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How to deal with quality problems of German wine cooperatives

- A double principal-agent approach -

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Abstract

Purpose - This study reveals the double principal agent problem in German wine cooperatives and outlines general problem solving mechanism that were worked out by Eilers and Hanf (1999).

Design/methodology/approach - Due to their principles cooperatives have to deal with some restraints regarding the production of quality grapes and wines. A particular problem is caused by the fact that the producer is on the one hand the owner of the processing unit and on the other hand the supplier of the processed raw material. Thus, an double principal agency approach for starch processing cooperatives was used to show up causes and problems of cooperative structure. Thereafter double principal agency approach was transferred to German wine co-ops to examine problems and present sectoral specific solution approaches.

Findings - Results show that contractual structure of German wine cooperatives face stochastic conditions, a conflict of interest, asymmetric information, and opportunistic behaviour and hence double principal-agent-problem is being addressed in reality. Research was supported by using examples from Austrian and German wine co-ops that outlined several solution approaches for wine cooperatives. Thus, the main objective for co-ops is to reduce member heterogeneity in case of quality by voluntary quality incentive programs. Furthermore strategic member groups that were based on quality cluster of members facilitate planning processes of marketing activities and offer flexible market penetration through several distribution channels.

Keywords: Double principal-agent-problem, co-operatives, German wine market

1. Introduction

Referring on a European Union report Pennerstorfer and Weiss (2013) show that cooperatives still play today in most developed market economies throughout all most all agribusiness sectors. For example, in Germany the majority of wine growers are members of cooperatives. The acreage planted with vines by all members of cooperatives increased up to 31,342 ha, so that more than 31% of all German area was under cultivation producing 3.3 million hectoliters wine, accounting for nearly 35 % of the total wine-production in Germany (Deutsche Winzergenossenschaften 2012). In particular, in the regions of Baden, and Württemberg, where grape production is dominated by part-time viticulturists, membership in cooperatives is widespread. In those regions, co-ops hold a market share of nearly 75% (Hanf/ Schweickert, 2014).

Pennerstorfer and Weiss (2013: 144) mention that "in the light of the consumers' increasing concerns about food quality, the extent to which cooperatives can maintain or even strengthen their market position in the future relative to other forms of business organizations (investor-owned firms) will crucially depend on their ability to successfully accommodate consumers' demand on high-quality food products". However, due to their unique institutional form as a member-owned firm, co-operatives face several problems regarding the achievement of product quality. Traditionally, an open membership policy has led to co-ops having rather heterogeneous members. Furthermore, due to an existing a tendency for Raiffeisen cooperatives to merge in Germany, those merged cooperatives are becoming more diverse in their business operations in addition to their members becoming more heterogeneous.

In general, members vary according to their geographic dispersion, variance in age and education, farm sizes and type, as well as business objectives and strategies (Iliopoulis and Cook, 1999; Sykuta and Cook, 2001). Bijman (2005) deduces that membership heterogeneity could cause a number of inefficiency problems, including agency problems, commitment problems, decision-making problems, opportunistic behavior, coordination problems, and problems regarding the strategic focus. Furthermore, Fulton and Giannakas (2001) showed that the cross-subsidization and member heterogeneity in large centralized, multipurpose co-ops may lead to substantial financial pressures for the cooperative because members do not see a strong connection between the success of the co-op and their own business. However, Raiffeisen cooperatives can be characterized as being Janus faced, i.e. they are member-owned firms as well as associations of individuals (Anschhoff and Henningsen, 1986; Laurinkari and Brazda, 1990; Philips 1953; Robbotka 1947). In addition to economic matters,

social mechanisms such as trust and loyalty to the cooperative firm are of high importance (van Dijk, 1997). However, the more heterogeneous the members, the more these social mechanisms lose their function (Bijman, 2005). Using a property rights approach, Cook (1995) pointed out five general sets of problems: free riding problems, horizon problems, portfolio problems, control problems, and influence cost problems. Furthermore, Karantininis and Zago (2001) showed that instead of selling their commodities to open co-ops, farmers would rather sell them to investor-owned firms if they had the choice. Fulton (1995) concludes that if markets disappear as a result of increased vertical coordination, cooperatives may also begin to disappear. Hendrikse and Bijman (2002) share this assessment in the regard that the investment of the processor or retailer becomes more important for the total chain value than the investments by the farmers.

