

Product differentiation and cooperative ownership – A TCE-based exploration

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Abstract

The significance of differentiated food products – including food specialities - appears to be gradually increasing in most western food markets. This tendency represents a challenge for all actors in the agri-food value chain; i.e. farmers, processors and distributors. Not the least, more differentiated products trigger cooperatively owned companies to rethink and restructure their organization forms and practices. This holds particularly true for agri-food cooperatives that have traditionally strived to survive as cost leaders, but now realize that they gradually need to reorient their competitive strategy towards more value added and differentiation of products. Then, an intriguing question is what problems are likely to unfold in traditionally organized cooperatives as they engage more in production and sales of food specialities and differentiated products. The article addresses this theme, predominantly as seen through the lenses of Transaction Cost Economics. My approach is to explore how product characteristics may impact transaction characteristics and governance forms in cooperatively owned organizations. The idea to be advanced here is that the consequences for cooperatives of engaging more in differentiated products and food specialities depend on where in the value chain the source(s) of product differentiation resides. The consequences and organizational dynamics are assumed to be different if the major sources of differentiation reside within raw processing and/or sales&marketing, respectively. The purpose of this article is to explore this dynamics in further detail, as a prelude to empirical studies.

1. Introduction

The agri-food sectors of most western countries are in rapid change; one aspect of which is the decreasing price-cost margins in most commodity markets (Boehlje, 1999). Subsequently, many food processors are gradually changing focus from production of homogenous commodities with a relatively limited degree of value-added, to products which contain attributes that differentiate them from competing products. Typically, differentiated products target niche markets and try to command a premium price. Many examples demonstrate that there are substantial profits to be reaped from a successful differentiation strategy in food markets. Agri-food marketing cooperatives are highly affected by the increasing significance of differentiated products. A drastic change in competitive strategy - from cost leadership to product differentiation - tends to put the organizational structure of agri-food cooperatives under increased pressure. What may have proved as an effective cooperative structure under a price leader competitive strategy may easily turn out to be less effective and viable under a differentiation strategy, and vice versa. Maladaptation between competitive strategy and cooperative structure - also referred to as lack of coherence and/or mismatch - may become fatal for food companies (van Bekkum, 2001). For multiple reasons, however, the challenges of implementing successful differentiation strategies may be even more demanding for

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cooperatives than for IOFs (investor-owned firms): First, a cooperative operates normally with a more “restricted mandate” than an IOF in the sense that the cooperative is inherently linked to the raw products that are supplied by their owners (i.e the “upstream” of products). Traditionally, the rationale of a cooperative is to secure market access for owners` products and offer them the best possible prices for their products – not to maximize return on invested capital. A cooperative that differentiates its products well, but at the cost of ignoring its basic objective of selling the owners` raw products, is probably not evaluated as a great success by the owners. Second, to the extent that the product differentiation has its origin at the raw material stage (cfr. organic foods), the cooperative owners in question may be directly responsible for the implementation of a successful product differentiation strategy. The final success of the differentiation strategy is directly linked to the qualities and strategies at owners` farms, and thereby the owners` willingness and capacity to adapt their production of raw products accordingly. Third, a competitive strategy that emphasises product differentiation in one form or another, may challenge organizational routines, structures and norms (such as “equal treatment”). Probably, this holds particularly true for cooperatives that have predominantly struggled to be cost-leaders. Then, it’s mandatory for cooperatives to rebuild and retain necessary coherence between competitive strategy and cooperative structure. It’s therefore paramount for agri-food cooperatives to clearly address the challenges that increased product differentiation are likely to represent for the business- and ownership structure. The contribution of this article is to analyse selected organizational consequences of increased product differentiation for agri-food cooperatives and their members. The point of departure is the assumption that causality exists between product characteristics (here treated as an independent variable), transaction characteristics (here treated as an intermediate variable) and governance form (here treated as a dependent variable) in cooperatives. More specifically, the organizational dynamics that are likely to unfold for the sales of raw-commodity based specialities are compared to the dynamics that are likely to follow if the major source(s) of differentiation are located at the processing/sales level.² The article is explorative in nature. More empirical research is needed in order to verify the validity of the arguments.

The article is organized as follows: Chapter 2 motivates the research problem and presents the explanatory framework. A conceptual framework for operationalizing product differentiation is presented in chapter 3. As already mentioned, the core of my exploration (in chapter 4) is to investigate the causal link between product characteristics, transaction characteristics and governance mechanisms/forms. A review of the scholarly literature indicates that this theme has not been raised in any depth up to now. More specifically, I compare two categories of differentiated products; i.e. raw-commodity based and processing/sales-based products, respectively. Conclusions and implications follow in chapter 5.

2. Research problems and explanatory framework

The specific research question here is as follows: *How do various sources of product differentiation impact the organizational dynamics of an agri-food sales cooperative?* The explanatory framework builds on the basic assumption from Transaction Cost Economics (TCE) that the characteristics of the governance form must be coherent with the nature and characteristics of the underlying transactional pattern, and thereby the size and significance of

² The term "specialities" seems to be defined and used in multiple ways in the literature; from a delimited way (speciality=artisan food), to a more extended version. The latter is used here (cfr. Chapter 3).

