneous Preferences of Cooperative Members, Agribusiness, 25, (1), 90–111.

Kinder, D. R. and Kiewiet, D. R., 1979. Economic Discontent and Political Behavior: The Role of Personal Grievances and Collective Economic Judgments in Congressional Voting. American Journal of Political Science, 23, 3, 495-527.

Knoeber, C. R, Thurman, N., 1995. Don't Count Your Chickens...: Risk and Risk Shifting in the Broiler Industry. American Journal of Agricultural Economics, 77, (3), 486-496.

Kogut, B. and Zander, U., 1996. What Firms Do? Coordination, Identity, and Learning Organization Science, 7, (5), 502-518.

Kumar, R., 2005. Research Methodology: A Step-By-Step Guide for Beginners. London: Sage Publications.

Landemore, H., 2013. Deliberation, cognitive diversity, and democratic inclusiveness: an epistemic argument for the random selection of representatives. Synthese, 190, (7), 1209-1231.

Lar - Cooperativa Agroindustrial Lar. 2008. Annual Balance sheets. Available at http://www.lar.ind.br/v3/balancete/2008/index.htm [accessed in December, 2009].

Lar - Cooperativa Agroindustrial Lar. (2011). Annual Balance sheets. Available at http://www.lar.ind.br/v3/balancete/2011/index.htm [accessed in September, 2012].

Lave, J. and Wenger, E., 1991. Situated Learning: Legitimate Peripheral Participation. Cambridge: Cambridge University Press

Lazear, E. and Shaw, K., 2007. Personnel Economics: The Economist View of Human Resources. Journal of Economic Perspectives, 21, 91-114.

Lazzarini, S. G., Miller, G. J. and Zenger, T. R., 2004. Order with Some Law: Complementarity versus Substitution of Formal and Informal Arrangements, The Journal of Law, Economics, and Organization, 20, (2), 261-298.

Liang, Q. and Hendrikse, G., 2013a, Cooperative CEO Identity and Efficient Governance: Member or Outside CEO?. Agribusiness, 29, 1, 23–38.

Liang, Q. and Hendrikse, G., 2013b, Core and Common Members in the Genesis of Farmer Cooperatives in China. Managerial and Decision Economics. DOI: 10.1002/mde.2587

Loader, R., 1997. Assessing transaction costs to describe supply chain relationships in systems, Supply Chain Management: An International Journal, 2, (1), 23-35.

Lu, H., 2007. The role of guanxi in buyer-seller relationships in China. A survey of vegetable supply chains in Jiangsu Province, PhD thesis, Wageningen University, Wageningen.
Lu, H., Trienekens, J. H., Omta, S. W. F. and Feng, S., 2009. The Role of Guanxi Networks in Vegetable Supply Chains: Empirical Evidence from P.R. China, Journal of International Food & Agribusiness Marketing, 21, (2-3), 98-115.
Luning, P. A. and W. J. Marcelis, 2006. A techno-managerial approach in food quality management research. Trends in Food Science & Technology, 17, (7), 378-385.
MacNeil, I. R., 1978. Contracts: Adjustment of Long-Term Economic Relationship under Classical, Neoclassical and Relational Contract Law. Northwestern University Law Review, 72, 854–906.
Makadok, R., and Coff, R., 2009. Both Market and Hierarchy: An Incentive-System Theory of Hybrid Governance Forms. Academy of Management Review, 34, (2), 297-319.
Malone, T. W. and Crowston, K., 1994. The interdisciplinary study of coordination. ACM Computing Surveys, 26, (1), 87-119.
Markus, G., 1988. The Impact of Personal and National Economic Conditions on the Presidential Vote: A Pooled Cross-Sectional Analysis. American Journal of Political Science, 32, (1), 137-54.
Marschall, C. R., 2009. Motivações para o Cooperativismo na Pequena Propriedade. Organizações e Sociedade, 16, (49), 287-306.
Martinez, S. W., 1999. Vertical Coordination in the Pork and Broiler Industries: Implications for Pork and Chicken Products. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 777.
Masten, S. E., 2006. Authority and commitment: Why universities, like legislatures, are not organized as firms. Journal of Economics & Management Strategy, 15, 649–684.
Masten, S. E., and Prufer, J., 2011. On the evolution of collective enforcement institutions: Communities and courts (CentER Discussion Chapter No. 2011–074). Tilburg, The Netherlands: Tilburg University.
Ménard, C., 2004. The economics of hybrid organizations. JITE, 160, (1), 1-32.
Ménard, C., 2007. Cooperatives: Hierarchies or Hybrids?. In: ed. K. Karantininis, and J. Nilsson. Dordrecht, Springer, pp. 1-17.
Ménard, C., 2011. Hybrid modes of organization Alliances, Joint Ventures, Networks, and other 'Strange' Animals". In: Robert Gibbons and John Roberts (eds) Handbook of Organizational Economics. Princeton: Princeton University Press, 2011.
Mérel, P. R., Saitone, T. L. and Sexton, R. J., 2009. Cooperatives and quality-differentiated markets: strengths, weaknesses and modelling approaches. Journal of Rural Cooperation, 37, (2), 201-224.
Mesquita, L. F. and Brush, T., 2008. Untangling Safeguard and Production coordination effects in long-term buyer-supplier relationships. Academy of Management Journal 51 (4), 785–807.
Meyer, J. P., Allen, N. J., and Smith, C. A., 1993. Commitment to organizations and occupations: Extension and test of the three-component conceptualization. Journal of Applied Psychology, 78, 538-551.
Meyer, J. P., Stanley, D. J., Herscovitch, L. and Topolnytsky, L., 2002. Affective, continuance, and normative commitment to the organization: a meta-analysis of antecedents, correlates, and consequences. Journal of Vocational Behavior, 61, (1), 20-52.
Milgrom P. R. and Roberts J., 1988. An Economic Approach to Influence Activities in Organizations. American Journal of Sociology, 94, 154-179.