Although the behavior and performance of cooperatives have been the focus of extensive theoretical and empirical research, the achievement of product quality has received relatively little attention (Cook 1997; Merel et al 2009; Pennerstorfer/Weiss 2013). Reason for this is that often theoretical elaborations on marketing cooperatives assume that a single, homogeneous product is sold (Pennerstorfer/Weiss 2013). However, the decentralized decision making within cooperatives often lead to problems regarding product quality. On the example of salmon production Badcock and Weninger (2004) exemplify the problem of quality free riding. Steiner (2012) conceptualizes how bilateral moral hazard situation affect quality decisions. Overall, the specific principal-agent setting in cooperatives are regarded as having a negative impact on quality. In this context, the findings of Eilers and Hanf (1999) address a major weakness of co-ops. Using a principal-agent approach and the concepts of opportunistic behavior, conflicts of interest, asymmetric information, and stochastic conditions, they showed that it is not clear who is the principal and who is the agent, i.e. both the cooperatives and the members can be principals and agents. For this reason, neither leadership mechanisms nor selective terms of delivery can be enforced by the cooperatives, i.e. the members can deliver all the commodities that alternative dealers do not accept. Cooperatives that are forced to accept these commodities face the problem of adverse selection.

Pennerstorfer and Weiss (2013:144) state that “quality coordination problems could be even more detrimental to the prosperity of cooperatives in particular in situations where the quality delivered by individual members is difficult to verify and is non-contractible between independent actors. As Goodhue et al (2003) clearly show particularly for premium wine it is the case. In an empirical work on the German wine market Frick (2004) was able to show that

ownership structures (investor-owned firms versus cooperatives) determined the product quality. Problematic principal agent settings were identified as one of the major determents. These findings were confirmed by Dilger (2005).

As the literature indicates that principal-agent settings are a major source of the determination of wine quality the aim of our paper is to transfer the general model of Eilers and Hanf (1999) to the specific case of German wine co-operatives. Along with that we want to present some solutions how to deal with this problem.

2. The double principal-agent problem in co-operatives

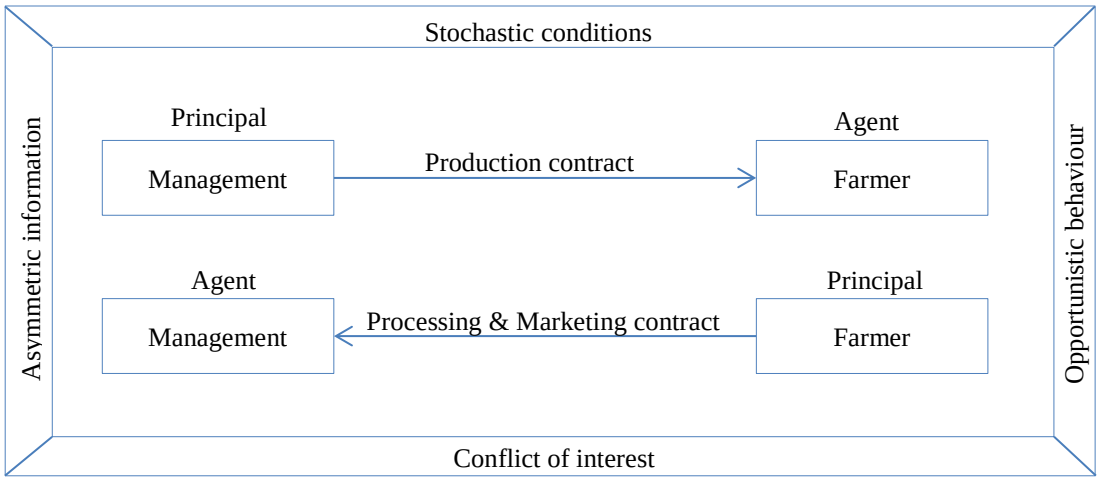
A principal-agent problem can be characterized in such a way that a principal asks the agent to fulfill a certain, defined task. For the fulfillment of this task the agent receives a payment (Chaddad/Iliopoulos 2013; Ross 1973). However, often this task is not being accomplished to the full satisfaction of the principal. The reason is that the principal and agent might have diverging interests (Nilson/Hendrikse 2010). Another source for this problem could be an incomplete contract and/or the existence of asymmetrical information leading to opportunistic behavior (Cook et al. 2004; Hendrikse/Veerman 2001; Jost 2001; Roiger 2007; Schreyögg 2003).