transaction costs (Williamson, 2000). Throughout the last two decades, TCE has increasingly been applied as a theoretical basis for the study of cooperatives, although for very different purposes, and in very different and divergent manners (Harte, 1997. Nilsson, 1996. Hendrikse and Veerman, 2001). The TCE-based path we shall follow here, is to try and conceptualize cooperative as a special case of *hybrid governance* (Menard, 2004). This stream of research refers to the fact that cooperatives are “located” somewhere in-between the pure market and the pure hierarchy, making use of multiple governance mechanisms in order to coordinate their activities and members (Menard, op.cit.). The hybrid form is conceived of as a trade-off solution: It exists because - at the one hand - markets are perceived as unable to adequately bundle the relevant resources and capabilities, and - at the other hand - integration in a hierarchy would reduce flexibility by creating irreversibility and weakening incentives. In other words, the optimistic view is that hybrid governance tends to combine the best properties of the market and the hierarchy, whereas the weaknesses of either forms are overcome. But – more specifically – what is the definition of "hybrid governance"? Menard (op.cit) observes that the vocabulary in this field has not converged. Nonetheless, he claims that there are fundamental similarities (i.e. empirical regularities) between various types of hybrid governance. These empirical regularities can be summarised under three subheadings; (a) pooling resources, (b) competing, and (c) contracting. He further emphasises that, whatever the form hybrid arrangements take, they are systematically oriented towards organizing activities through interfirm coordination and cooperation. Subsequently, key investment decisions must be made jointly by the involved parties. A fundamental challenge for hybrid organizations is *how to secure cooperation in order to achieve coordination at a low cost without losing the advantages of decentralized decisions*. This idea constitutes a platform for the more specific and delimited investigation I want to conduct here. My objective is to discuss how the nature of cooperation and "low-cost"-coordination may be contingent on the nature of product characteristics, and thereby also the transaction characteristics and transaction costs. The context I refer to is also more limited, since I'm here particularly interested in the dynamics that may unfold within the context of a cooperative form of ownership. As compared to most TCE-based studies, however, I want to "take one step back", and pay more attention to the significance of product characteristics as a determinant of transaction characteristics, and thereby also the governance structure. This implies that my explanatory framework can be set up on a general form as in figure 1 below:

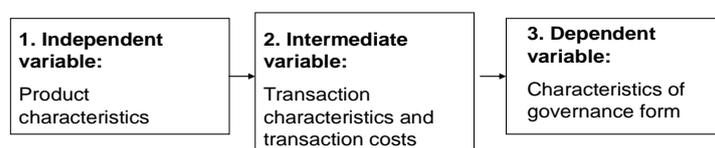


Figure 1: *The explanatory framework*

The link between product characteristics and transaction characteristics has so far not been much problematized within cooperative studies. On a more generic level, however, this link has been explored by Hobbs and Young (2000). They suggest a way of conceptualizing and operationalizing (measuring) “product characteristics” that includes among others “perishability”, “product differentiation” and “new characteristics of importance to consumers”. I shall follow their line of thought here, in the sense that the causality between product characteristics, transaction characteristics and governance form is set under scrutiny. However, my study is somewhat more targeted in scope than the study of Hobbs and Young, since only governance problems within cooperatively owned organizations are explored. Then, we need a conceptualization and operationalization of “product characteristics” that is more stringent and better tailor-made for the task at hand. The analytical approach we call for should also take into account that product differentiation may be rooted in all stages of the value chain. At this point, the existing literature seems to be incomplete. Throughout the last decades, the interest for new generation cooperatives has increased (Harris et.al, 1996. Stefanson et.al, 1997. van Dijk, 1997. Holland and King, 2004). The significance of value added and product differentiation within cooperative has been underlined on a more general level by among others van Bekkum, 2001. But with respect to the *origins* of product differentiation, for instance, most authors seem to be predominantly occupied with one type of product differentiation; i.e. product differentiation at the processing level. The significance of differentiating processes at the raw commodity level appears to be less explored. The most relevant contribution we have been able to identify, is the so-called “multiple string”-concept, which has been coined by Danish Crown and other Danish cooperatives. Nilsson and Pedersen (2001) have described the essence of this approach, but the analytical literature here seems to be somewhat limited as per yet.

In the following, the conceptualization of product characteristics that are developed in Borgen and Sørensen (2007), and referred to as the “differentiation cube”, will be enrolled. The underlying idea of this framework is the observation that the uniqueness of a differentiated product may have its origin at various stages of the value chain. The sources of differentiation may come from unique raw-commodities, unique processing methods and/or unique marketing&sales-processes. A reason why this approach is of particular interest for the study of cooperative organizations, is that the cube helps to understand the different nature of governance problems, depending on whether the main source(s) of differentiation are predominantly located at the *farm level* (cfr. raw commodity based differentiation) or at the *cooperative level* (cfr. processing and/or sales based differentiation), or both. Hence, the relations between individual members and their cooperative organization are set under scrutiny. We assume that manufacturing of specialities might be particularly demanding for agri-food sales cooperatives and its body of membership. The main cause is that an agri-food sales cooperative – by virtue of the very logic of this ownership form - is obliged to process and sale the stream of raw commodities that come from their owners. Indeed, the rationale of a cooperative is to secure market access for the owners’ products at the best possible prices, rather than to maximize return on invested capital as is the purpose of IOF’s. The cooperative is therefore not free to buy raw commodities from any vendors they want. Subsequently, the cooperative must see to it that their members produce and deliver the raw commodity in the right quantities and qualities, at the right period of time. On the other hand, cooperative members must be offered sufficiently strong incentives and sufficiently guarantees for supply, so that the required raw commodities are actually manufactured and delivered as demanded by the cooperative. The organizational ramifications are further explored in the remaining part of this article. First, however, follows a brief presentation of the way we want to conceptualize “product characteristics”; which offer the terminology for the subsequent discussion.

