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Switching Behavior of Finnish Farmers

Key Elements of Commitment and Loyalty

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Abstract

The globalization and industrialization trends in agricultural sector changed the scene of the cooperative institutions. The notion of “traditional” cooperative appears to be outmoded; within the Finnish agricultural model, a cooperative is a multinational organization open to stock exchange markets yet still controlled by the members. A key factor determining the successful operation of the organization is membership. As the data indicate, the majority of the farmers decide to remain loyal to the organization hence they never switch to an Investor Owned Firm (IOF). Is there any profound reasoning for this behavior? Does cooperative ideology still holds an important impact, when it comes to selection of a cooperative or an IOF partner? How farmers assess the information they received from their cooperatives? Farmers who raise their voices are indeed more loyal? Using a zero inflated Poisson model on data retrieved from a sample of Finnish farmers, this project attempts to clarify “soft” factors that influence the decision of farmers to join and remain loyal to a cooperative. Farmers, who will use the organization to advance their own interest, will not mind to switch if they get the same benefits or complain to the cooperative is less likely to be part of the group of farmers that never switched to an IOF. At the same time, previous good experiences, making proposal to the organization and the process of ageing appears to reduce the switching behavior among the “switchers.

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1. Introduction

To understand the reasons and the very core of the establishment of the cooperative organization, a travel back in time is required. During the 19th century, the income derived from agricultural activities provided so little support which made even basic goods inaccessible to rural population. Motivated by the unpropitious conditions, a group of weavers formed a primal model for a consumer cooperative and set the base for cooperatives principals, values and ethical code. Cooperatives worldwide are autonomous and independent organizations open to anyone willing to indulge in membership, are controlled democratically and financed by the members, Agricultural cooperatives assist farmers and help maximize their income, often by providing various services otherwise unattainable to them. Large scale facilities such as petroleum refineries, is an example of such services. In other cases, cooperatives act as "negotiators"; by gathering production of small scale farmers, cooperatives achieve better deals and prices for the members. Additionally, it is not unusual for farmers to rely on technical advice from the organization to improve their activities, especially considering that one primary cooperative objective is educating and training the members. All in one cooperatives are organizations initially establish to improve the quality of life for the members, and nowadays, aim to advance their operations in any feasible way.

Cooperative organizations dominate the agribusiness scene in many countries and are particularly important in Scandinavia. They are present in almost every level of the agri-food and fiber value chain. For the academic organizational economist the cooperative form still constitutes a puzzle. Despite the kind intentions and cooperatives' objectives, there are various complications that result from common ownership of the capital. As cooperatives grow older and larger, literature concerning problems and inefficiencies of their operation is gaining attention, contributing with observations or even proposals for particularly issues. In large and complex organizations, the board of directors and management encounter problems deriving from vaguely defined property rights. When portfolio issues appear, members lacking the ability to discern between the long term benefits of the efficient operations of the cooperative and their temporary personal benefits, try to alter the portfolio of the organization at the expense of the organization. Additionally, the board of directors and management of the cooperative, holding physical assets and capital, take advantages of economies of scale and scope, aiming to increase the growth of the cooperative. This distribution of additional earnings can alter the way members view the cooperative institution and alienate them from their patron role. Furthermore, larger cooperatives are facing increased agency costs, an issue described in literature as control problem, due to lack of information between the management of the cooperative and the members.

Those issues have been present in the research of cooperative organization for more than 30 years, however the globalization and industrialization trends in the agricultural sector changed the scene of the cooperative institutions. New hybrid cooperatives are forming allowing transferability of equity shares. Cooperatives are often multinational organizations with the base membership expanded in different countries. However, despite the large scale activities, social capital is always a determinant factor for the successful operation of the organization; this is important because when a cooperative is losing its social capital, financial capital is at stake. An important aspect of cooperative social capital is the commitment of its members. It is a common phenomenon that cooperative members seek for alternatives and patronize other firms when they find better conditions. What drives their choice? Does ideology play any role

in farmer's choice to patronize an investor owned firm (IOF) instead of their own cooperative? How do farmers assess the information provided by the cooperative? How does the degree of involvement with the organization influence members' behavior? The aspiration of this project is a contribution to the research related with those "soft" factors influencing members' loyalty. The project focuses on the Finnish cooperatives.

The Finnish cooperative scene represents an intriguing hybrid cooperative model; it combines the objective of cooperative organizations yet benefits from external funding. Two distinct classes of shares were introduced allowing members to control the organization while the cooperative is open to the stock exchange market. Another notable feature is the multinational operation of the Finnish cooperatives. In consequence of those special characteristics of Finnish cooperatives and with the use of primary data gathered through an email survey from a representative sample of Finnish farmers, a number of hypotheses were formed, to explore farmer's switching behavior. Particularly, farmers who display one or more of the characteristics such as: readiness to switch to an IOF if they get the same advantages, use cooperative as a means to advance own benefits or view of cooperative strictly as a business relation, are expected to be less loyal. Similarly, farmers who embrace cooperative ideology, value past experience from long term cooperation, perceive cooperative as shelter towards large scale production, trust the information provided by the organization, are active participants in the organization, and assess that their proposal have an impact on the organization, are expected to be more loyal.

Loyalty like every multidimensional ideal is infeasible to be captured in a direct manner, therefore the number of switches between a cooperative and an IOF is used as a proxy for loyalty; the more times a farmer is switching the less loyal we assume he is. A special characteristic of the dataset is that the vast majority of the farmers in the sample have never switched to an IOF. This leads us to choose as appropriate econometric one that can handle data with many zeros (non-switching, in our case). Thus the assumption made is the existence of regime splitting mechanism distinguishing between two groups; the "never switching" farmers and those who have switched more than once and up to 7 times during the last 3 years. The best model for such samples is the robust zero-inflated Poisson model. This consists of two separate, but simultaneous regressions. The logit part of the model estimates the underlying factors determining the pseudo-log odds of being in the "never switching" regime, hence stay loyal to the cooperative organization. The Poisson regression estimates the factors that affect the likelihood of the number of switches. The results of the logit regression show that farmers who exercise "voice" to their organization in the form of complaints or propositions, who have no problem to switch buyer if they get the some advantages or those who are willing to use the cooperative power in order to promote their own interests, have lower odds of being in the never switching group of farmers. At the same time for farmers that do switch from cooperatives to IOFs the results suggest that the complaining or proposing to cooperatives, the appreciation of previous experiences from the organization and the process of ageing decrease the switching behavior while farmers whose recommendations have an impact on the organization are prone to switch more.

The paper is organized as it follows: in section 2 background information is provided aiming to inform about the origin of the cooperative as a movement, the objectives and principals. Additionally, a review on the most common problems that cooperatives face, intends to introduce the reader to cooperatives' practices, inefficiencies and challenges. The introductory section, closes with some additional information on the characteristics of the Finnish Cooperative Model. Section 3 includes literature review on a selection of researches about

cooperative loyalty and generally factors that influence member's satisfaction. The establishment of the theoretical framework is reported in section 4 while section 5 provides information about the data used in the project. Section 6 discuss the methodological approach and displays tables of descriptive statistics. The results of the model and discussion of the purpose of the project are presented in sections 7 and 8 respectively. Final conclusions and recommendations are reported in section 9 and in section 10 the reader can find suggestions for further research in the same field. Finally, in Section 11 is given the list of references used for the completion of the project.

1. Background Information

1.1. Definition, values and history of cooperatives

The recorded history of cooperatives began in Scotland. In 1769 the Fenwick Weavers society formed a consumer cooperative aiming to increase the standards in weaving craft. However it was at 1844 in North England when the Rochdale Society of Equitable Pioneers introduced equity dividends and established the prototype for modern cooperatives as we know them today. A group of weavers facing adverse economic conditions decided to pool their resources and work together. By forming an early consumer cooperative, they succeeded to lower the price of basic goods which previously were not accessible to them. As initiators of the Rochdale principles, they defined the set of values in which cooperatives all around the world base their operations. The original principles, as adopted by International Cooperative Alliance (ICA) in 1937, include the following: open membership, one member equals one vote, cash trading, membership education, political and religious neutrality, no unusual risk assumption, limitation on the number of shares owned, limited interest on stock, goods sold at regular retail prices and net margins distributed according to patronage. The latest version of principles, as being revised by ICA, describes the ideals of the cooperative organization as follows:

- **Voluntary and Open Membership**
All people willing to embrace the membership responsibilities are free to use services that the cooperative offers without racial, religion, gender, political or any other form of discrimination.
- **Democratic Member Control**
Members are controlling the organization by forming policies and participating in policy making decisions. Members have equal voting rights regardless of the size of their operations (one member one vote) and the elective representatives are accountable to the members.
- **Member Economic Participation** "*Members contribute equitably to, and democratically control, the capital of their cooperative*" (Co-operative identity, values and principles). Part of this capital consists of common property for the members; however, in some cases members receive some sort of compensation for their capital contribution by the advantages rendered from their membership. The underlying reasons for the members to contribute with capital are; further development of the cooperative, benefits that are deriving from the collaboration with the cooperative and which are analogous to the extent of the transactions made with the organization and various other activities.