Minguez-Vera, A., Martin-Ugedo, J. F. and Arcas-Lario, N., 2010. Agency and property rights theories in agricultural cooperatives: evidence from Spain. Spanish Journal of Agricultural Research, 8, (4), 908-924.

Miranda, B. V., Sá, C. D. and Saes, M. S. M., 2009. Sadia Case Study: The challenges of a diversified production chain. VII International PENSA Conference, November, 26-28th, 2009, Sao Paulo, Brazil. Available at: http://www.pensaconference.org/vii_pensa_conference/flash/pdf/12/SUS%2016%20IPAS.pdf [accessed in April, 2012].

Mohr, J. and Spekman, R., 1994. Characteristics of Partnership Success: Partnership Attributes, communication Behavior, and Conflict Resolution Techniques. Strategic Management Journal, 15, (2), 135-152.

Mottaz, C., 1988. Determinants of organizational commitments. Human Relations, 41, (6), 467-82.

Moura, D. J., Bueno, L. G. F., Lima, K. A. O., Carvalho, T. M. R., Maia, A. P. A., 2010. Strategies and facilities in order to improve animal welfare. Revista Brasileira de Zootecnia, 39, 311-316. Available at: http://www.scielo.br/scielo.php?pid=S1516-35982010001300034&script=sci_arttex [accessed in September, 2011].

Mueller D. C., 1989. Public Choice, 11. Cambridge: Cambridge University Press.

Muth, M. and Donaldson, L., 1998. Stewardship Theory and Board Structure: A Contingency Approach. Corporate Governance, 6, (1), 5-28.

Nee, V. and Swedberg, R., 2005. Economic Sociology and New Institutional Economics. In: The Handbook of New Institutional Economics, Claude Menard and Mary Shirley (eds), Amsterdam: Kluwer Publication, 789-818.

Nilsson, J., Kihlén, A., and Norell, L., 2009. Are traditional cooperatives an endangered species? About shrinking satisfaction, involvement and trust. International Food and Agribusiness Management Review, 124, 103–123.

Nilsson, J., Svendsen, G. L. H., and Svendsen, G. T., 2012. Are large and complex agricultural cooperatives losing their social capital? Agribusiness, 28, 187–204.

Nooteboom, B., 2000. Learning and innovation in organizations and economies. Oxford: Oxford University Press.

Nooteboom, B., 2004. Governance and competence, how can they be combined?", Cambridge Journal of Economics, 28, (4), 505-526.

Nooteboom, B., 2007. Social capital, institutions and trust. Review of Social Economy, 65, (1), 29-53.

Nooteboom, B., 2008. Collaboration, trust and the structure of relationships, In: Nooteboom, B. & E. Stam (eds), Microfoundations for innovation policy, Amsterdam/Chicago U. Press, 199-218.