3. Conceptualizing and operationalizing product characteristics

Borgen and Sørensen (2007) have developed a framework for defining various types of differentiated products. The framework addresses the nature of the *sources* of differentiation that – alone or as a combination – constitute the uniqueness of a product. The underlying perspective of their framework is the fact that there may be multiple sources of differentiation in play simultaneously. The terminology must be on level with this complexity.

3.1 Various sources of differentiation along the value chain

The point of departure for Borgen and Sørensen (op.cit) is simple: The differentiation of an end-product can have its origin (may be rooted) at any of the three generic stages of the value chain (cfr. figure 1 below). The uniqueness of a successfully differentiated product can be rooted in one single factor of differentiation, or in several well known factors in a unique and novel combination.

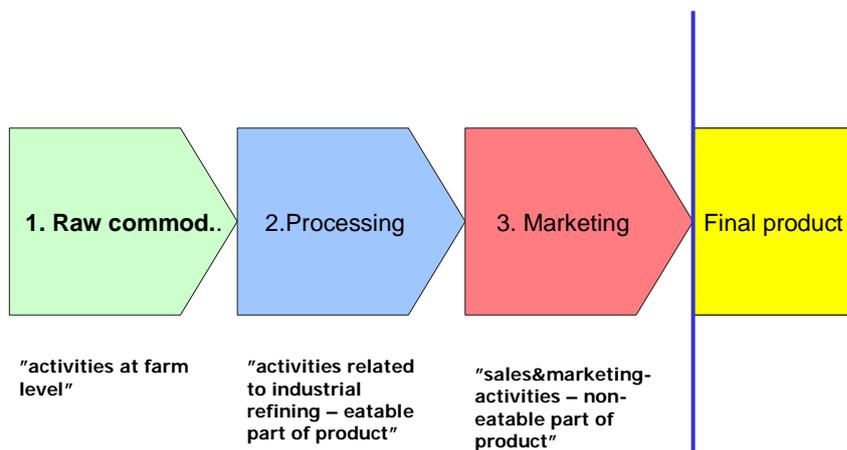


Figure 2: *The generic value chain for agri-food products*

More precisely, differentiation at the *raw commodity stage* of the value chain includes processing of the raw commodity on-farm; i.e. all activities that are under the control and auspices of the farmer. At this *raw commodity stage*, differentiation can be about particular genetic material, particular fodder and particular pasture land. Foodstuff produced according to organic principles is an informative example. Food that is produced according to particularly strict animal welfare principles (like e.g. the British scheme Freedom Food) is a somewhat less widespread example of raw-commodity based differentiation. Differentiation at the *processing stage* includes all types of refinement of the raw commodity which has to do with the eatable part of the product. This refinement can be observed or tasted, or both. For instance, the differentiation at this stage can be related to a particular slaughtering method (such as Halal-slaughter), a unique method of meat conditioning, or the utilization of

traditional recipes and handicraft traditions. Differentiation at the *marketing and sales-stage* includes the non-eatable parts of the end product; such as product design and package sizes. It also includes the "story-telling" and other sales arguments that are used in order to promote sales of the product. Often, the storytelling into which the product is embedded, sets focus on the local and regional traditions of a product. In short, a differentiated food product may have several sources of differentiation, depending on where in the value chain the uniqueness of the product is rooted and created. In practice, products can of course be characterized by various degrees of differentiation, depending on how closely constructed the substitutes of the product are, and how unique the product is evaluated by customers. Low and no degree of differentiation will correspond to a standard product. A high degree of differentiation will correspond with a unique specialized product.

3.2 From value chain to differentiation cube

The next step is to convert the three phases of the simple generic value chain - raw commodities, processing and marketing/sales - into the three-dimensional format of a cube. (cfr. figure 3). The first axis of the cube – here denoted R for Raw commodity – measures the degree to which activities at the raw commodity level adds to the differentiation of the end-product. For agri-food products, this includes on-farm activities that significantly impact the quality of the raw commodity that's forwarded to processing and sales. The second axis, here referred to as P for processing, measures the degree to which activities at the processing stage add to the differentiation of the final product. With respect to agri-food products, this includes all eatable attributes. Correspondingly, the third axis (here denoted M for marketing) refers to the degree to which marketing and sales activities add to the differentiation of the speciality product. For agri-food products, this includes non-eatable attributes of the product like design and packaging. It also includes the formulation of a "story" that clarifies the authenticity of the production process and core properties of the product. All three scales (R,P,M) are of the ordinal type; i.e. they are ordered from low (L) via medium (M) to high (H), but the difference between the three values is not subject to further specification in the version of the differentiation cube we present here. Nevertheless, all end-products can be precisely characterized by reference to its coordinates in the cube $[r(\cdot),p(\cdot),m(\cdot)]$, which corresponds to the score of a particular product at the respective axis. This set-up enables a systematic comparison of all speciality products; whatever the nature (type and degree) of their sources of differentiation.