- **Autonomy and Independence**
Cooperatives are autonomous and self-organized organizations. In case of collaboration with other organizations such as government or external funding from Inventor Owned Firms, the cooperative ensures the organization's autonomy: control activities will continue being imposed by members.
- **Education, Training and Information**
Cooperatives, in order to create an efficient organization, educate their members, representatives, managers and employees. Also they bear the task of informing the public about the values, ethics code and advantages that result when people deal with cooperatives.
- **Co-operation among Co-operatives**
In order to strengthen their position, cooperatives are collaborating with each other in local, national and international level.
- **Concern for Communities**
Cooperatives are integrated into a framework aiming to promote sustainable development policies.

Considering the vast variation of cooperatives organizational structures, the absence of a universally recognized definition for cooperatives is a natural resultant. The International Cooperative Alliance states: *"A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise"* (Co-operative identity, values and principles).

The United States Department of Agriculture (Frederick, 1997) emphasizes 3 principles – criteria for an organization to be identified as a cooperative

- **The User-Benefit Principle**
There is a nexus of different services and advantages, a member collaborating with a cooperative can benefit from. Services that are not offered by private sector or the assurance of quality supply delivered on time, are some of those. The benefits the members obtain are analogous to the size of usage of the available services. Furthermore, with the efficient operation of the cooperative, the "added value" of the products generated by co-ops services ensures additional profits for the members. Those earnings are distributed to the members. In contrary, if the cooperative didn't exist those earnings would be achieved by middlemen or processors.
- **The User-Owner Principle**
Members are owners of the cooperative. They shoulder the responsibility of financing the organization: a necessary condition to obtain and maintain competitiveness.
- **The User-Control Principle}**
Cooperative members are responsible for exercising control either directly by voting at annual assembly and other meetings or through their elected representatives. In many cases one member is entitled to one vote; however in some cases members receive some additional votes in relation to their patronage volume. Those additional votes are limited

so the democratic control principle is not trampled. Only the members are allowed to participate in the democratic procedures of the cooperative hence the purpose of the existence and the objectives of the cooperative are protected against the interest of external funders or other institutions.

The U.S. department of Agriculture lists three *core functions* of the cooperatives providing a framework to answer the question why farmers choose to form and patronize one.

- Marketing activities help farmers to maximize earnings deriving from selling what they produce. Specifically bargaining associations help members negotiate price and term of sales with possible buyers. Other cooperatives gather production of different farmers into large quantities before they sell it. In this way, small scale farmers who lack the means to deliver the product to the market or the volume of their production is too small to achieve favorable prices in negotiation, are assisted and protected by the cooperative. Some cooperatives by processing member's product add further value to the original product.
- Purchasing activities are in agricultural sectors one of the reasons justifying the existence of cooperatives. Farmers are able to purchase necessary quality supplies in affordable prices hence the cost of their operation is reduced. Additionally they access large scale facilities that would have been impossible to obtain on individual base. (example: petroleum refineries and phosphate, potash, and nitrogen manufacturing plants)
- Services in various activities are carried out by the organization, directly or indirectly linked to farm issues, for example technical advices and non-farming services. In relation to nonagricultural issues, credit unions are formed to provide loans to farmers with more lenient terms compared to those of banks and other private institutions.

Undoubtedly, one of the reasons explaining why cooperative organization established initially was the correction of market failures and providence of what is called *yardstick of competition*": Activities that were too expensive to be carried out by private own firms were achieved through cooperatives.

2.2. What problems cooperatives are facing

For decades researchers are trying to identify which particular problems cooperatives are facing and where these problems derive from. Neoclassical theory, along with property rights, agency, life circle and transaction costs theories are some of the approaches used to explain cooperatives' inefficiencies. However the underlying causes in these different approaches are the same. This section aims to introduce the reader to the following core problems that occur under the cooperative regime:

- Common ownership problem
- Horizon problem
- Portfolio problem
- Control problem
- Influence cost problem

To examine why traditional cooperatives are not the dominant organization form despite the vast increase of cooperatives market share in the last decades, (Cook, 1995) establishes the

"five stage life circle of a cooperative" theory. At stage one the motivating forces behind the genesis of cooperative "waves" are either the existence of excess supply induced prices and the need to balance this inefficiency, or the necessity to overcome market failures including the establishment of a competitive yardstick. At stage two cooperatives which were created in order to countervail market failures, offer more favourable prices compared to IOF's, which means benefits outweigh the costs therefore those organizations will enter stage three. At the next level, cooperatives operation has already triggered IOF's behaviour resulting in small differentiation in prices between IOF's and co-ops. Vaguely defined properties rights pose hurdles on the residual claimant generated by assets. Specifically, the existence of the cooperative is threatened by following issues: *free rider problem* describes the situation that occurs when a non-member captures the benefits of the cooperative, in terms of trade and negotiations, without patronizing it. The *horizon problem* describes the case where residual claimants of an asset last longer than the productive life of the asset itself. The *portfolio problem* emerges when members adopt strategies to alter the portfolio of the organization aiming to reduce their personal risk at the expenses of lower returns for the cooperative. It is worth mentioning this behaviour stems from the lack of mechanisms to support transferability of residual claims resulting in the investment and the patronage decision for a member to coincide. The *Control problem* refers to the inefficiencies and the lack of information between members of a cooperative with management of the cooperative and the board of directors, causing increased agency costs. Lastly, the *influence cost problem* arises when management decisions alter the wealth of distribution among the members. In the fourth stage of the life circle, the cooperative managers become aware of the pre mentioned issues therefore begin the formation of strategies such as exit the market, continue or transition. At the last stage cooperative can either chose between altering to an IOF or liquidate assets if exits choice prevails. If cooperative's managers decide to "continue", searching for outside equity or the formation of a strategy that will allow the cooperative to obtain internal capital is a necessity. Another alternative is the formation of a hybrid cooperative type known as new-generation cooperative, where different policies stressing mitigation of property rights issues are applied.

Fulton (1995) with a focus on technological change and society's values examines the future of cooperatives in an environment where individualism arises and the separation between ownership and usership is an increasing demand. As it is stated in this article "*the greater is a party's ability to affect the return an asset can generate, the greater will be the share of the residual that that party will assume*"(p.1146). In case of the cooperatives, members are the ones who can claim residual generated by the cooperative and given than agricultural cooperatives were closely related with unpredictable variability, the establishment of cooperative could eliminate free riding and other types of individualistic behaviors. However, the technological advantages on agricultural sector have diminished this unpredictably variability up to the point that the need for institution structures such as the one of a cooperative organization is declined. Regarding the changes in the society's values there is evidence of increasing individualism. The same article mentions that commitment to a cooperative is largely related with economics attributes rather than social. Additionally, conversion of cooperatives into IOF's and the practice of IOF's funding techniques are indicators of members perception about the traditional usership –ownership framework. As individualism increases farmers prefer to receive benefits as investors than cooperatives members and this behaviour could threaten the existence of the organization.

Vitaliano (1983) addresses control problem using agency theoretical framework. The management and the board of directors consist of people who are not residual claimants. Subsequently the decision making team, regardless of the form of the organization, will tend to

be in favour of policies that will decrease the value of residual claims. Given the lack of marketability of residual claimant, members will use the redemption option when management implements such policies in order to excess control. The result is managers to lose control over assets. Conclusively, the absence of immediate redeemability and marketability when it comes to residual claims results in less control in making decisions, therefore the board of directors has the responsibility to secure exercising effective control over the decisions. Additionally, as Vitaliano states: *“The residual claims of a cooperative organization are acquired or relinquished as a concomitant of the decision to enter into or terminate a contractual arrangement to supply patronage and capital to a cooperative organization and are therefore contingent property rights, which raises several problems”*(1983, p.1081). The common property problem occurs because new members basically have the same rights over residual claimants, depending on their patron, as older members. As it could be expected, members depending on the duration of the membership in the cooperative, create subgroups intending to favour those decisions that attract more organization cash flow to their group. Once again, the horizon problem arises when farmers depending on their own individual preferences to continue working, form subgroups with the tendency to support policies with shorten investment decisions pay-off horizons.