However, in the context of co-operatives this classical setting has to be extended. On the one hand the member is the legal owner of the co-operative. Hence, he is the principal and the manager is the agent. On the other hand the member as an input supplier is the agent whereas the manager is the principal (Ringle 2007; Ringle 2007a). Hence, Eilers and Hanf (1999) characterized this setting as a double principal agent problem. In the following paragraphs we will introduce their underlying model which will be used later for the discussion of German wine co-operatives.

To discuss the problem Eilers and Hanf (1999) chose a principal-agent-setting with an interchange of positions with the intention to give conclusions about the optimal contractual solution if the co-operative or the member determines the payment schedules, Model I presumes that the (management / manager of the) co-operative offers a production contract to the farmer. Model II deals with the case of a farmer delegating the processing and marketing to the co-operative. As shown in figure 1, for both models the contracting situation is explicitly characterized by stochastic conditions, a conflict of interest, asymmetric information, and opportunistic behavior.

Figure 1

Double principal-agent problem in co-operatives



They followed the usual proceedings by optimizing the principal's utility function under the first restriction that the agent signs the contract with the restriction that the agent obtains at least his reservation level of utility. The second restriction they formulated is the incentive compatibility constraint that the principal has to take into account. In order to make the solutions of the two models comparable the determinants of the agent's respectively the principal's utility function may not change. Furthermore, the models are characterized by linear compensation schemes. In order to solve this problem they used a Lagrange approach.

An overall finding Eilers and Hanf (1999) present is that the total income of each actor is without exception higher in the principal position, although the weight of its components may vary considerably. The mode to share the surplus is primarily determined by risk aversion. If farmers and managers are comparably risk averse, they share the surplus almost equally. If risk aversion is asymmetrically distributed, the one with the higher risk aversion receives a large basic income and a very low share of the surplus. In general, they found out that the impact of risk aversion is stronger than the impact of power distribution. Furthermore, they dissolved that the manager's optimal effort is always higher in the agent position which means that the incentive schemes induce him to work more than if he determines the contract himself.

3. The German wine market and wine-co-operatives

Whereas in the 1980s retailers were still dominating in direct sales and sales of specialized wine and delicacies, today the three main distribution channels are discount retail chains (40% market share), retailers (36% market share), and direct sales from the producers

(20% market share) (Deutscher Raiffeisenverband 2012a; Deutsche Winzergenossenschaften 2012a). The increase of imported wines came hand in hand with the rise of supermarkets and discount chains– particularly from the New World. These large-scale producers are able to produce large quantities with an acceptable (‘drinkable’) quality at the lowest prices. Furthermore, these producers targeted retailers as their main distribution channel from the beginning, providing them with demanded quantities, modern IT and supply chain solutions. As pointed out before, the German wine sector is in contrast still dominated by small wine growers, with more than 30,000 wine businesses. Nearly half of these businesses cultivate less than 1 ha of vineyard while only about 2,000 wine growers own more than 10 ha. The majority of wine growers are members of cooperatives. (Deutscher Raiffeisenverband 2012; Schweickert, 2007)