Nooteboom, B., Van Haverbeke, W. P. M., Duijsters, G. M., Gilsing, V. A., and V. d. Oord, A., 2007. Optimal cognitive distance and absorptive capacity. Research Policy, 36, 1016–1034.

Ollila, P., 1985. Member Influence in Cooperatives, Journal of Agricultural Science in Finland, 56, 101-129.

Ollila, P., Nilsson, J., and Brömssen, C. von., 2012. Characteristics of membership in agricultural cooperatives. Paper for the International Conference "Cooperative Responses and Global Challenges, Berlin, Germany, on March 21-23, 2012.

Olson, M. L., 1965.The Logic of Collective Action: Public Goods and the Theory of Groups. Harvard University Press.

Organização das Cooperativas Brasileiras – OCB (2009). Estatísticas. www.ocb.org.br/site/ramos/estatisticas.asp

Osterberg, P. and Nilsson, J., 2009. Members' perception of their participation in the governance of cooperatives: the key to trust and commitment in agricultural cooperatives. Agribusiness, 25, (2), 181–197.
Osterloh, M. and Frey, B. S., 2000. Motivation, Knowledge Transfer, and Organizational Form. Organization Science, 11, 538-50
Ostrom, E., 1999. Social capital: A fad or a fundamental concept? In: Social Capital: A multifaceted perspective, edited by Ismail Serageldin. Washington, DC: World Bank, 172-215.
Ostrom, E., 2000. Collective Action and the Evolution of Social Norms. The Journal of Economic Perspectives, 14, (3), 137-158.
Ouchi, W., 1980. Market, bureaucracies, and clans. Administrative Science Quarterly, 25, 129-141.
Pagazaurtundua, A, Warris, P. D., 2006. Levels of foot pad dermatitis in broiler chickens reared in 5 different systems, British Poultry Science, 47, (5), 529–532.
Park, S. H., and Ungson, G., 2001. Interfirm Rivalry and Managerial Complexity: A Conceptual Framework of Alliance Failure. Organization Science, 12, (1), 37.
Parsons T., 1951. The Social System. New York: Free Press
Pascucci, S., Gardebroek, C. and Dries, L., 2012. Some like to join, others to deliver: an econometric analysis of farmers' relationships with agricultural co-operatives. European Review of Agricultural Economics, 39, (1), 51-74.
Paulraj, A., Lado, A. A., Chen, I. J., 2008. Inter-organizational communication as a relational competency: Antecedents and performance outcomes in collaborative buyer–supplier relationships, Journal of Operations Management, 26, 45-64.
Porter, M. E., and Fuller, M. B., 1986. Coalitions and Global Strategy, in Competition in Global Industries. Harvard Business School Press: Boston, 315-344, 1986
Powell, W., 1990. Neither Market nor Hierarchy: Network Forms of Organization. In: Cummpings, L. L. and Staw, B. (eds), Readings in Organizational Behavior, JAI Press: Greenwich, Conn, 295-336.
Pozzobon, D. M. and Zylbersztajn, D., 2013. Democratic Costs in Member-Controlled Organizations. Agribusiness, 29, 112–132.
Raynaud, E., Sauvee, L., Valceschini, E., 2005. Alignment between quality enforcement devices and governance structures in the agro-food vertical chains. Journal of Management and Governance, 9, (1), 47-77.
Reardon, T., and Barrett, C. B., 2000. Agro-industrialization, globalization, and international development: An overview of issues, patters, and determinants. Agricultural Economics, 23, 195-205.
Reardon, T., Timmer, C. P., Barrett, C. B. and Berdegué, J., 2003. The Rise of Supermarkets in Africa, Asia, and Latin America. American Journal of Agricultural Economics, 85, (5).
Reynolds, B. J., 1997. Decision-Making in Cooperatives with Diverse Member Interests USDA, RBS Research Report 155.
Reynolds, B. J., 2000. The one member-one vote rule in cooperatives. The Journal of Cooperatives, 15, 47-62.
Reynolds, B. J., 2004. Election and voting policies of agricultural cooperatives. Rural Cooperatives. 71, (3), 14.
Romero, A. J. and Perez, M., 2003. Organizational culture, individual differences and the participation system in cooperativism of associated workers in Andalusia, Spain. Annals of Public and Cooperative Economics, 74, (2), 283–320.