Nilsson (2001) argues that under specific circumstances, problems deriving from vaguely defined properties rights are eliminated either by a new structure of organization in cooperatives, the new generation co-ops, or simpler when the correction of market failures outweighs monitoring issues. Most of the problems cooperatives are facing are deriving from the lack of tradability of the residuals claims. New generation co-ops are a hybrid form of organization that allows transferability of equity shares and additionally, ownership requires a level of business involvement with the cooperative. Although unallocated capital continues to exist, property rights in form of shares can be trade at the market. Furthermore according to Nilsson, there are successful and competitive cooperatives which despite the existence of unallocated capital, operate efficiently. Nilsson argues that the driving force is members' perception of cooperative's operation and their individual situation arising from it. Satisfied members are willing to bear the cost associated with the residual claims. He states: *“No specific co-operative problem exist if members do have individual property to the co-operative firm or if the co-operative is collectively financed and organized while at the same time there is high commitment and strong social integration within the membership”*(p.15)

In the same article, Nilsson assort cooperatives into four types: traditional cooperatives, entrepreneurial co-operatives, Degenerated co-operatives and ex-co-operatives. Traditional cooperatives, consisting of satisfied members willing to embrace both their patron and investor role, will not face considerable property rights problem. Furthermore the cooperative is successful at correcting market failures. The second cooperative type also faces limited property rights issues while restoring market's function because of the ability to trade residual claims. Concerning the degenerated cooperatives members', dissatisfaction with the operation of the organization occurs. The organization fails to restore market inefficiencies and members are reluctant to invest in their cooperative. Property rights and monitoring issues are threatening the existence of the cooperative. Finally, the last type is composed by organizations which their structure is closer to IOFs, particularly are former degenerated cooperatives converted to IOF. They do not face significant problems with residual claims and they have no interest in correcting market inefficiencies.

To address the question "Why cooperatives turn to IOFs" Fulton and Hueth, (2009) examine 13 case studies of cooperatives conversions, failures and restructuring. They argue that the

structure chosen by cooperatives and their members is influenced by structural problems such as lack of capital, vaguely defined property rights and portfolio problems. One apparent explanation of cooperatives conversion is situated at market's environment involvement. Changes in technology, consumer preferences, institutional framework, regional-national-international policies take place and as the authors are stating: *"If the underlying problem with the investor ownership is, to some extent remedied by these changes, a cooperative operating in this market may lose its relevance"*(p.9). Additionally, the management of a cooperative which holds physical assets and operating capital will try to increase cooperative's growth by taking advantages of economies of scale and scope. A proactive and offensive approach in strategies combined with some luck, could present significant firm value. However, the distribution of earnings among members could hold an impact on cooperative's character. If farmers are seeking and expecting earnings in the future, cooperative will lose the focus in patron value. Another argument derives from agricultural industrialization. Increased capital requirements are posing difficulties for cooperatives to operate *"much beyond the farm gate"* which basically implies that it is becoming more and more difficult for cooperatives to provide the *"yardstick of competition"*

Commitment in the cooperative is a key factor determining the successful and efficient operation of the cooperative. Given their democratic structural form, along with the main purpose of their creation, cooperatives have an important asset: member's loyalty. Being a member of a cooperative is a decision based not only upon strictly economic criteria but also upon ideological beliefs and aspects. The exploration of determinants of this particular social capital is a necessity. Additionally, the industrialization and globalization that took place in the last decades introduced tremendous changes, not only in agricultural sector and industries but also in farmer's perception and attitudes towards cooperatives. Trying to understand and evaluate new requirements and standards held by farmers is quite an intriguing process. This project attempts to capture factors that influence farmers' loyalty. Specifically, the core of the project is the switching behaviour of farmers; given how often then switch between cooperatives and IOF, what are the main motives behind those switches.

2.3. Finnish Cooperative Model and Industry

Skurnik and Egerstrom, (2007) present the history of Finnish economic model and particularly the role of cooperatives in the transformation of Finnish economy. A combination of different factors such as the collapse of Soviet Union, the integration to European Union and the hazardous economic policies implemented around 1980's, contribute to a vast change of the economic climate. Apart from the collapse of Finland's major trading partner, Soviet Union, the country was also undergoing liberalization processes, moving from Coordinated Market Economy (CME) towards a less regulated and protected one. Cooperatives adapted to the new conditions and helped the national economy reshape, forming what is called the "bipolar economic system". Finnish society turned to the cooperative institution with almost 2900 organization established. Today practically every Finn is a member to a cooperative. It is worth mentioning, unlike most cooperative institutions, the Finnish cooperative movement was triggered "from the top – to the ground". Intellectual personalities of the time, such as Hannes Gebhard the father of Finnish cooperatives, promoted the need of cooperative organizations, proving that in fact the direction of establishment origin does not matter.

Bekkum and Bijman, (2006) define the Finnish cooperative structure as a hybrid form: *"cooperatives that have somehow sought to combine their cooperative objectives with the benefits of access to external capital"*(p.9). They notice how three major agricultural cooperatives introduce their subsidiaries cooperatives to the stock market yet manage to retain

their control. To Achieve that a separate class of shares was created exclusively for the members. Those shares hold higher voting rights allowing the cooperation's members, even in the cases which are the minority of shareholders, to retain organization control. The authors are providing three examples of such cooperatives:

- A forest cooperative, Metsäliitto owns 38 % its subsidiary M-Real shares, and 60% of the voting power.
- LSO Cooperative similarly poses the minority of HK Ruokatalo shares (37%) and
- The founding cooperatives of Atria Group maintain 58% of its shares and 92% of the voting power.

Although the figures have changed, the concept of Finnish hybrid cooperative model remains the same: a separate class of shares allows external funding while ensures members control of the cooperative. Most of Finnish cooperatives operate both nationwide and abroad. Agricultural products bought in host countries are both being proceeded and exported. Subsequently the size of Finnish cooperatives is notable larger than Finnish agriculture (Li et al., 2011). The following table provides information regarding four of largest agricultural cooperatives in Finland.

Table 1: Summary of the largest Finnish agricultural cooperatives

Processing firm	Valio	HK Scan	Atria	Metsäliitto
Organizational form	Limited liability firm	Limited liability firm	Limited liability firm	Limited liability firm
No. of cooperative societies, owning the processing firm	18 regional and local cooperative societies, with ownership in proportion to delivery volumes	LSO (Finland) with 69 per cent of the votes, and Sveriges Djurbönder (Sweden) with 12 per cent of votes	Lihakunta, Itikka and Österbottens kött, with ownership in proportion to delivery volumes	One cooperative society with 128,000 forest owners
External owners	None	Helsinki Stock Exchange	Helsinki Stock Exchange	Helsinki Stock Exchange
Share of the market for agricultural products, %	98	51	30	40
Turnover, millions of €	1,800	2,114	1,300	5,400
Foreign operations	Extensive exports to neighboring countries. Worldwide sales of dairy technology licenses	Nine countries, mainly in the Baltic Sea region. Production in the neighboring countries on the basis of animals acquired in these countries	Extensive exports to the Baltic Sea region. Production in the neighboring countries on the basis of animals acquired in these countries	30 countries worldwide

Source: Feng Li et all (2011)

2. Commitment in Previous Research

Committed members will favor their cooperative even if the alternative choice, Investor Owned Firms, could provide them better quality services and prices (Fulton, 1999) This fact self-documented the necessity of committed member for the long term surviving of the organization. In other words, the loyalty of members is essential for the successful operation of the cooperative organization (Bhuyan and Leistritz, 2001; Hakelius, 1996). There is evidence supporting the connection between reduction in member's commitment and weak market and financial performance of a cooperative (Lang and Fulton, 2004). But what are the constituent elements of a satisfied and committed member? When trying to identify factors that strengthen commitment within the cooperative framework, the notion of trust appears to be dominant in the literature. Commitment is built on trust and trust is built upon features of the management of the cooperative such as reliability, ability to avoid wrong decisions, ability to stay connected with the members and being concern about their interests (Barraud-Didier et al., 2012). Producers assess their more frequent economic actors as more trustworthy compared to those that are trading less often (Kollock, 1994). Managerial competence found to influence trust among "internal stakeholders" of an organization, i.e. cooperative members (Pirson and Malhotra, 2010). Additionally, members who trust the board of directors and the management tent to support organizational changes that could be vital for the effective operation of the cooperative. According to Bromiley and Cummings, (1995) if all the other factors are held constant, trust affect performance of the organization. With respect to transaction costs, the management of an organization can reduce costs that derive from monitoring procedures when the organization is trading with people who are considered to be trustworthy. Recent empirical evidence supports the hypothesis of reduced transaction costs and lower potential risks deriving from uncertainty, as a consequence of the establishment of trust within an organization (Xiao et al., 2010). Additionally, trading costs can also be reduced when cooperating with trustworthy partners, which axiomatically results in enhanced profitability for the organization.

Is the profitable operation of a cooperative adequate condition to promote member's trust towards the management of the cooperative? Empirical evidence suggests that is not. Österberg and Nilsson (2009) look into the way members' perceptions and assessment regarding cooperatives' operation can influence members' trust to the management and the general commitment to the organization .They found that although satisfied members with the profitability of their farm operations, tent to be more committed, they have less trust in the board of directors. In addition, Hernandez-Espallardo et al., (2009) research seems to verify Österberg and Nilsson findings; important factor determining members satisfaction and desire to continue patronage their cooperatives is the ability to have access to information that would allow them to evaluate the performance of their cooperative. Additionally, the sense of safeguard, either in the context of trust or enforced by legal means, effect members satisfaction since members are feeling less exposed against potential expropriation technics implemented by the management of the cooperative. So why is that profitability and price satisfaction although important, are not sufficient conditions to establish trust between cooperative's members and management? When cooperatives proceed to horizontal and vertical integration, farmers are becoming less involved and eventually lose of their trust towards the management of the cooperative (Nilsson et al., 2012). However, it is important to point out that the prices and profitability may not necessarily induce trust but still contribute significantly towards the decision to continue patronage a cooperative(Mensah et al., 2012).