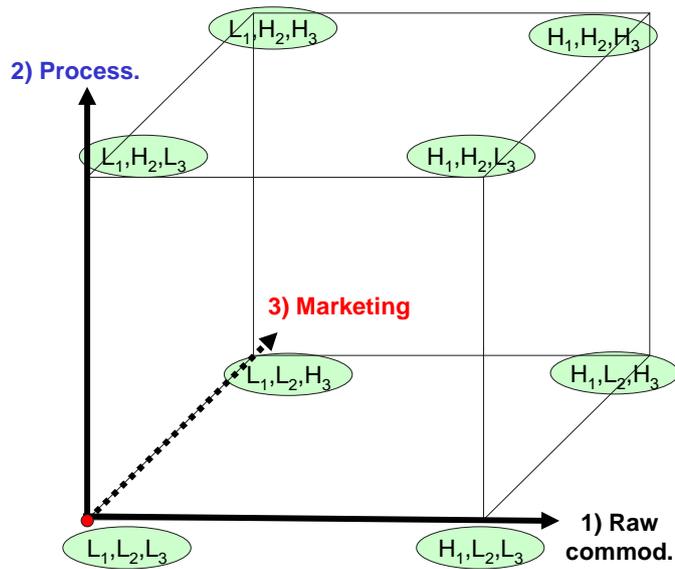


Figure 3: *The Differentiation cube*. Source: *Borgen and Sørensen, 2007*.

Naturally, the cube also includes the eventuality that the end-product is not differentiated at all. In that case, the product is positioned in the origo of the cube. To illustrate; minced meat and consume milk are standard foodproducts that will normally be positioned close to origo, characterized by the coordinates $[r(L), p(L), m(L)]$. End products that are based on standard raw commodities and unique processing technology as well as an unique marketing approach, will be positioned somewhere close to $r(L), p(H), m(H)$.

3.3 Towards more precise definitions of agri-food specialities

An advantage of the cube is that it enables more precise definitions of various subtypes of differentiated foods. This can be illustrated in table 1 below, where the eight corner points of the cube is briefly characterised.

Stage/source of differentiation				Characteristics of the end product
Config-uration #	Raw commodity	Proces-sing	Marketing	
1	Low	Low	Low	Standard product. No differentiation at any stages of the production process of the final product.
2	Low	Low	High	The eatable part of the final product is not unique as compared to a standard product, but the product is marketed uniquely.
3	Low	High	Low	A standard raw commodity has been subject to a differentiated process which result in qualities that are distinct from standard products. But these unique attributes of the product are not utilized in the marketing of the product.
4	Low	High	High	A standard raw commodity which is subject to differentiated processing and differentiated marketing.
5	High	Low	Low	Only the raw commodities are differentiated from a standard product. No differentiation of processing and marketing.
6	High	Low	High	A differentiated raw commodity which is processed according to a standard process, but marketed distinctively from standard products.
7	High	High	Low	A differentiated raw commodity which is subject to differentiated processing, but not marketed distinctively from standard products.
8	High	High	High	A differentiated raw commodity which is subject to unique processing and differentiated marketing. .

Table 1: *Characteristics of the eight corner points (extreme configurations) of the differentiation cube. Source: Borgen and Sørensen, 2007.*

From this table, it's possible to develop a more precise understanding of various sorts of speciality products, and differentiated products more generally. We assume that, for an end-product to be defined as a speciality, it must be differentiated at the sales/marketing phase, *plus* either at the raw-commodity phase, or at the processing stage, or both (Cfr. configuration # 4,6,8 in table 2 above). The reason is that if the product shall be able to attain a premium price in the targeted market segment, the particular/special attributes of the product must be addressed to this customer segment as precisely as possible through dedicated sales- and marketing efforts. Targeted and differentiated marketing is necessary, in the form of special marketing channels, special packaging etc.. It's bluntly irrational to invest substantial

resources in the manufacturing of a differentiated raw commodity and/or processing, and thereafter undersell the inherent qualities of the differentiated products. As applied to the cube, this implies that low score on marketing/sales is incoherent with a high score on raw commodities and processing. Furthermore, the definitional characteristics of a *raw-commodity based* speciality is (a) that it's differentiated at the sales/marketing phase, *plus* (b) either at the raw-commodity phase only or (c) or both at the raw commodity stage and at the processing stage in a (presumably) unique combination. This corresponds to configurations # 6 and # 8 in table 2 above. As I shall clarify in the remaining part of the article, these configurations appear to be of particular interest for cooperatively organized companies that strive to reorient themselves towards more differentiated products.

4. A preliminary exploration of the link between product characteristics, transaction characteristics and cooperative governance

In the following, I shall use the differentiation cube as a starting point for a TCE-based exploration of the causal link between product differentiation, organizational processes and governance structures within agri-food cooperatives. This discussion should be of particular relevance for cooperatives that have traditionally strived to survive as cost leaders, but now gradually reorient their competitive strategy towards a larger degree of value added and more differentiated products. My more specific approach is to explore the link between product characteristics, transaction characteristics and governance form. *This implies that we ask (a) how the nature of the products in question ("product characteristics") can (b) impact the underlying transaction characteristics (and thereby the transaction costs), and (c) subsequently also impact the nature of the governance form.* The contribution in this paper is first and foremost to suggest an analytical framework - as well as a way of reasoning - that may be applied for future empirical investigations. The discussion in the following is centred on a comparison of two categories of differentiated products; i.e. *raw-commodity based vs. processing/sales-based* differentiation. With reference to figure 2 above, this means a comparison of the (H,L,H)-configuration with a (L,H,H)-configuration. My approach is to briefly compare these two configurations with respect to their product characteristics, transaction characteristics (particularly transactional uncertainty and -specificity), and the subsequent consequences for governance issues within a cooperative context (cfr. sections 4.1 and 4.2 below).