Silva, C. L., 2003. Avicultura Paranaense: concentração e estratégias de mercado. Revista Fae Business, 7, 44-46.
Sindiavipar - Sindicato das Indústrias de Produtos Avícolas do Estado do Paraná. 2010. Associados. Available at: http://www.sindiavipar.com.br/index.php?modulo=16 [accessed in October, 2010].
Six, F., 2007. Building interpersonal trust within organizations: a relational signalling perspective. J Manage Governance, 11, 285–309.
Søgaard, V., 1994. Farmers, cooperatives, new food products, Aarhus, Aarhus School of Business.
Solinger, O. N., van Olffen,W., and Roe, R. A., 2008. Beyond the three-component model of organization commitment. Journal of Applied Psychology, 93, 70–83.
Spear, R., 2004. Governance in Democratic Member-based Organizations. Annals of Public and Cooperative Economics, 75, (10), 33–59.
Sporleder, T. L, Wu, S. Y., 2006. Social Capital and Vertical Ties in Agrifood Supply Chains, Journal on Chain and Network Science, 6, 1-7.
Staatz, J. M., 1987. Farmers' incentives to take collective action via cooperatives: a transaction cost approach. In: Royer J.S. (ed.) Cooperative Theory: New Approaches. Washington, DC: USDA, Agricultural Cooperative Service, pp. 87-107.
Stinchcombe, A. L., 1985. Contracts as Hierarchical Documents. In Organization Theory and Project Management, A.L. Stinchcombe and C. Heimer, eds. Oslo: Norwegian University Press, 121-71.
Swinnen, J. and Maertens, M., 2007. Globalization, Privatization, and Vertical Coordination in Food Value Chains in Developing and Transition Countries. Agricultural Economics, 37, (2), 89-102.
Sykuta, M. E. and Cook, M. L., 2001. A new institutional economics approach to contracts and cooperatives. American Journal of Agricultural Economics, 83, 1273–1279.
Taylor, R. N., 1975. Age and Experience as Determinants of Managerial Information Processing and Decision Making Performance. The Academy of Management Journal, 18, (1), 74-81.
Trechter, D. D., King, R. P. and Walsh, L., 2002. Using Communications to Influence Member Commitment in Cooperatives. Journal of Cooperatives, 17, 14-32.
Uzzi, B., 1997. Social Structure and Competition in Inter-firm Networks: The Paradox of Embeddedness. Administrative Science Quarterly, 42, (1), 37.
Valentinov, V., 2004. Toward a social capital theory of cooperative organization. Journal of Cooperative Studies, 37, (3), 5-20.
Valentinov, V., 2007. Why are cooperatives important in agricultural economics perspective, Journal of Istitutional Economics, 3, (1), 55-6.
Verba, S., Schlozman, K. L., Brady, H. and Nie, N., 1993. Citizen activity. Who participates? What do they say?. American Political Science Review, 87, 303-318.
Vlaar, P. W. L., Van den Bosch, F. A. J. and Volberda, H. W., 2007. On the Evolution of Trust, Distrust, and Formal Coordination and Control in Interorganizational Relationships: Towards an Integrative Framework. Group & Organization Management, 32, (4), 407-428.
Weick, K. E., 1995. Sensemaking in organizations. Thousand Oaks, CA: Sage.
Wenger, E. and Snyder, W., 2000. Communities of Practice? The Organizational Frontier. Harvard Business Review January–February
Whiteley, P. and Seyd, P., 1996. Rationality and Party Activism: Encompassing Tests of Alternative Models of Political Participation. European Journal of Political Research, 29, 215-234.

Williamson, O. E., 1985. The Economic Institutions of Capitalism . New York, Free Press.
Williamson, O. E., 1991. Comparative economic organization: the analysis of discrete structural alternatives. Administrative Science Quarterly, 36, 269–296.
Williamson, O. E., 1993. Calculativeness, Trust and Economic Organization. Journal of Law and Economics, 36, (1), 453-486.
Williamson, O. E., 1996. The Mechanisms of Governance, Oxford, Oxford University Press.
Wolfinger, R. E. and Rosenstone, S. J., 1980. Who Votes? New Haven: Yale University Press.
Wooldridge, J. M., 2009. Introductory Econometrics: A Modern Approach, 4th Edition. Michigan State University Press.
Yin, R. K., 2003. Case study research, design and methods, 3rd ed. Newbury Park: Sage Publications
Zenger, T. R., Lazzarini, S. G. and Poppo, L., 2002. Informal and formal organization in new institutional economics. In: P. Ingram and B.S. Silverman, eds. New Institutionalism in Strategic Management, Vol. 19. Amsterdam, JAI-Elsevier Science, 277-305.
Zylbersztajn, D. and Farina, E. M. M. Q., 1999. Strictly Coordinated Food Systems: Exploring the Limits of the Coasian Firm. International Food and Agribusiness Management Review, 2, 2.
Zylbersztajn, D., 2005. Papel dos contratos na coordenação agro-industrial: um olhar além dos mercados. Rev. Econ. Sociol. Rural, 43, (3), 385-420. http://www.scielo.br/pdf/resr/v43n3/27739.pdf Retrieved from the Internet on October 2009.