Cechin et al.,(2013) discern commitment into two distinguish components; members' commitment to consumer oriented strategies and members' commitment to collective action. While the first type of commitment refers to member's economic rationality the second one is associated with traditional values such as altruism and ideology. Their research revealed an interesting case. Market mechanisms as expected strengthen member's commitment to consumer oriented strategies, but is also positive related with member's commitment to collective action. Contradictory as it might appear Hakelius et al.(2013) provide example of such cases. Specifically, members of cooperatives were dissatisfied because of the organization's inability to offer better prices for their differentiated products. They took action, exit the cooperative and formed a new cooperative. Both researches indicate that market mechanisms if not strengthen cooperative commitment, are at least factors that do not pose any threat towards it. For a group of farmers to demonstrate such behavior there are several characteristics required such as strong entrepreneurial, technical and administrative skills. Nevertheless, the research evidence member's desire for greater participation, involvement and control in the organization. In a prior research it was noted that even committed members feel there is inability of management to include members in the decision making procedures (Dakurah et al., 2005). Another method to identify the elements of cooperative commitment is to explore the reasons a farmer decides to join the organization. At the end, satisfaction is closely related with members initial "goals" and to what extent these goals are achieved (Dakurah et al., 2005). Pascucci et al. (2012) found that public intervention, in the context of supporting extension services or reduced tax obligations; can increase the probability of a farmer to use a cooperative organization. This indicates the importance of the "competitive yardstick function" of the organization. Klein et al. (1997) also suggest that farmers' assessment of cooperative value added activities tend to increase patronage in the organization.

Bijman and Verhees, (2011) in order to identify key elements of commitment, they distinguish between the role of farmer as a customer and as a member of a cooperative. Their findings suggest that customer commitment in cooperatives and IOFs is positive related with good customer relationships, cooperative characteristics and social network. Farmers consider good relationships more important than low price or high quality products. Additionally, cooperative members are more committed to their organization than other farmers to their IOF supplier. The importance of social networks and commitment among cooperative members and IOF's customers has also been examined by Enander et al., (2010) Particularly, social influences found to be more important and stronger among cooperative members compared to IOF's customers. Regarding the social role of the cooperative, Klein et al.(1997) found that farmers who believe that the cooperative does not hold any significant social role, tend to patronize less the cooperative while in a more recent survey, (Dakurah et al., 2005) 60 percent of the answerers of the questionnaire in the region of Alberta, assess that cooperatives are more involved with community services compared to IOFs

Many researchers tried to explore how age influences commitment to the cooperative. According to (Staatz, 1983) older farmers, due to shorten investment horizon, are more likely to exit sooner compared to younger farmers, hence is expected to be less loyal to their cooperatives implying that they tend to switch to IOFs or free ride. On the other hand, farmers with low discount rates are expected to be more loyal. Given that young farmers are usually in higher debt compared to older farmers, Staatz also suggests that younger farmers tend to be more loyal. However there are various researches indicating that older farmers are prone to be more loyal(Dakurah et al., 2005; Klein et al., 1997; Westerlund Lind and Åkesson, 2005).

3. Theoretical Framework

While IOFs' primary target is profit maximization, cooperatives' peruse, as it is clearly stated at the user-benefits principle, is to provide and distribute benefits to its users. This characteristic constitutes the essential distinguishing difference between cooperatives and other business forms. Ideology can result in participation to a movement as the result of a search for meaning and an expression of its own views (Klandermans, 2008). Therefore it is arguable that cooperative's ideology can hold an impact on members' commitment and loyalty. Even though in many countries cooperative ideology is not considered to be a sufficient factor for a farmer to embrace a cooperative (Karantininis and Zago, 2001), the inculcation of "cooperative ideology" could alter members' perception, cost benefits calculations and furthermore reduce conflicts derived from differences in preferences and portfolios among members (Staatz, 1987). It is worth mentioning that cooperative ideology viewed as socialistic institution used to pose hurdles to older generations. Socialism could be identified as relative ideology to Leninism, Stalinism and Maoism (Anderson and Henahan, 2005). However, since it's absurd for present farmers to feel threaten by the notation of socialism it is safely to hypothesize:

H1: Members who embrace cooperative's ideology are less likely to switch to an IOF.

There is significant evidence suggesting that cooperative members are influenced by traditions. Enander et al. (2010) in their research among Swedish forest owners find that many of the owners are basically continuing the family business. Part of the tradition values involves the choice of business partner, in case of IOF, or patronizing a cooperative. In other words the present choice of IOF or Cooperative is highly correlated with previous generation's choices. Anderson and Henahan, (2005, p.2) believe that *"farmers pass their bad experience with cooperative down from generation to generation"*. Kool et al. (1997) find that for purchases regarding regular products farmers tend to deal with the same partners without further search for new alternatives. Additionally, when it comes to acquiring new equipment, they simplify the process on the ground of "learning over time" attitude. Kool, (1994) also considers the presence of a "habit" as one possible explanation of why farmers choose the same suppliers: It appears to be convenient for them not to change suppliers. In some cases, one of the main intensives for customers of IOFs or members of cooperatives, to continue their business with their partner, is the role of the organization's representative as an advisor (Enander et al., 2010; Kool, 1994). Especially in the case of forest owners, IOFs suppliers seek advices from IOFs representatives implying that they seem not to realize the opposite interests between them and the IOF's representatives. Previous experiences are one considerable determinant factor on a member's decision to continue patronage a cooperative or not. Regardless of what lies behind those experiences, tradition, trust or just a habit, could hold an impact on members' loyalty:

H2: Member who value previous experiences with cooperatives are less likely to switch to an IOF.

An individual could participate in a movement in order to influence the social and political environment. This behavior is described with the term instrumentality (Klandermans, 2008). *Mutatis mutandis* a farmer could join a cooperative in order to change the economic conditions he or she is facing. Considering the user-control principle, which states that users of a cooperative are responsible to exercise control, it comes as no surprise the findings of Österberg and Nilsson, (2009). Specifically they found that democratic control is crucial for members meaning that *"members attach strong importance to their participation in the democratic governance"*(p.194). Furthermore they suggest that members who feel that they hold some chances to influence the board of directors' decisions through their democratic control are likely to trust and support the board. On a more recent research Cechin et al. (2013) findings verify Österber and Nillson's argument over positive correlation between commitment to collective action and democratic control of the cooperative. Nevertheless, opposed to this positive behavior, as has already been discussed, Cook (1995) describes the portfolio problem as a situation emerging when in order to reduce their personal risk, members are trying to alter the portfolio of the cooperative, which inevitably results in lower returns for the cooperative. There is a distinguishing line between a farmer who values the democratic principles of the cooperative and a farmer who will use those as a mean to promote his own agenda. A member motivated to use power to emerge his own benefits despite the overall loss of efficiency his actions are causing to the cooperative, can be considered as less committed member:

H3: Members who use the cooperative to power/advance their own interests are more likely to switch to an IOF.

Calling in mind the motivating forces behind the development and establishment of the cooperative organization form, we encounter a group of workers back in the late 19th century, which driven by extreme poverty and adverse living conditions, create a self-organized movement. This early attempt of farmers to organize themselves started only after they became aware of the economic abuse held by the agricultural sector towards them. The cooperative organization was the reaction of private sector's unfair treatment towards farmers: a new organization form adopting higher ethics code was a necessity (Lasley and Baumel, 1996). The very essence of cooperative organization was the development of a "protection net" for farmers against private sector's tactics. Unlike within cooperative regime, IOF's primary purpose is the constant maximization of profits without *"social or any other form of considerations"* (Robb et al., 2010, p.4). In an economic environment characterized by international trade without any barriers and major inequality within society, inevitable, we encounter the following question; what is the role of cooperative organizations and what challenges need to be faced? Specifically, as cooperatives become larger, more complex with international activities, a dilemma rises: should the cooperative rely on expensive domestically produced raw material or choose cheaper foreign products which will maximize organization profits (Henning, 2009). Fulton states: *"member's commitment is a sort of glue that allows membership and business volume to be maintained even as trade becomes more fluid and barriers to reorganization are broken down"*(1999, p.418). If a cooperative continues to provide "shelter" to the members, or more accurately if members' perceive their cooperative as a shelter, this could arguable be a factor that increases commitment.

H4: Members who view cooperative as a shelter are more likely not to switch to an IOF.