At the outset, however, we need to define "transaction costs". Somewhat ironically, this concept is far from clear-cut. Rather, it appears as a generalized concept that covers a wide range of sub-types. To avoid an inflation of different more or less relevant subtypes, it is useful to classify them in a structured manner. Rindfleisch and Heide (1997) have categorised transaction costs according to their sources and types. They make a distinction between three *sources* of transaction costs; i.e. safeguarding, adaptation, and performance evaluation. The first one, *safeguarding*, is first and foremost associated with asset specificity. The second one, *adaptation*, is related to environmental uncertainty. The third type, *performance evaluation*, is predominantly linked to behavioural uncertainty. In addition, Rindfleisch and Heide draw a distinction between two *types* of transaction costs; direct costs and opportunity costs. The latter is important since an omitted benefit is also a cost. Taken together, these distinctions amount to a matrix consisting of six different subtypes of transaction costs: (1) costs of crafting safeguards; (2) failure to invest in productive assets; (3) communication, negotiation and coordination costs; (4) maladaptation; (5) screening and selection; measurement costs; and finally (6) failure to identify appropriate partners; plus productivity losses through effort adjustment. Clearly, not all subtypes are equally relevant. The three subtypes of direct

transaction costs are most commonly referred to in empirically based TCE-based studies. For the sake of a complete analysis, however, it is worthwhile to have in mind that transaction costs are also associated with decisions that are occasionally bluntly wrong (e.g. selecting wrong contractual partner) or myopic (e.g. pursuing a strategy that creates more problems than it solves). The categorization of Rindfleisch and Heide is presented in table 2 below:

	Asset specificity	Environmental uncertainty	Behavioural uncertainty
A. Sources of transaction costs	Safeguarding	Adaptation	Performance evaluation
B. Types of transaction costs			
- Direct costs	Costs of crafting safeguards	Communication, negotiation and coordination costs	Screening and selection (ex ante) Measurement costs (ex post)
- Opportunity costs	Failure to invest in productive assets	Maladaptation: failure to adapt	Failure to identify appropriate partners (ex ante). Productivity losses through effort adjustment (ex post)

Table 2: *Sources and types of transaction costs (Source: Rindfleisch and Heide, 1997, p. 46)*

In the following discussion, the various types of opportunity costs will be not addressed further. This is a pragmatic choices, since it’s difficult to see how the significance of opportunity costs can be included in the stylistic analysis that’s conducted here. In empirical studies, however, where the failure to invest etc.. can be investigated in a meaningful way, opportunity costs should ideally be included in the analysis to the maximum possible extent.

4.1 Raw commodity-based differentiation: Product differentiation and governance problems at farm level

What organizational dynamics can be expected to follow within an agri-food sales cooperative when the major sources of differentiation are located at the raw-commodity level (i.e. on members’ farms)? With reference to figure 3 above, this corresponds to the product configurations (H,L,H) and (H,H,H). In this situation, the qualities that differentiate the end-product are determined – partly or completely – on-farm under the control of individual farmer(s) (cfr. table 3 below). Let’s then assume that significant investments in heterogeneous sources on-farm are necessary in order to deliver raw commodities with the expected qualities, in expected quantities at expected point of time. Then, the farmer is the major decision-maker, investor, financier and risk taker. In this case of *high asset specificity*,

the farmer's investments on-farm lead to a situation of mutual dependency between farmers and the cooperative, due to the co-specialization of assets. Farmers' risky investments in heterogeneous resources at farm level are also affected by *transactional* uncertainty (environmental and behavioral), partly due to this co-specialization of assets. The environmental *uncertainty* related to heterogeneous investments, as perceived by the farmer, may in some instances be substantial: What is the expected sales volume for the differentiated product(s) in question? Are the product attributes in question actually appreciated by a sufficient number of customers? What is the likelihood that the expected premium price will be realized in the market and transferred to the farmer, partially or wholly? Finally, farmers' perception of *behavioural uncertainty* might also be substantial in this case: For instance, can they be sure that the cooperative engage sufficiently strong in marketing and selling the products in question?

In a situation where transactional specificity, environmental uncertainty and behavioral uncertainty are perceived of as relatively high, the *Hold-up problem* is expected to emerge (Milgrom&Roberts, 1992, p.137). The essence of this problem is that large, specific investments make asset owners vulnerable to opportunistic behaviour by their contracting partners (op.cit). The value of the investment cannot be fully recouped if the transactional relationship with the business partner is broken. The hold-up problem is an example of post-contractual opportunism. The involved farmers are likely to refuse to make efficient investments if they fear that their investments will leave them vulnerable. How could s(he) be sure that s(he) will not be subject to ex-post opportunism from the cooperative? Hansman (1996) refers to the same problematic situation as a "lock-in"-problem. The farmer becomes locked in to a greater or less degree once he begins patronizing the firm: He loses the protective option of costless entry if the firm seeks to exploit him (Hansman, op.cit., p. 25).

Origin of product differentiation (H,x,H)	Nature of investments	Primary decision-maker, financier and risk taker	Location of investments and capitalization	Expected problem(s) if high transaction uncertainty and high transaction specificity	Alternative governance strategies to ameliorate problem(s)
At raw commodity level (on-farm)	Separate/ individual investment in heterogeneous and relation-specific assets at farm level	The individual farmer	On-farm	Safe-guarding - Hold-up (Ex post lock-in) - Risk taking Under-investment at farm level	Market contract-related: Guaranteed price premium and other contractual guarantees Ownership contract-related: More decision control and residual control assigned to farmers

Table 3: Characteristics and consequences of product differentiation when major sources of differentiation are located at the raw commodity stage.