APPENDICES

Appendix 1. Descriptive Statistics

Independent variables	N	Minimum	Maximum	Mean	Std. Deviation
Past experience	148	0	39	16.92	10.301
Level of Education	148	1	6	3.26	1.165
Size of (own) farm	148	2	580	36.00	66.069
Participation in general assemblies	148	1	3	2.32	.652
Participation of son in activities of youth committee	138	1	3	1.40	.730
Participation of wife in activities of women committees	142	1	3	1.43	.748
Perception of influence on coop's path when member participates	148	1	5	3.97	1.006
Perception of influence on own economic benefits when member participates	148	1	5	3.81	.985
Perception that Strategic decisions are made by members	148	1	5	3.01	1.088
Perception that Members can vote in every important decision	148	1	5	3.65	1.118
Perception that Board of directors considers members interests in their decisions	148	2	5	3.82	.847
Acceptance of Board of directors deciding strategic issues without consulting members	148	1	5	3.07	1.302
Quality standard is determined in contract	148	1	5	3.61	1.281
Deliverance in made in pre-determined dates	148	1	5	3.64	1.433
Agreements follow formal rules and procedures	148	1	5	4.10	1.093
Perception of being a co-owner of the cooperative	148	1	5	3.24	1.397
Occupation of any function in the cooperative governance?	148	0	1	.23	.422
Perception that received value depends on quality control of delivered product	148	2	5	4.65	.558
Perception that the cooperative controls rigorously used inputs	148	1	5	4.34	.915
Perception that the cooperative monitors rigorously productive activity on site	148	2	5	4.32	.875
Perception of Autonomy to decide how much to produce	148	1	5	3.97	1.347
Perception of Autonomy to choose technology	148	1	5	4.10	1.211
Perception of Autonomy to choose variety	148	1	5	3.43	1.604
Information exchange on quality improvement with the cooperative is frequent	148	2	5	4.39	.822
Cooperative informs about expected quality in informal way	148	2	5	4.20	.814
Cooperative informs about expected quality through written docs	148	1	5	3.29	1.406
Perception that payment is proportional to effort	148	1	5	3.53	1.192
Perception that received value depends on quality control of delivered product	148	1	5	4.54	.811
Satisfaction with price the cooperative pays for the product	148	1	5	3.49	1.163
Soybeans Producer_Yes	105	-	-	-	-
Broiler Producer_Yes	58	-	-	-	-
Vegetable Producer_Yes	27	-	-	-	-
Dependent variables					
Perception that quality control will be increasingly important	148	2	5	4.70	.543
Perception that shifting quality standards towards customer preferences is good	148	2	5	4.61	.668
Perception that quality control will be increasingly important	148	2	5	4.55	.598
Sells to the cooperative even if other firm offers better price	148	1	5	4.16	1.227
Better price is better than relation with the cooperative (-)	148	1	5	3.34	1.117
Willingness to invest if the cooperative requires	148	2	5	3.91	.940
Willingness to receive lower price temporarily (-)	148	1	5	2.80	1.060
Cooperative's future as part of concerns	148	1	5	4.60	.763
Valid N (listwise)	148				

Appendix 2. Total variance of 'Commitment' explained

	Initial Eigenvalues					
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2,901	36,265	36,265	2,154	26,920	26,920
2	1,184	14,797	51,062	1,931	24,142	51,062

Appendix 3. Total variance of 'Governance mechanisms' explained

	Initial Eigenvalues					
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5,188	18,529	18,529	5,188	11,178	11,178
2	3,831	13,683	32,212	3,831	10,743	21,921
3	2,036	7,271	39,483	2,036	8,649	30,571
4	1,870	6,679	46,162	1,870	7,847	38,418
5	1,482	5,294	51,456	1,482	7,495	45,913
6	1,392	4,970	56,426	1,392	7,274	53,187
7	1,127	4,026	60,452	1,127	5,827	59,014
8	1,103	3,940	64,392	1,103	5,378	64,392