The increment in profitability in terms of direct payment and patronage refunds or reduced cost, is one of the most crucial factors, determining the degree of satisfaction a farmer is experiencing through a cooperative (Westerlund Lind and Åkesson, 2005). Even though

empirical evidence proving comparative efficiency of IOF's compared to cooperatives does not yet exist, there is a literature of theoretical arguments pointing out why a cooperative is less efficient. Particularly, cooperatives that succeed in correcting marketing failures and act as a "yardstick" of competition at some point trigger IOF's reaction. Short run cost of the cooperative inevitably will be notable to the members and conflicts regarding property rights will occur. At the same time IOF's prices differ a little if they differ at all (Fulton, 1995). Farmers who view a cooperative organization strictly as a business model, regardless of its social and cultural role when costs of operating with a cooperative are increased while the prices offered by a private firm are more favourable, are expected to switch to an IOF. On the ground of these, the fifth hypothesis is formulated as it follows:

H5: Members who view the cooperative as pure business are more likely to switch to an IOF.

Nilsson (2001) emphasizes the significance of values such as solidarity, equality and fairness, to advance effective operation and further growth of the cooperative: volume increases along with the membership and economies of a scale appear. Participation to a movement could be the outcome of a manifestation of identification with a group, a principle known as identity (Klandermans, 2008). Unlike commitment to ideology, where an individual can share the goal without identifying himself with the group, collective identity is a constant interplay among individual identities (Polletta and Jasper, 2001). Borgen, (2004, p.390) notes the importance farmers perception and appreciation of the collectively own equity capital and particularly, the assessment of *"unexpected and potentially damaging contingencies that cannot easily be dealt with by members individually and separately"*. The establishment of a collective identity among members of a cooperative not only reduces negative effects deriving from vaguely defined property rights but also reinforces the notion of solidarity among members. Additionally, empirical evidence suggests the existence of social networks and their impact on decision regarding the choice between cooperative and IOFs (Enander et al., 2010). Under these circumstances it is rational to assume that a farmer who identifies strongly himself with the cooperative will develop a stronger sense of commitment. This farmer will refuse to leave the cooperative for an investor owned firm if the alternate offers the exact same advantages. Therefore the next hypothesis is formulated as it follows:

H6: Members who are willing to switch if they get the same advantages from private buyer are more likely to switch to an IOF.

One of cooperative principles as described by the International Cooperative Alliance is emphasizing the educational character of the cooperative. Education is a direct means to increase member's operation efficiency, hence the general efficiency of the organization. Undoubtedly it is difficult to measure education, but the information cooperatives are offering to members could be used as a proxy. Klein et al., (1997) notice two contrary directions of members assessment of the information received from cooperatives with respect to educational background. Farmers with higher educational background tend to apprehend the value of information therefore patronize a cooperative in order to receive the required information. On the other hand, less educated farmers are more dependent on the cooperatives with respect to the information they receive. Nevertheless, in both cases information remains an important factor influencing the decision to join a cooperative or not. Cooperatives management, as the organization grows larger and more complex is trying to substitute personal contact, which is getting lost, with better information services (Anderson and Hennehan, 2005). But to what extent do members trust the information received? As Lasley and Baumel, (1996) state " *Trust*

is not something that just happens. It is the result of conscious decisions and efforts to improve human relationships"(p.1). What increases members' trust on cooperative organization is a matter of discussion for many researchers. According to Borgen (2001) members who identify themselves strongly with the cooperative tend to trust more the management of the cooperative. Nillson et al. (2009) suggest that when members trust the board of directors they are more positive oriented to organizational reforms. A farmer with strong cooperative identity and trust in the management's tactics and reforms is more likely to be committed to the cooperative. On this basis, the seventh hypothesis is:

H7: Members who trust the information they receive are less likely to switch to an IOF.

As Hirschman's classic exit, voice and loyalty thesis (1970) describes, when there is a declining in the quality of a product or a service an organization, or a firm is providing, there are two alternative ways for the management to be informed: Members leave the organization, behaviour known as exit or members express their dissatisfaction by addressing to the management of the organization or directly to basically anyone who is interested in listening. This behaviour is known as voice. When members are raising their voice, management has the change to investigate the source of member's dissatisfaction and optimally correct the inefficiencies. On the contrary in competitive sectors, if the prevailing choice is exit, then membership declines and shortly the organization will be destroyed. However, there are dissatisfied members who choose not to exercise voice neither exit. Although those members are characterized by high level of loyalty to the cooperative, their behaviour excludes management from necessary information to improve the organization. According to Hirschman members who actually choose to raise their voice are members that can be described by the two following characteristics: they are "*willing to trade off the certainty of exit against the uncertainties of an improvement in the deteriorated product*" or perceive they have the ability to influence organization's management (p.77). And while it's already explained how members' assessment of control can influence commitment, the first characteristic is directly linked with the notion of loyalty. While both exit and voice choices are actions sending to the management the same message, dissatisfaction, exit is much easier choice compared to "stay and fight" attitude. Empirical results, confirm the relation between loyalty and voice: "*Workers at the high-loyalty workplaces were more likely to include voice among the ways they would resolve workplace problems, while workers at low-loyalty companies were less likely* (Hoffmann, 2006a,p.2327)." In other words, loyal worker tend to be more actively involved with the organization and raise their voice in order to confront problems they are facing (Hoffmann, 2006b).

As Hirschman's classic exit, voice and loyalty thesis (1970) describes, dissatisfied members could either exit the organization or express their dissatisfaction; a behavior known as "voice" When members are raising their voice, management has the change to investigate the source of member's dissatisfaction and optimally correct the inefficiencies. If the exit voice prevails, membership declines and shortly the cooperative will be destroyed. Additionally, the are also dissatisfied members who do not exercise their voice either exit. Those members are characterized by high level of loyalty to the cooperative, however their behavior excludes management from necessary information to improve the organization While both exit and voice choices are actions sending to the management the same message, dissatisfaction, exit is much easier choice compared to "stay and fight" attitude. Empirical results, confirm the relation between loyalty and voice. (Hoffmann, 2006a)

H8: Members who complain or proposed something are less likely to switch to an IOF.

When dissatisfied members are exercising their voice option to complain or just report problems, the optimal scenario is the management of the cooperative to counteract by improving services and eliminating problems members are facing. Members could either expect management to “correct what is wrong” or their voice to “be lost” due to cooperative’s large size, complexity, poor organization or any other fault and inefficiency. However regardless of members’ expectations, it is rational to assume when members assess that various changes happened after rising their voice, their satisfaction with the management of the cooperative and overall satisfaction increases. Therefore the last hypothesis is:

H9: Members who assess their complains or proposals led to a change are less likely to switch to an IOF.

4. Data

4.1. Data and Sample

The data were collected via Gallup Finland using email survey among a representative sample of Finnish farmers both members and non-members of cooperatives. Gallup Finland conducts on a monthly base general questionnaires addressing to farmers. The data used for this thesis are a subset of a complete questionnaire. The collection of the data took place during August of 2010.

The questionnaire received a total of 1295 answers, which corresponds to a response rate of 47.3%. However not all questions were fully completed. The main fields of production of the farmers are presented in the below table:

Table 2: Production fields

Production Activities	Percentage %
Dairy cows	28.3
Other cows	11.6
Pigs	7.9
Other farm animals	2.3
Grain	31.5
Other plant production	8.5
Other production	4

The average field area is 48,7 hectares and 690 hec is the maximum. It is worth mentioning the average of all Finnish farmers’ area is 49 hectares. The average number of cows in the sample is 26(both for dairy and other use) and the average cows number of Finnish farming population is 27. These figures indicate that the data are a representative sample of the Finnish agriculture industry.

The average age of the farmers in the sample is 57.2 years with 20 years being the minimum observation and 91 the maximum. The male responders represent the 84% of the sample.

A common practice for the average Finnish farmer is to be member in more than one cooperative. In our sample 29% of the responders belong to a dairy cooperative, which in most of the cases is Valio's ownerships cooperatives. 58% belong to Metsäliitto forest cooperative and 28% belong either to Lahakunta or LSO meat cooperative

4.2. Variables and Measures

In previous section proceeded an analytical discussion over factors that influence members' loyalty to the organization. Particularly, 9 hypotheses are stating the following:

Members who: view the cooperative as pure business, are willing to switch if they get the same advantages from private buyer, use the cooperative to power or advance their own interests tend to switch to an Investor Owned Firm.

On the contrary, members who: embrace cooperative's ideology, trust the information they receive, view cooperative as a shelter, value previous experiences with cooperatives, complain or proposed something, assess their proposal or complain led to a change tend not to switch to an Investor Owned Firm.

The number of switches between a cooperative and an IOF is used as a proxy to measure loyalty. This dependent variable takes values from zero, if a member never switched, up to 7 times. The questionnaire includes the 9 statements below, which respondents had to answer on a 5-point Likert scale: Value(1) corresponds to fully disagree and (5) to fully agree.