In short, the farmer may find himself in a vulnerable situation where *safeguarding* is a major source of transaction costs. Subsequently, some kind of *safeguarding mechanism* is called for. The criteria for a successful safeguarding mechanism is that it must be sufficiently strong to motivate farmers to undertake investments of the right type and size at members' farms, given their interpretation of the sales potential for the product in question etc... In principle, there are multiple safeguarding mechanisms available. Following the generic vocabulary of Hansman (1996), the options can be distinguished in two main categories; *market contracts* and *ownership contracts*. As applied to the problem at hand here, the former might for instance imply that farmers are offered a contractual guarantee that they get their "fair share" of the premium price of a differentiated product. The latter option – redesigned ownership contracts – is a more radical approach that refers to members' decision control and residual control. According to Hansman, the "lock-in"-problem can be mitigated by assigning ownership of the firm to the patrons who are potentially affected by it (Hansman, op.cit, p. 26). One radical possibility here is to develop a so-called "cooperative in cooperative"-solution. This implies that a selected group of farmers who produce the same type of raw commodity join forces and establish a daughter-cooperative that is dedicated to producing and selling "their" differentiated products. Some features of this construction might be replicated from the "new generation cooperative". But the current theorizing on new generation cooperatives seem to exclude the possibility that this closed, dedicated cooperative of speciality producers may also function as an integral part of a larger cooperative community.

The boundaries between farmers and their cooperatives might be structured in multiple ways, as indicated in the literature. For instance, Cook and Plunkett (2006) draw a distinction between defensive and offensive strategic investment at farm level. The rationale of the former strategic orientation is that the value of a cooperative investment can underpin a much larger investment at farm level. A member can rationally earn a low return at the cooperative level if his expected on-farm return is high. The rationale of the latter, more offensive strategy is to expect a cooperative-level return on investments also. On a more general level, Hendrikse and Bijman (2002) have also addressed the fact that farmers and food processors are pressed to enhance product innovation and to seek more efficient production and distribution structures. Commonly, these changes in agrifood markets shift the relative importance of the investments by different chain partners. It may therefore be necessary to change the allocation of ownership of essential assets to induce agents to make these investments that generate the chain optimum. This is precisely the question that we address here in a more restricted setting, as applied to the boundaries between farmers and their cooperative.

4.2 Processing and marketing-based differentiation: Governance problems at the cooperative level

What characterize the organizational dynamics that are likely to unfold in cooperatives when the major sources of differentiation are located not at the raw commodity level, but at the processing and/or the marketing level? Here too, co-investments are necessary in order to produce and market the differentiated products effectively. But the types of investments – and subsequent organizational dynamics – are likely to be different from what was described above. Differentiation at processing and/or marketing&sales-level presuppose that investments are made at the cooperative level. The cooperative enhances its capitalization level. The primary decision-maker, financier and risk taker is the cooperative community (cfr. table 4 below). Then, what organizational challenges are likely to emerge? Van Dijk (1997) has emphasized the complexity of the coordination function exercised by the cooperative, recognizing an interaction of entrepreneurship at two layers: at member firm and cooperative

firm levels. The mutual interdependence of member firm and cooperative firm is recognized. Members bundle or pool their produce with that of other producers at the same stage in the production chain, but production factors remain individually owned and controlled. The cooperative may be regarded as a form of incomplete horizontal and vertical integration. It's incomplete since members retain independence and only delegate specific entrepreneurial functions to the cooperative.

Let's take as our starting point that the cooperative equity is collectively owned, evidently a normal situation in agri-food sales cooperatives. Then, members co-invest in resources that are needed in order to develop, produce and market a differentiated product. But in a heterogenous body of membership, the members do not necessarily have the same interests, despite the fact that they co-invest. The reason is that property rights are conceived of as ill-defined in cooperatives (Vitaliano, 1993. Cook, 1998). According to many conceptual studies of cooperatives, multiple incentive problems are expected to unfold in this situation. Some incentive problems are investment-related; such as the *common property* problem, the *horizon problem* and the *portfolio-problem*. The *common property* problem is concerned with the disparity between the members' contribution to the financing of investments and the distribution of benefits that results from members' investments. The disparity between a members' contribution of equity and his/her benefit from the equity is assumed to lead to free rider behavior. The *horizon* problem stems from the fact that residual claims of cooperatives are contingent rights to cash flows whose validity expires when a member ceases to patronize the organization (Vitaliano, 1993). The *portfolio* problem refers to the situation that members have diverse risk/reward-profiles. As long as cooperative members have unequal time horizons there will be different viewpoints with respect to their cooperative's risk/reward-profile. From the perspective of agency theory, cooperatives should ideally have an investment portfolio that reflects the members' preferred trade-off between risk and reward. Another category of incentive problems are related more directly to the decision mechanisms in cooperatives. The *monitoring* problem stems from the fact that decision management is allocated to decision specialists who are not residual claimants. There is therefore a risk that agents will make decisions in such a way as to lower the value of the firm's residual claims, which gives rise to agency costs. Monitoring devices available to the traditional cooperative may be inadequate to gather sufficient information in situations where the cooperative engages in highly complex operations. The *follow-up* problem is expected to occur if there are many members, each unable to significantly influence decision-making processes or supervision of the management, and individually capturing only a small fraction of potential benefits from such activities. The *influence cost* problem occur when there are different group of owners of the cooperative with opposing interests, each entitled to share in the distribution of benefits and engaging in internal lobby activities to promote their own selfish interests. Finally, the *decision problem* relates to the situation of a large and heterogeneous membership, making it challenging for the management to decide how to weigh different member opinions.