Appendix 4. Correlation Matrix

Model	1	2	3	4	5	6	7	8	9	10	11	12
1_Farm size	1.000											
2_Past experience	-.041	1.000										
3_Community Communication	.038	-.025	1.000									
4_Market autonomy	.043	-.070	-.128	1.000								
5_Market incentives	.095	-.013	-.030	-.094	1.000							
6_Level of education	-.022	-.421	-.013	.120	.088	1.000						
7_Hierarchy control	-.196	.037	-.223	.002	-.079	.159	1.000					
8_Hierarchy formalization	-.101	-.107	.042	.027	.068	.037	-.039	1.000				
9_Community involvement	.086	.277	-.118	-.043	.064	-.269	.083	-.095	1.000			
10_Democracy representation& ownership	.082	-.018	-.142	.046	-.360	-.025	-.264	-.074	-.302	1.000		
11_Soybeans production	-.141	.211	.053	-.340	.092	.054	.050	.150	-.264	.011	1.000	
12_Broiler Production	.210	.021	-.065	.447	.139	.000	-.217	-.391	-.049	.064	.066	1.000

Appendix 5. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Pro-activeness	148				
(0)Passive	15				
(1)Occasional supporters	65				
(2)Involved	36				
(3)Pro-active	32				
Duration of membership	148	16.91892	10.30125	0	39
Level of Education	148	3.256	1.16129	1	6
(1) No formal education	1				
(2) Incomplete primary	45				
(3) Complete primary	43				
(4) Complete High School	44				
(5) Technical school	4				
(6) College	11				
Total farm size	148	36.189	65.91877	2	580
Lack of alternatives	148	2.608	1.291706	1	5
Better price	148	4.054	.8711849	1	5
Technical assistance	148	4.297	.8119805	1	5
Patronage refund	148	4.040	1.048993	1	5
Coop ideology	148	3.838	1.063009	1	5
Farm product	148				
-Specialized soy	47			0	1
-Broiler	58			0	1
-Vegetable	27			0	1
-Soy + (cassava; milk; swine)	16			0	1

Appendix 6. Collinearity Diagnostics

Variable	VIF	SQRT VIF	Tolerance	R-Squared
Duration of membership	1.25	1.12	0.8000	0.2000
Level of Education	1.29	1.13	0.7764	0.2236
Total Farm size	1.10	1.05	0.9070	0.0930
Lack of alternatives	1.11	1.05	0.9028	0.0972
Better price	1.22	1.10	0.8230	0.1770
Technical assistance	1.10	1.05	0.9089	0.0911
Patronage refund	1.29	1.14	0.7725	0.2275
Coop ideology	1.28	1.13	0.7796	0.2204

Mean VIF 1.21; Condition Number 25.0496

Appendix 7. Questionnaire

1. For how many years have you been a member of this cooperative? _____
2. Is any other family member also a member?
3. What is your highest level of education?

(1) No formal education; (2) Incomplete Primary ; (3) Complete primary ; (4) High School ; (5) Technical school; (6) College ; (7) Graduate Studies

4. Do you own or rent the land you farm on? Own / rented / both
5. What is the area of own property? _____ What is the area of rented land? _____
6. If any, what is the area taken by forests on your property? _____
7. What is the distance from farm to closest Coop processing unit? _____

8. In the last 12 months (01 de july de 2009 - 30 de June de 2010) which products did you deliver to the Coop?

N	Product	Total delivered	Dedicated area (ha) / Number of animals
1	Maize	_____bushel	_____Ha
2	Soy	_____ bushel	_____Ha
3	Carrot	_____ bushel	_____Ha
4	Brócolis	_____ bushel	_____Ha
5	Sweet corn	_____ bushel	_____Ha
6	Cowli flower	_____ bushel	_____Ha
7	Manioc	_____ bushel	_____Ha
8	Swine	_____Units	_____Units
9	broiler	_____Units	_____Units
10	milk	_____Liters	_____Units (cows)

9. In case you have more than one activity (maize, soy, wheat are 1 activity = agriculture; broccolis, sweet corn e cauliflower are another activity = vegetables; all the others are individually separate activities) please indicate the level of agreement with the following sentences.