- Cooperative ideology keeps me as member in my cooperative.
- Experience about long-term cooperation keep me as member in this cooperative.
- A possibility for using power/advance my own interests through the cooperative keep me as member in this cooperative.
- Membership is a shelter against large producers.
- The membership in the cooperative is a pure business relation to me.
- If I get the same advantages through delivering my products to another buyer, I do not have any problem for switching the buyer.
- As how reliable do you regard the information that you obtain from your cooperative?

The member were also asked to answer two numerical questions:

- During the last 3 years, how many times you have complained or proposed something to the cooperative/company you deliver your products.
- How many times your complaint/proposal had led into a change

Table 3: Definition of the Variables

Variable	Statement/ Description	Measurement
ideology	Cooperative ideology keeps me as member in my cooperative	5-point Likert Scale: (1) fully disagree – (5) fully agree
experiences	Experience about long-term cooperation keep me as member in this cooperative	5-point Likert Scale: (1) fully disagree – (5) fully agree
power	A possibility for using power/advance my own interests through the cooperative keep me as member in this cooperative	5-point Likert Scale: (1) fully disagree – (5) fully agree
shelter	Membership is a shelter against large producers	5-point Likert Scale: (1) fully disagree – (5) fully agree
pure business	The membership in the cooperative is a pure business relation to me	5-point Likert Scale: (1) fully disagree – (5) fully agree
readiness	If I get the same advantages through delivering my products to another buyer, I do not have any problem for switching the buyer	5-point Likert Scale: (1) fully disagree – (5) fully agree
information	As how reliable do you regard the information that you obtain from your cooperative	5-point Likert Scale: (1) fully disagree – (5) fully agree
complain/ propose	During the last 3 years, how many times you have complained or proposed something to the cooperative/company you deliver your products	numeric (times)
impact	How many times your complaint/proposal had led into a change	numeric (times)
age	Age of the responder	years
size	Size of farms of the responder	hectares

5. Methodology

To examine the hypotheses stated in the previous section, a robust zero inflated Poisson regression (ZIP) is estimated. The dependent variable is the number of times the responders have switched between Cooperatives and IOF's the last 5 year. The number of switches is used as a proxy to measure loyalty and particularly the relation between royalty and the independent

variables. ZIP regression is used to model count data containing an excess amount of zero counts. As Figure 1 displays, 77% of the observations in the sample are zero (without considering missing values). The number of observations where switching occurs more than 3 times is too small to be treated as distinct categories (1.1%) therefore those are aggregated to one.

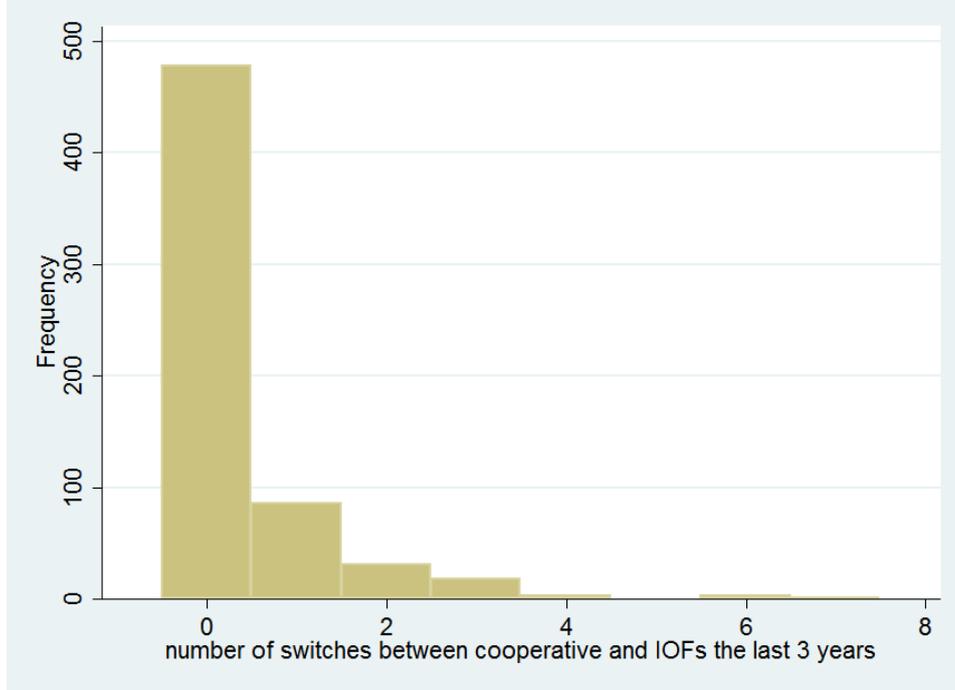


Figure 1: distribution of switches

As theory suggest, in cases with excess amount of zero observations, those zeros are generated by a discrete process from the count values, hence can be modeled independently. The ZIP model consists of two parts; a Poisson count model and a logit model to predict excess zeros (UCLA: Statistical Consulting Group,)

As Giles, (2010) describes based on the work of Lambert, (1992) the data derive from two different regimes, specifically in first regime R_I the outcome is always zero and the probability of an observation to belong in R_I is ω_i . At the second R_{II} the counts follow a Poisson distribution with probability for an observation to belong in R_{II} is equal to $1 - \omega_i$

Therefore, the dependent variable, the number of *Switches*_{*i*}, takes values:

$$Switches_i = \begin{cases} 0, & \text{with probability } \omega_i + (1 - \omega_i)exp^{-\lambda_i} \\ r, & \text{with probability } (1 - \omega_i)exp^{-\lambda_i} \frac{\lambda_i^r}{r!} \end{cases} \quad (1)$$

The conditional mean of the Poisson regression λ , and the parameter ω_i , follow:

$$\log(\lambda_i) = X \beta \quad (2)$$

$$\text{logit}(\omega_i) = \log \omega_i / (1 - \omega_i) = Z \gamma \quad (3)$$

where β and γ are vectors of coefficients and X and Z are vectors of the covariates. The log-likelihood for ZIP regression is given by the following function:

$$\begin{aligned}
L(\gamma, \beta; Switches_i) = & \sum_{Switch_i=0} \log[\exp^{Z_i \gamma} + \exp(-\exp^{X_i \beta})] \\
& + \sum_{Switch_i>0} (Switches_i X_i \beta - \exp^{X_i \beta}) \\
& - \sum_{i=1}^n \log(1 + \exp^{Z_i \gamma}) \\
& - \sum_{Switch_i>0} \log(Switches_i!) \tag{4}
\end{aligned}$$

where X_i and Z_i are the i^{th} rows of X and Z respectively. The final estimation specification function is given below:

$$\begin{aligned}
Switches_i = & (\exp(\delta_0 + \delta_1 ideology_i + \delta_2 experiences_i + \delta_3 power_i \\
& + \delta_4 shelter_i + \delta_5 purebusiness_i + \delta_6 readiness_i \\
& + \delta_7 information_i + \delta_8 complain\propose_i + \delta_9 impact_i \\
& + \delta_{10} age_i + \delta_{11} size_i + u_1)) \\
& /((1 \\
& + \exp(\zeta_0 + \zeta_1 ideology_i + \zeta_2 experiences_i + \zeta_3 power_i \\
& + \zeta_4 shelter_i + \zeta_5 purebusiness_i + \zeta_6 readiness_i \\
& + \delta_7 information_i + \delta_8 complain\propose_i + \delta_9 impact_i \\
& + \delta_{10} age_i + \delta_{11} size_i + u_2)) \tag{5}
\end{aligned}$$

To test the fitness of the zero inflated Poisson over the regular Poisson model, hence test if there is indeed a mechanism dividing members into two regimes, is used a test statistic initially developed by Vuong (1989) for non-nested models. The statistical package used for the calculations is StataIC 11(64-bit). In order to obtain robust standard errors of the estimated parameters, the `vce(robust)` option was used aiming to control for small violation of the underlying assumptions (Cameron and Trivedi, 2009).

Table 4: Descriptive Statistics

Variable	Observations	Mean	St. Deviation	Min	Max
ideology	594	3.084	1.245	1	5
experiences	590	3.576	1.168	1	5
Power	587	3.0766	1.1563	1	5
Shelter	581	3.327	1.1214	1	5
pure business	581	3.343	1.120	1	5
readiness	591	3.455	1.120	1	5
information	579	3.368	0.94	1	5
complain/propose	564	1.145	1.918	0	9
Impact	485	0.570	1.312	0	9
age	601	58.056	10.059	20	91
size	571	50.889	48.110	0	690

Table 5: Distribution of answers on the 5-point Likert scale statements

Variable	1	2	3	4	5	-
ideology	89	84	195	140	86	26
experiences	50	48	136	224	132	30
power	67	98	217	133	72	33
shelter	64	69	164	181	103	39
pure business	34	74	197	159	117	39
readiness	60	80	148	137	166	29
information	15	49	140	272	103	41

6. Findings

Table 6 provides the results estimated by the robust zero inflated Poisson model. First the logit regression is generated to estimate the "never switching" regime, predicting the pseudo log odds of a farmer being a member of the group of farmers who never switched to and IOF.