The rapid rise of supermarkets and discount chains was accompanied or caused by a change in consumer behavior (Deutsches Weininstitut 2012). Traditionally, in Germany, wine was mainly drunk in wine-growing regions. This wine was generally produced locally and bought directly from the growers or village cooperatives. However, today the consumption of wine is common all over Germany (including non-wine growing regions) and most consumers are occasional wine drinkers. Hence, they are looking for uncomplicated signals, such as the reputation of retailers or wine-growing regions or countries as well as brands, to signify quality. Particularly imported wines with an easily understandable and asymmetric information-reducing label could profit from this development (Schweickert, 2001). Furthermore, retailers as customers are particularly interested in professional supply chain management, in terms of delivery time as well as minimum quantities. Therefore, only very large wine processors are able to meet these demands. For these reasons, only a few German private wineries and wine cooperatives are able to supply the large retailers on a national level.

Wine cooperatives produce over 3 million hectoliters wine, accounting for nearly 35% of the total wine production in Germany (Deutscher Raiffeisenverband 2012). The acreage planted with vines by all members increased up to 31,342 ha, so that more than 31% of all German land area was under cultivation, in particular, in the regions of Baden, Württemberg, and Franken, where grape production is dominated by part-time viticulturists and membership in cooperatives is widespread (Deutsche Winzergenossenschaften 2012). In these regions, cooperatives hold a market share of nearly 75%. Today, there are over 200 active wine

cooperatives. However, only 147 of them possess their own vinification facilities (Deutsche Winzergenossenschaften 2012).

The examination of the German wine market has shown that wine cooperatives have a special role within the market. According to their statutes, wine cooperatives are self-help organizations for wine growers. Their aim is to improve the economic situation of their members by collaboration in vinification and marketing of the grapes or their processed products. Accordingly, the general function of wine cooperatives is to process grapes; produce must; and vinificate (fermentation, fining, clearing, and other oenological practices in the cellar for winemaking), bottle, and market the wine. Thus, the wine cooperatives are indispensable to part-time wine growers (Hoffmann, 2000).

In accordance with the general cooperative system, a secondary "central-wine cooperative" ("central cooperative") has been established in both of the wine-growing regions of Baden and Württemberg, where there are more than 68 non-vinificating wine cooperatives (Deutsche Winzergenossenschaften 2012). For these cooperatives, "central cooperatives" function as the vinificating unit so that such cooperatives only have to collect the grapes of their wine growers and deliver the grapes of the whole vintage. Another task of the "central cooperative" is to stabilize the supply. Therefore, many of the wine cooperatives with their own vinification ("wet" wine cooperatives) deliver a contractual share of bulk wine from their vintage (Hanf/Schweickert 2007).

Traditionally, wine cooperatives sold the vast majority of their wines directly to the consumers or sold them via small local retailers in their neighborhood. However, due to the changes in consumer behavior and in marketing channels, cooperatives must use different distribution channels to market their products (Hanf/Kühl, 2008). Facing the demands of the large retailers, like continuously supplying them on a national basis, has led to some structural adjustments in the cooperative sector. Because the majority of the "wet" wine cooperatives do not produce enough quantity neither possess sufficient financial assets, they cannot afford to have their own distribution force. Thus, secondary "central wine cooperatives" have gained importance. They mainly operate on a higher level within the wine production chain, selling bottled wine from "wet" wine cooperatives to retailers nationwide (Weinwirtschaft 2012). Because they are centralized and market large quantities, they are able to meet the retailers' demands of high quantities paired with high demands of the IT infrastructure (Schweickert, 2007). In general, the "central wine cooperatives" mediate between the primary cooperatives and the retailers by marketing wine nationwide and managing the relations with the retailers.

Therefore, “wet“ wine cooperatives can focus their marketing efforts on specialized retailers (special wine stores), local retailers, restaurants, and direct selling.