But these incentive-problems referred to above are not necessarily universal (Borgen, 2004). They are expected to unfold under certain conditions only. So *when* are they most likely to come to the forefront and be consequential for the cooperative and its members? Nilsson (2001) has emphasized that incentive problems can appear as more or less problematic in cooperatives depending on the degree of *homogeneity* of the membership body, the amount of *financial contribution* from members, the degree of *contingency* between members' goals and cooperative goals, as well as the degree of *members' involvement* with their cooperative. Cook and Iliopoulos (1998) have suggested a number of criteria that partially overlap with Nilsson (op.cit). Their first criterion is *singleness of purpose*, since homogeneity of economic interests eliminates free rider, influence and portfolio negative

externalities. The second criteria is *control of supply*, since the ability of cooperatives to control quantity and quality variability in premium produced output creates organizational boundaries which allows for the development of a more clearly defined set of incentives for risk capital investment. The third criterion is *incentives for Risk Capital Investment*, since these will create incentives for users to contribute to growth-oriented risk capital acquisition and reduce the organizational inefficiencies generated by the horizon and portfolio problems. Fourth, incentive problems may be ameliorated through creating a *sense of belongings* to the cooperative. Finally, the design of contractual arrangements defining responsibility of obligation may reduce quantity variability, quality variability, and pool earning dilution along with free rider issues. (p. 551). When it comes to differentiated products (including specialities), an intriguing question is whether or not these conditions are actually in place. There are good reasons to assume that incentive problems are indeed consequential when it comes to the manufacturing of differentiated products and specialities: Farmers are not literally equal, and the capital investment that's needed for product differentiation is not ignorable. A traditional, collective-oriented cooperative governance structure does normally not include the governance mechanisms that give members the necessary incentives to invest etc...These contributions indicate that the incentive problems (and thereby also transaction costs) may become substantial as the level of differentiation increases – and particularly so if the collective nature of the organizational form is not adapted accordingly. This situation can be framed as a mismatch-problem: The cooperative structure may come increasingly out of alignment with the business strategy. Underinvestments and/or misinvestments at cooperative level may follow naturally.

Origin of product differentiation (x,H,H)	Nature of investments	Primary decision-maker, financier and risk taker	Location for investment and capitalization	Expected problem(s) if high transaction uncertainty and high trans. specificity	Alternative strategies to ameliorate problem(s)
At processing and/or sales and marketing level (within-coop)	Co-investments in processing and marketing capacity at coop level	The cooperative community	In-coop	Adaptation - Horizon - Portfolio - Monitoring - Influence cost Underinvestment at coop level	Ownership contract-related: - Individualization of residual control - Tradeable and appreciable deliverable rights - Dedicated subgroups

Table 4: *Characteristics and consequences of product differentiation when major sources of differentiation are located at the processing and/or sales&marketing stage.*

Here too, the significance of the incentive problems – and subsequently the transaction costs - can be ameliorated in different ways. So far, the scholarly literature on cooperatives has predominantly concentrated on the significance of individualization (i.e. individual member as the "proper" unit of analysis and change). Individualization of the cooperative equity, plus

implementation of tradable delivery rights are parts of this recipe. But the increasing importance of differentiated products in general – and food specialities in particular - should also trigger us to ask whether (sub)groups to a larger degree should be considered a relevant unit of change and analysis in cooperatives. The guiding question for such a discussion should be what governance solution makes the interplay between farmers and their cooperatives as transaction cost-effective as possible, given the specific characteristics of products and transactions.

5. Conclusion

The objective of this article has been to explore how various sources of product differentiation may impact the organizational dynamics of agri-food sales cooperative. The motivation for raising this question was the assumption that product differentiation may indeed be demanding, particularly for collectively owned marketing cooperatives. Here, investment decisions concerning raw commodities are predominantly taken by individual farmer(s), by virtue of their legal status as autonomous business units; typically organized as free-holders. Investment decisions concerning processing and marketing, however, are normally taken by the cooperative community as a collective. In order to investigate this research problem, a distinction was made between the organizational dynamics at the raw commodity stage (at the one hand) and at the processing/sales stage (at the other hand). This question was addressed through an investigation of the causal link between product characteristics, transaction characteristics and governance form; making use of core assumptions from TCE. The so-called "differentiation cube" (Borgen and Sørensen, 2007) was used as a conceptual tool for investigating product characteristics. The main conclusion is that the kind of problems that the cooperative and its membership should expect as they shift focus from engaging in standard products towards a wider spectre of differentiated products, are contingent on the nature, sources and degree of product differentiation. The similarities and differences have been discussed with a bent towards the nature of investments, the major financier and risk taker, the contingent incentive problems, the potential coordination problems that might unfold, as well as the repertoire of contractual and organizational solutions that may be implemented in order to mitigate the organizational problems in question. I have claimed that raw-commodity based differentiation - which typically presupposes investment in heterogeneous resources at farm level – are likely to lead to Hold-up situations unless sufficiently strong safe-guarding mechanism are implemented. The safeguarding mechanisms may be of various kinds, essentially depending on the strategies and preferences of the individual members and cooperative in question. One option is to solve the problem by help of contractual design (*market contracts*). For instance, members may get a guarantee that they get a certain share of future price premiums for extra qualities. A more radical option is to redesign the *ownership contracts* towards more individualized ownership. In that case, the producers in question will get more direct control of the decision process and the residual surplus. This is an attempt to pairing residual control and returns at the sub-group level, not only collective and/or individual level which is now the case. As claimed by Zusman (1982) and Staatz (1983) more than two decades ago, the significance of sub-groups as a unit of analysis and change within cooperatives is under-analyzed. Their remark seems to be as relevant as ever, since cooperatives shift focus towards more and more differentiated products and higher degree of value added. Hence, the discussion of more differentiated products should trigger a rethinking of the boundaries between farmer and his/her cooperative. The intriguing question to address is; What governance arrangements are most transaction-cost effective, under different conditions? Could we see new and innovative blends of governance contracts and market

contract? The answer we suggest here is that the rational solutions - at least partly – should depend on the nature of product characteristics in question.