In other words, this part of the model explains which variables increase (decrease) the probability of a farmer to never switch to an IOF. Then, the Poisson regression estimates the different counts for those farmers who are not in the first regime. This regression estimates the expected pseudo log counts for the farmers who have switched at least one time. The two models are later combined.

The Vuong test suggests that indeed there is a mechanism dividing farmers into those two regimes, therefore the ZIP model is preferable to a standard Poisson regression ($Z=5.50$)

Table 6: Results

Variable	(1) Logit	(2) Poisson
ideology	0.263 (0.512)	0.153 (0.129)
experiences	-0.450 (0.406)	-0.233* (0.119)
power	-0.736* (0.426)	-0.346** (0.170)
shelter	0.353 (0.268)	-0.070 (0.113)
pure business	0.637 (0.393)	0.0242 (0.106)
readiness	-1.139** (0.568)	-0.196 (0.139)
information	0.142 (0.415)	(0.195) (1.156)
complain/propose	-2.147*** (0.627)	-0.210** (0.0934)
impact	-0.261 (0.257)	0.192** (0.0852)
age	-0.0223 (0.0323)	-0.0218** (0.00951)
size	-0.00403 (0.00715)	-0.00359 (0.0024)
constant	6.234* (3.157)	4.115*** (0.753)
observations	387	387

Robust standard errors in parentheses

***p<0.01

**p<0,05

*p<0.001

Logit: the results of the logit regression indicate that the following variables are statistically significant:

- If a farmer increases the answer of statement *power* by one unit, the odds that that this farmers would be in the "never switching" group decrease by a factor of $\exp(-0.736)$. Therefore, the higher value a farmer gives for the statement regarding power, the less likely it is for this farmer to be in the never switching group.
- If a farmer increases the answer of statement *readiness* by one unit, the odds that that this farmers would be in the "never switching" group decrease by a factor of $\exp(-1.139)$. Thus, the higher value a farmer provides for the statement regarding his readiness to switch buyer, the less likely it is for this farmer to be in the never switching.
- If a farmer increases the *complain/propose* variable by one unit, the odds that that this farmers would be in the "never switching" group decrease by a factor of $\exp(-2.147)$, meaning the more a farmer is complaining/proposing to the cooperative, the less likely it is for this farmer to be in the never switching group.

Poisson: The results of the Poisson regression show the following variables as statistically significant:

- When statement *experience* is increased by one unit, the expected number of switches in the last 3 years decreases by a factor of $\exp(-0.233)$, if all the other variables held constant. Therefore, the higher a farmer assesses his past experiences form cooperative, the fewer switches between cooperatives and IOFs occur.
- When statement *power* is increased by one unit, the expected number of switches in the last 3 years decreases by a factor of $\exp(-0.346)$, given that all the other variables are constant. Thus, the higher a farmer values the probability to use power/advance his own interests, less switches between cooperatives and IOFs are taking place.
- When a farmer increases the number of *complains/proposals* by one unit, the expected number of switches in the last 3 years decreases by a factor of $\exp(-0.210)$, assuming the rest of the variables are constant. As follows, the more a farmers is complaining/proposing to his cooperative, the fewer the number of switches is.
- When the number of complains/proposals led to a change, *impact*, increases by one unit, the expected number of switches in the last 3 years increases by a factor of $\exp(0.192)$, keeping the other variables constant. Consequently, the more a farmer is complaining/proposing to his cooperative, the smaller the number of switches is.
- Finally for each unit increase in the *age* of the farmer, the expected number of switches the last 3 year decreases decreases by a factor of $\exp(-0.0218)$ meaning older farmers are switching less.

7. Results

Hypothesis 1: Members who embrace cooperative's *ideology* are less likely to switch.

This hypothesis is not supported by the findings therefore is rejected. It appears that *ideology* has no important impact when it comes to the decision to remain in the cooperative or not. A more thorough look in the data indicates lack of consistency in the answers between the importance of *ideology* and the number of switches; some farmers stated that *ideology* is an important factor and yet they switched, others stated it is not an important factor yet they stayed.

Hypothesis 2: Members who value previous *experiences* with the cooperative are less likely to switch.

This hypothesis is not rejected within 10% level of significance. The variable past *experiences*, found not to have any explanatory power in the Logit part of the model; the part that determines the probability of a farmer being in the never-switching group. Nevertheless, it is significant in the Poisson regression; farmers who value past *experiences* from operating with the cooperative are switching less.

Hypothesis 3: Members who use the cooperative to *power/advance* their own interests are more likely to switch.

This hypothesis is rejected although found to be statistically significant both in the Logit and the Poisson part of the model. The results generated by the model display a peculiar contradiction. First, the negative sign of this coefficient in the Logit regression indicates that farmers, who will use cooperative to *power/advance* their own interests, are less likely to be included in the never-switching group. In other words, the probability that these farmers will switch at least once increases. Secondly, the negative sign in the Poisson regression indicates, that those farmers who have switched and who use the cooperative to *power/advance* their own interest, are less likely to switch often to an IOF. A possible explanation derives from the motivating forces of a farmer to patronize a cooperative. The profile of a farmer who is willing to manipulate the cooperative organization to advance his own interests yet didn't succeed and switched to an IOF fits the results indicated by the model. This farmer probably has no interest or limited interest to return to the cooperative, since his initial target was not accomplished. This behavior could explain why later the number of switches decreases. Of course, this contradiction in the results could be simply due to data inconsistencies.

Hypothesis 4: Members who view the cooperative as a *shelter* are more likely not to switch.

This hypothesis is rejected since the findings do not support it. Although the variable cooperative as a *shelter* has no explanatory power over the switching behavior of a farmers, the descriptive statistics as shown in tables 4 and 5, reveal an interesting characteristic of the farmers in the sample. Specifically, most farmers tend to view cooperative as a *shelter* against large producers. It might be useful to remind that our sample consists of both smaller and larger scale farmers. The fact that the majority of the farmers tend to view cooperative as shelter is an indicator of two possible outcomes. First, smaller scale farmers perhaps are not aware of the heterogeneity of the membership; a farmer believes that the majority of the members in the

cooperative is small scale producers, therefore view the organization as a shelter for smaller producers against larger producers. Alternatively, farmers are aware of the heterogeneity of the membership and believe that the cooperative organization acts in a way ensuring that the benefits of the smaller scale farmers are not endangered.

Hypothesis 5: Members who view cooperative as *pure business* are more likely to switch.

This hypothesis is rejected. In both parts of the model, the logit and the Poisson, is not statistically significant. Once again, both the econometric model and the descriptive statistics, clarify why this variable has no explanatory power when it comes to the decision to stay in a cooperative; most members tend to view cooperative as strictly business relationship.

Hypothesis 6: Members who are willing to switch if they get the same advantages from a private buyer are more likely to switch.

This hypothesis is accepted within 5% significance level. Specifically, is significant in the logit part of the model; these farmers who are ready to switch, are less likely to be included in the never switching group of farmers. Nevertheless, it is important to mention that the same variable is not significant in the Poisson part.

Hypothesis 7: Members who trust the *information* they receive from the cooperative are less likely to switch.

Hypothesis 7 is rejected. Trust in the *information* the cooperative is providing, is not found to be statistically significant neither at the logit or Poisson part of the model. However, this does not imply that farmers consider unimportant the quality of information they receive from their cooperatives. An insight at the descriptive statistics described at tables 4 and 5, shows that almost 90% of the sample valued the *information* statement on the 5-point Likert scale with notion 3 or above. With mean is 3.36 and variance 0.94 the variable *information* does not provide sufficient variation in order to be captured by the regression. In other words, the vast majority of farmers trust the information they receive from cooperatives which is the reason why this statement cannot be used as an explanatory variable when it comes to their switching behavior.

Hypothesis 8: Members *who complain or proposed* something are less likely to switch.

This hypothesis is rejected although it found to be significant in both parts of the model. The ZIP model reveals this antithetical relation between the number of *complains/proposals* and switching behavior. Specifically, the more a farmer is proposing/complaining the less likely becomes his membership to the "never switching" group of farmers, within a 10% significance level. Yet among the "switchers" the same variable tends to decrease the frequency of switches, within a 5% significance level. Contradictory as it may seem, the model could indicate a sufficiently rational behavior. The initially purpose of this variable was to capture the active participation of the members within the organization; the more a member is complaining and proposing to the cooperative, the more involved he is. However, the way the statement is formulated in the questionnaire could generate misleading results. In particular, the Logit part of the model indicates that members who complain are more likely to switch. It comes as no surprise that dissatisfied members will switch at least once meaning there are not likely to be part of the never switching group. However the fact that among the "switchers" the more they complain, the frequency of switches decreases, could capture the relation between active

participation and switching; active members are expected to switch less. All in one, the more a member *complains/propose* to the cooperative the more active becomes therefore loyalty increases, however there is a threshold for the never switching group which inverts the relation between complain/propose and switching behavior. Another way to explain the results, stems from the theoretical approach as discussed in section 4. Hirschman (1970) portrays dissatisfied members who do not rise their voice and do not switch. These members pose a threat to the organization since they don't give the opportunity to the management of the cooperative to be informed about the inefficiencies of the organization as viewed by the members.