4. Double principal-agent-problems in German wine co-operatives

As pointed out before, both models are characterized by stochastic conditions, a conflict of interest, asymmetric information, and opportunistic behavior. In the context of wine i.e. grape production both models face the same stochastic conditions such as weather conditions, diseases, water and energy costs, or restrictions in the production process or environmental restrictions. Hence, we will not explicitly discuss them. However, the other three characteristics will be addressed in the following paragraphs.

In general often the member influences the decisions in such a way that co-operatives are paying a certain price per kilo as long as a minimum quality is being produced. Hence, members produce as much as possible in order to maximize their income at low risk (Dilger 2005). A further reason for this behavior is that quality in co-operatives can be regarded as a collective good. Thus, the efforts and the related additional costs to increase the quality by an individual member will only be paid back partially. Moreover, in some cases members have decided that they do not have to deliver their full harvest to the co-operative. Instead they are allowed to sell the better quality grapes to wineries or wine estates for a higher price. This is often accompanied with the situation that the co-operative is obliged to accept all grapes that are delivered. As principals the members are able to hinder the management to impose sanctions. Furthermore, even in the case that sanctions exist for delivering bad quality grapes or selling grapes to other buyers the management is not willing to exercise them as the members have the power to dismiss them: A solution for these problems (according to model I) is that the management is able to work out incentive schemes that motivate the members to produce and deliver the high quality grapes. Such production contracts have to be designed in such a way that the reservation level of utility for the members is so high that the members not only sign but also actually fulfill the production contract by delivering grapes.

For this practice the Austrian cooperative Domäne Wachau is a good example. Some years ago it introduced a rating system for which the members could sign up voluntarily. However, in the context of this rating system the vineyards of the members were examined several times per year. If quality enhancing measurements were conducted by the members they earned some bonus points that were additionally compensated in the course of the patronage. This rating system resulted in the members receiving the highest patronage of all Austrian cooperatives (Feigl 2011). As a consequence of the successful rating system the

Domäne Wachau has been recognized for its excellent wines nation-wide. This positive image had also a psychological effect on its members. As they got proud to be the producers and owners of this excellent wine producing cooperative they became more loyal as before and hence gave up plans to leave the cooperative or to sell parts of the grapes through other channels (Feigl 2011).

In the context of German wine cooperatives Hanf et al (2012a) showed that a part of the German cooperatives use experts (e.g. oenologists) to rate the members' vineyards and to give advice how to enhance the grape quality. Again a positive evaluation within these rating schemes results in a higher patronage. Furthermore, the members accept the experts as a possibility to improve their production skills. A more differentiated approach that can be observed is that cooperatives form strategic member groups and accordingly set incentives for each group as each group requires different treatments (Hanf/Schweickert 2007). Thus, heterogeneous structures of co-ops were reorganised by building homogenous quality cluster and consequently strategic member groups lead to effort-based compensations of members. Farther, reorganisation by homogenous quality cluster through strategic member groups additionally support marketing decisions in case of facilitated planning for the management. Subsequently, co-ops increase flexibility since several sales channels can be penetrated simultaneously (Hanf/Kühl, 2008).

5. Summary

As a saturated market the German wine market is highly competitive (Weinwirtschaft 2012). Moreover more than half of the consumed wine is imported. The majority of the imported wine is sold through the big German food retailers. Often imported wines can be supplied in large quantities resulting in a good price-quality relation. Thus, as many German wine cooperatives have also the retail as their main customer they face strong challenges. However, due to their principles cooperatives have to deal with some restraints regarding the production of quality grapes and wines. A particular problem is caused by the fact that the producer is on the one hand owner of the processing unit and on the other hand the supplier of the processed raw material. This setting results in a double principal agent problem. In the course of this paper we theoretically outlined the problem and introduced general problem solving mechanisms that were worked out by Hanf/Eilers (1999) for starch processing cooperatives. Afterwards we transferred these arguments on the German wine market. By using examples from Austria and Germany we showed how double principal problems are being addressed in reality.

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