N	Diversification	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	Diversification of your productive activity is crucial for the economic viability of your property					
2	The coop has/had a crucial role in the diversification of your productive activity					

10. How important are the following motivations for you to be a member of the cooperative?

	Reasons	Not important	Little importance	Medium	Important	Very important
A	To obtain access to credit					
B	Cooperative ideology					
D	To get a better price for your products					
E	You had no other way to sell your products.					
F	To get secured market for the products that you produce.					
G	To get inputs timely and with fair price.					

H	To get technical assistance and advisory services.					
I	To reduce your costs of marketing.					
J	To participate in economic results (profits) of the coop firm					
K	other					

11. Could you please respond what is your/family participation status in the following bodies of the cooperative?

N		participation status		
		Never (0)	Sometimes (1)	Always (2)
1	General assembly			
2	Attending production committee meetings			
3	Your Son/daughter participates in the youth committee activities			
4	Your Wife participates in the women committee activities			

12. Perception of importance of Participation

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	If members take part in their cooperative's decision-making they can influence the path of the enterprise.					
2	If you take part in the decision-making of your cooperative, you can influence it in such a way that your own economic situation improves.					
3	It is important to you that as many members as possible participate in the decision-making in your cooperative					

13. Participation - Decentralization in decision making

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	Associate producers participate in Strategic decisions-making					
2	Members can vote on every major decision of the cooperative					
3	Your suggestions are taken seriously by the coop					

14. Trust

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	There is corruption in the Coop					
2	When cooperative directors make decisions they take members' interests into account					
3	You accept that the board of directors takes strategic decisions without consulting you					

15. Formalization

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	Quality standard is determined in your contract					
2	Deliverance of your produce is pre-determined					
3	Agreements between you and the coop follow formal rules and procedures					

16. Identity

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	You perceive yourself as co-owner of the cooperative					
2	The members of this coop share the same values					
3	You occupy/have occupied a function within the coop governance structure	Yes		No		

17. Control

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	Your current buyer strictly controls the quality of the products you deliver					
2	Your current buyer strictly controls the inputs you use for the products that he buys					
3	Your current buyer strictly monitors your activities on the farm.					

18. Production autonomy

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	You are fully autonomous in deciding how much to produce					
2	You can choose the agricultural (or animal raising)technology you want on your farm					
3	Within each activity (soy, vegetables or poultry) you can choose the variety you want to produce					

19. Information exchange

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	Info exchange on how to improve quality is frequent					
2	The Coop informs you about the expected quality of products through Personal interaction in an informal way					
3	It is difficult for you to access information on quality requirements					
4	The Coop informs you about the expected quality of products through Written documents					

20. Market incentives

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	The payment you receive is according to your effort					
2	The payment you receive depends on the quality of your product					
3	You are satisfied with the price paid by the Coop for your product (soy, vegetables, or poultry)					

21.Commitment to quality strategy (customer orientation)

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	Quality control will be increasingly important in the coming years					
2	It is positive that the cooperative strengthens its quality requirements according to shifts in consumer preferences					
4	It is positive that the cooperative increasingly monitors the quality of your production process.					

22. Loyalty

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	You will sell to the coop even if another buyer offers a better price					
2	A high price for your product is more important than a long-term relationship with the buyer.					

23. Activism

N	To what extent do you agree with the following statements	Totally disagree	Disagree	Neutral	Agree	Totally agree
1	You are willing to make adjustments on your farm in case the coop asks you to do so					
2	You are willing to receive a lower payment for your products, temporarily, if that helps the coop					
3	The future of the coop is also your concern					

PART 2 - If you are a broiler producer and delivers broiler to Coop Lar, please indicate the extent of your agreement with the following sentences.

1. For how long have you been selling to the same broiler firm? _____

2. How many broiler houses do you have? _____

3. How many people work with you in the broiler houses?_____

4. During the last year (July 2009 - July 2010), how many broiler batches did you deliver to this buyer?_____

5. How many batches had discounts due to lower than standard quality (feet callus)?_____

6. How many batches had a productivity lower than what was expected by the buyer (that is, how many batches did not reach the green level in the productivity classification by colours)?_____

7. What do you prefer?

a) Receiving a higher price on average from the buyer even knowing that it can be temporary and in the near future you could be receiving considerably lower price (high price fluctuation) ?

b) Receiving a higher price on average from the buyer but with the certainty of stability (without or very low price fluctuation)

8. Risk

N		Totally disagree	Disagree	Neutral	Agree	Totally agree
1	Selling to your buyer reduces your marketing risks					
2	Your current buyer maintains prices even in times of crisis					
3	You bare the onus when an unexpected situation arises (Disease)					
4	In times of crisis your buyer helps you to maintain your income stability.					