Hypothesis 9: Members who assess their complains of proposals led to a *change* are less likely to switch.

This hypothesis is rejected however it is statistical significant. The Poisson regression suggests that the number of times the proposal of a member led to a *change* increases the frequency of switches. Is it rational for a farmer to turn to an IOF after noticing his comments had indeed an impact on the cooperative organization? A time-lag could explain this behavior; the farmer notices the changes after he switched to an IOF. Another possible interpretation is based on the individual characteristics of the farmers whose comments laid to a change. Most probably are farmers with advanced technical and persuasive skills, articulate and probably higher educational background, given that their valid proposals actually were adopted by the cooperative. It wouldn't be surprising if a farmer, after realizing his proposals have an impact on the organization, decides to exercise the exit option aiming to alter cooperative's portfolio or policies. Hakelius et al., (2013) provide an example of a case study where dissatisfied farmers with strongly entrepreneur skill and who had earlier exercised "voice, decided to leave their cooperative and form a new one.

Control variables: farm size and age.

Finally out of the two control variables, age and farm size, the age of the members found to be significant at a 5% level. Specifically the older a farmers is, the expected number of switches decreases. In other words, older farmers switch less. As already be mention in previous section, there are controversial theories on how farmer's age influence their decision to stay in a cooperative. Younger farmers with higher debt compared to older ones, are facing higher discount rates therefore are expected to defect more. On the other hand, with respect to farmer's individual remaining investment horizon is expected for older farmers to leave the organization or free ride. Our findings indicate that discount rate issues are more prominent thus older farmers tend to be more loyal.

8. Discussion

The overall purpose of this project is to enlighten determining factors of commitment and loyalty of farmers in cooperative organizations. The mean to estimate those, is the numbers of switches between cooperatives and IOF's. The underlying assumption, the more a member is switching the less loyal he/she is, could be subject to criticism regarding its validity. Specifically, a member who switched once to an IOF and return to the cooperative regretful with full acknowledgement of the cooperative benefits and advantages could be potentially more loyal and committed to the organization compared to a member that never switched. Therefore someone could argue that the basic assumption does not hold. Nevertheless, the aim here is not to capture the current state of member's loyalty. Even if the member in question is now more loyal, in the recent past he/she did take the decision to leave the organization. This

project intends to investigate the factors that lead a member to stop patronizing the cooperative. All in one, even if initially dissatisfied members after experimenting with other business forms, returned to the cooperative organization more loyal and determined to stay, they have been disloyal. The objective of the study is to estimate the reasons that contribute to the "exiting" behavior.

The choice of econometric model that is used for the purposes of this project was the result of an in-depth and extensive research. The existing literature suggests various models with numerous implementations for count data: Poisson, Negative Binomial, Zero-Inflated, Hurdle Models and threshold models are the most representative model regarding count data analyses (Greene, 1994; Hu et al., 2011; Cameron and Trivedi, 2013; Ridout et al., 1998). Because of the existent of excess amount of zeros in the data set, Poisson and Negative Binomial models were rejected in favor of Zero- Inflated and Hurdle models. The fact that the explanatory variables do not suffer from overdispersion, a situation which occurs when the variance is greater than the mean, suggest that the Zero- Inflated Negative Binomial model is not the best fitted model for the research. The Zero Inflate Poisson and Poisson-Logit Hurdle Regression differ substantially in the interpretation and the analysis of the origin of the zeros in the data set. Specifically, while the ZIP model assumes both structural (zeros that occur due to the specific structure in the data) and sampling zeros (zeros that have been created by chance), the Hurdle model makes the assumption of only structural zeros. This assumption cannot be supported by the theory and furthermore the Vuong test verifies the existence of sampling zeros. Finally the threshold models the assumes "*the existence of a continuous latent variable which when and it lies to a specific interval then the response $Y = y$ is observed*" (Ridout et al., 1998). Both the nature of the variables (non-continuous) and the lack of conceptual framework to support the basic assumption of the model, lead to its rejection.

There are two aspects to ethics: the first involves the ability to discern right from wrong, good from evil and propriety from impropriety. The second involves the commitment to do what is right, good and proper" (Maxwell, 2003, p.23). Although it is hard to define what constitutes research ethics, the ethical standards imposed by the researchers along with the aim of the research question and the implemented ways are the dominant components of it (Gustafsson et al., 2006). With this project, my personal aspiration is firstly to contribute to the research area regarding cooperative organizations, secondly to deepen the knowledge and overall understanding of farmer's behavior and finally to replicate previous results with the aim to clarify or boost their soundness. The research methodology was selected after objective and careful investigation, aiming to minimize potential bias. The data are reported with honesty; no fabrication, falsification or misrepresentation of data is present. Additionally, the findings are open for full discussion.

10. Conclusions and Recommendations

It is essential for the management of every organization, to be informed about the characteristics of the typical member along with the factors that influence the decision to remain in the organization. In cooperatives the social capital is the key factor determining the successful operation of the organization. With a degree of skepticism, this project contributes to the formation of the profile of a farmer-member in a hybrid cooperative organization.

Specifically the Finnish farmer and member in a cooperative:

- is not indulged in the cooperative ideology.
- values previous experiences from corporation with the organization

- tends to view cooperative as shelter against large producers
- trust the information provided by the organization
- is likely to view cooperative strictly as a business relation to him and will not hesitate to change buyer if he gets the same benefits

The above characteristics combined with the fact that the majority of the farmers choose to stay loyal in their cooperatives provide evidences of the efficient and successful operation of the organizations. A farmer who is not psychological attached to his organization and never switched to a different buyer is most probably a satisfied farmer.

Regarding the switching behavior of the farmers the following can be safely concluded:

- Using cooperative to “advance one's interests” is an indicator of a member who will switch from his/her cooperative organization, to another firm – IOF or cooperative – as long as he considers that this alternative will serve his interests better.
- There are members who complain less and decide never to switch to a private buyer.
- Members who are ready to switch if they get the same benefits, most likely they will switch
- Previous good experiences from the organization have a positive effect and reduce the switching activities of a member.
- A member who is prone to switch, will switch even if the management fulfills his requests.
- Younger farmers are more prone to switch, older farmers are switching less.

Organizational commitment is a term used to describe an individual's psychological attachment to an organization. It is positively linked with organization identification (Tompkins and Tompkins, 2005). Both terms are used to describe the sense of "oneness" a member feel with an organization. Finnish farmers in the sample have been asked about the importance of cooperative ideology on their decision to patronize a cooperative and the model reveals an inconsistent behavior; contradictory to what the hypothesis predicted the importance of ideology that the members are addressing to their decision, does not influence their switching behavior. On top of that, they were also asked to assess if the relationship to their cooperative organization is strictly a business one. Although this variable found not to be significant, it is worth mentioning that almost 82% of the farmers in the sample answered with the notion 3 or above, when they were asked if they view cooperative as a pure business relation. It is not an exaggeration to argue that these two distinct variables portray the same feature; farmers lack of identification with the cooperative organization and the cooperative values. The management of the cooperative should pay attention to this finding since literature suggests that members who strongly identified themselves with the organizations values and objectives tend to be more satisfied and hardworking(Cheney, 1983).

The management of a cooperative is reasonable to continue to provide reliable information. All members regardless of their switching activities, value the information services the organization offers. They should also try to raise active participation of the members. Members - quite often dissatisfied members- do not report the source their discontent. Although they probably will not switch to a different buyer, the management does not get valuable feedback from the base of the organization. Additionally, it has been argued that organizational commitment increases productivity and promotes satisfaction. Considering this, could be also useful for the management of the cooperative to encourage activities that will remind members the initial values and objectives of the organization.

11. Future research

An interesting question for further research is the relation between loyalty and the performance of the cooperatives; at what depth does commitment alter the effectiveness and profitability of the organization. Much research also remains to be done with both theoretical and empirical approaches regarding the concept of cooperative loyalty and how it is linked with the switching behavior of the members. This project estimates factors that influence the decision of members to switch buyer however a research that asks directly the farmers what caused their exit decision could conclude with more accurate findings. It would be also important to repeat the project with a different sample in a substantially different country. The Finnish farmers are members of cooperatives with unique characteristics. It is worth exploring how farmers from different countries with different cooperative history assess the same parameters. The cooperative organization in Finland and generally in Europe is established for almost two centuries. It is expected for the members of cooperatives in countries with recent development of the cooperative business model, to assess differently cooperatives operations.

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