References:

Boehlje, M., 1999. Structural Changes in the Agricultural Industries: How do We Measure, Analyze and Understand Them?. *American Journal of Agricultural Economics*. 81 (5) pp.1028-1041.

Borgen, S. O. 2004. "Rethinking incentive problems in cooperative organizations". *Journal of Socio-economics*, Volume 33, Issue 4, September 2004, pp.383-393.

Borgen, S.O. and Sørensen, A.C, 2007. Spesialproduksjoner i salgssamvirke – alternative organisasjonsformer. Unpublished paper, NILF. Oslo.

Harris, A., Stefanson, B. and Fulton, M., 1996. New Generation Cooperatives and cooperative theory. in *Journal of Cooperatives*, 11:15-28.

Holland, S.J and King, R.P, 2004. Trading Mechanisms for New-Generation Cooperative Stock: The Architecture of Organizational formation and demise, in *American Journal of Agricultural Economics*, Number 5, pp.1262-1268.

Milgrom, P. & J. Roberts, 1992. *Economics, Organization and Management*. Prentice-Hall International.

Cook, M.L. and Iliopoulos, C.,1998. Solutions to Property Rights Constraints in Producer-Owned and Controlled Organizations: Prerequisite for Agri-chain Leadership? in Ziggers, G.W. et.al., *Proceedings of the third international conference on chain management in agribusiness and the food industry*, Wageningen Agricultural University, May 1998.

Cook, M.L., 2006, Collective Entrepreneurship: An Emerging Phenomenon in Producer-Owned Organizations, in *Journal of Agricultural and Applied Economics*, 38.2, pp.421-428.

Harte, L. 1997. Creeping privatization of Irish Co-operatives: A Transaction Cost Explanation, in Nilsson, J. and van Dick, G (eds.) *Strategies and Structures in the Agro-food industries*. Assen: van Gorcum.

Hansman, H., 1996. *The Ownership of Enterprise*. The Belknap Press of Harvard University Press. Cambridge, Ma, USA.

Hendrikse, George and Bijman, Jos, 2002. Ownership structure in agrifood chains: The Marketing cooperative in *American Journal of Agricultural Economics*, 84 (1) 2002, pp.104-119.

Hendrikse, George W.J and Veerman, Cees P., 2001. Marketing cooperatives and financial structure: a transaction cost economics analysis, in *Agricultural Economics*, Volume 26, Issue 3, pp.205-216.

Hobbs, Jill E. and Linda M. Young, 2000. Closer vertical co-ordination in agri-food supply chains: a conceptual framework and some preliminary evidence, in *Supply Chain Management*, Volume 5, Number 3, pp. 131-142.

Ménard, C., 2004. The Economics of Hybrid Organizations. *Journal of Institutional and Theoretical Economics*, 160 pp. 1-32.

Nilsson, Jerker, 1996. The nature of cooperative values and principles. Transaction cost theoretical explanations. In *Annals of Public and Cooperative Economics*, 67 (4) pp. 633-653.

Nilsson, Jerker, 2001. Organisational Principles for Co-operative Firms. *Scandinavian Journal of Management*, volume 17. pp.329:356.

Nilsson, Jerker and B. Pedersen, S.B. 2001. The traditional cooperative model and beyond – the case of Danish Crown in Borgen, S.O. (Ed) *The Food sector in Transition – Nordic Research*. Proceedings of NJF-seminar number 313, June 2000 . NILF-report 2001-2. Norwegian Agricultural Economics Research Institute, Oslo.

Rindfleisch, A. & J.B. Heide, 1997. Transaction cost analysis: past, present, and future applications. *Journal of Marketing* Volume 61 pp. 30-57.

Stefanson, B. and Fulton, M., 1997. *New Generation Co-operatives Responding to Changes in Agriculture*. Centre for the Study of Cooperatives, University of Saskatchewan.

Staatz, John M. 1983. The Cooperative as a Coalition: A Game-Theoretic Approach *American Journal of Agricultural Economics*, Vol. 65, No. 5, pp. 1084-1089

Zusman, Pinhas, 1982, “Group choice in an agricultural marketing co-operative”, *The Canadian Journal of Economics*, Volume 15, May, pp. 220-234.

van Bekkum, Onno-Frank, 2001. *Cooperative Models and Farm Policy Reform: Exploring Patterns in Structure-Strategy Matches of Dairy Cooperatives in Regulated vs. Liberalized Markets*. Assen: van Gorcum.

van Dijk, G, 1997. Implementing the Sixth Reason of Co-operation: New Generation Co-operatives in Agribusiness. in Nilsson, J. and van Dijk, G (eds.) *Strategies and Structures in the Agro-food industries*. Assen: van Gorcum.

Vitaliano, P. 1993. Cooperative Enterprise: An alternative conceptual basis for analyzing a complex institution. in *American Journal of Agricultural Economics*, volume 65, pp. 1078–1083.

Williamson, Oliver, 2000. ”The New Institutional Economics: Taking Stock, Looking Ahead”. *Journal of Economic Literature* 38 (3), september 2000, 595-613.