9. Dependence

N		Totally disagree	Disagree	Neutral	Agree	Totally agree
1	It is easy for you to shift buyer					
2	Shifting buyer would be way too risky					
3	You strongly depend on your current buyer					
4	You had to make specific investments as a precondition to sell to your current buyer					
5	You had to acquire specific knowledge as a precondition to sell to your current buyer					

10. Behavior Uncertainty

N		Totally disagree	Disagree	Neutral	Agree	Totally agree
1	It is easy for you to detect an unfair treatment by your buyer					
2	It is easy for your buyer to distort facts in order to get advantages					
3	Your buyer has strong motivations to take advantage of what is not written in the formal contract					
4	It requires a lot of effort to detect whether the buyer is offering a fair price					
5	It requires a lot of effort to detect whether the buyer is being fair in measuring quality					

11. Adaptation

N		Totally disagree	Disagree	Neutral	Agree	Totally agree
1	You can quickly adapt the management of broiler production to new quality requirements					
2	Your buyer helps you to adapt to new quality requirements					
3	It has been difficult to adapt the management of broiler production to animal welfare requirements					
4	It has been difficult to adapt the management of broiler production to sanitary norms					
5	It has been difficult to adapt the management of broiler production to environmental norms					

About the author

Andrei Cechin was born in 1982 in Brasilia, Brazil. In 2005, he received his Bachelor degree in Economics at the University of São Paulo, Brazil. During his undergraduate studies began his interest about social and environmental impacts of businesses and of a growing economy. This led him to pursue a Master in Environmental Science in the same university. During the Master he rescued the work of Nicholas Georgescu-Roegen, a pioneer in Ecological Economics, and contextualized it within the 'energy transition' and 'sustainable development' debate. In 2008, he defended his Master dissertation which was later published as a book. In 2009, he joined the Management Studies Group at Wageningen University as a PhD candidate, part of the WOTRO project "Cooperatives and Chains: linking smallholders to agricultural markets". As part of this project he helped organize the International Workshop on "Family farming, agricultural cooperatives and value chain coordination: challenges and perspectives", which took place in Brazil, in March 2013. Besides his academic experience, he has worked two years for the NGO Transparência Brasil dedicated to fighting corruption though making public information more accessible, and has taught courses on Ecological Economics.

Completed Training an supervision plan

Andrei D. Cechin
Wageningen School of Social Sciences (WASS)
Completed Training and Supervision Plan

Wageningen School of Social Sciences

Name of the course	Department/ Institute	Year	ECTS (=28 hrs)
Career related competences/personal development			
Techniques for Writing and Presenting a Scientific Paper		2012	1.2
General research related competences			
Mansholt Introduction course	WASS	2009	1.5
Advanced Econometrics (AEP 60306)	WASS	2009	6
Workshop ESNIE 2010	Institute des études scientifique de Cargèse-	2010	3
Management and Coordination of agro-industrial systems	Universidade de São Paulo- Brazil	2010	4
The Empirics of Economic Organizations & Transaction Costs	Swedish University of Agricultural Sciences – Uppsala	2011	5
Project related competences			
Writing Research Proposal	WASS	2009	5
Seminars on "Cooperatives and Chains: linking smallholders to agricultural markets"	WOTRO	2009	3
"Perspectives on Per**f**ormance of Rural and Agricultural Co-operatives in Changing Environments".	University of Giessen – Germany	2009	1.5
"Coordination and quality in the agrifood supply chain: the role of The agricultural cooperative"	PENSA International Conference, São Paulo	2009	1
"Untangling quality attributes and governance mechanisms in agricultural cooperatives"	WASS PhD-day	2010	1
"IOF versus Cooperative in Broiler Production: Exploring Differences in Relationship Characteristics and Supplier Quality Performance"	EMNet Conference, Limassol, Cyprus	2011	1
"IOF Versus Cooperative in Broiler Production: Could Relationship Characteristics Explain Differences in Supplier Quality Performance?"	Wicanem conference, Wageningen	2012	1
"Linking organisational elements to member commitment in agricultural cooperatives"	Ernac Conference, Helsinki, Finland	2012	1
TOTAL			**35.2**