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## Too much power or no power: when does intermediary's power result into better wine and happier farmers?

### RESEARCH ARTICLE

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### Abstract

The study analyzes the trading relationship performance between farmers and intermediaries and the factors shaping it, with a focus on intermediary's power, based on a structured survey of vineyard farmers in Kosovo. Confirmatory factor analysis is employed to develop measures for the study latent variables, and ordinary least squares regression is used to test the hypothesis. To further validate the results, machine learning (i.e. random forest) is used to model the factors affecting the relationship performance between farmer and intermediary. The results show that when the intermediary has considerable (excessive) power, it leads to low trading relationship performance with farmers. Also, when the intermediary has little power, the relationship performance with farmers behaves in a similar way. The main contribution of this paper is to further illuminate the debate on the role of power in business-to-business relationships, in that it points out an alternative explanation; stating that there is an optimal level zone that power needs to exist, in order to achieve above average trading relationship performance. Outside this zone, either low or excessive/high intermediary's power results in poor relationship performance.

**Keywords:** power, relationship performance, vineyard value chain, Western Balkan, Kosovo

**JEL code:** D21, D22, D91, L25, Q12

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## 1. Introduction

Traditionally, transactions in the agri-food value chains in transitioning countries are conducted at the ‘arm’s length’ price mechanism (Hanf and Gagalyuk, 2018). Swinnen (2005) points out that vertical coordination’s importance in agri-food chains is increasing. Yet, in order to gain short-term advantages, existing contracts are broken quite often – a behavior that is easily encouraged due to weak enforcement mechanisms. According to Gorton *et al.* (2003), medium-sized processing enterprises suffer the most from breaches, because they lack the power mechanism to vertically coordinate the chain, in contrast to big processors (or traders) who possess large bargaining/market power.

In this view, to have a functioning value chain, there must be a coordinating chain agent (e.g. processor, exporter) who has the ability to control the decision variables of the other agents to deliver an outcome in the interest of the coordination agent (Belya and Hanf, 2016). Hence, power plays a pivotal role in the coordination of supplier firms and their distributors (Wilkinson, 1973). Power is at the heart of any business-to-business relationship (Cox, 2001) and is a key behavioral construct that influences performance (Reve and Stern, 1979; Xhoxhi *et al.*, 2018).

On the one hand, power is seen as opposing effective relationships and successful cooperation (Bretherton and Carswell, 2002; Doney and Cannon, 1997), because the firm with (excessive) power advantage can abuse the weaker suppliers to obtain superior economic returns (Dore, 1983; Perrow, 1970). On the other hand, when power is used by the coordinating chain agent as a coordinative mechanism to increase quality and added value by promoting harmonious relationships and solving conflicts, that power may result in enhancing the performance of the whole network as well as its individual members. There are also a number of authors that argue that power is vital, because it can take the relationship out of the realm of chance and give it purpose, order, and direction (Dwyer *et al.*, 1987; Xhoxhi *et al.*, 2018).

This study analyzes intermediary’s power over farmers in an emerging economy context. The term ‘intermediary’ refers to chain actors that buy directly from farmers including, processors, wholesalers, retailers, etc. We have chosen the vineyard sector, as a suitable case, given the importance of quality (especially from wine-making prospective). The core research question leading the study is: How does intermediary’s power affect the performance of their trading relationship with farmers? By addressing this question, we contribute to the debate on agri-food value chains’ governance and on small farmers’ participation in these chains. In addition, we touch upon the issue of improving farmers’ business and livelihood through the development of sustainable relationships with their buyers, which are governed through the ‘power with’ perspective, which is about partnership and trust. Notwithstanding the fact that the analysis focuses on the case of Kosovo, the findings are relevant for other emerging or developing economies, sharing similar features.

While many argue that ‘market failure’ is endemic and public intervention is therefore justified in ensuring food safety, it can also be argued that public institutions may fail to play the crucial role of developing an enabling environment and guaranteeing (safety) standards in the market (under certain circumstances), and so in these situations, there is a lack of incentives and sanctioning mechanisms to enforce producers to comply with standards (Imami *et al.*, 2021). Thus, in a market economy there is not only ‘market failure’ but also ‘government failure’. In such a context, the role and power of the value chain leader is crucial to ensuring compliance with quality and safety standards, especially for markets or products which are sensitive to quality (such as wine) and in economies/context where government/public institution failures are more likely, such as in the case of developing/emerging economies. Consequently, another question that the paper attempts to address is: Can the free-market mechanism be considered as an alternative to public interference?

It should be noted that the concept of power in agri-food value chains is mainly studied as market power and bargaining power. In the former, power is defined as ‘the ability of a firm (or group of firms) to raise and maintain price above the level that would prevail under competition is referred to as market or monopoly power’ (Khemani and Shapiro, 1993: 57). While Kirkwood (2005) defines power as a party’s ability ‘...to

obtain a concession from another party by threatening to impose a cost, or withdraw a benefit, if the party does not grant the concession'. Instead of following these two perspectives, here power is viewed as a party's perception about the ability of the other trading party to influence his/her behavior or strategy decision variables in a direction that him/her would not have freely tended, which (the direction of influence) favors the one who exercised power (El-Ansary and Stern, 1972; Wilkinson, 1981; Xhoxhi *et al.*, 2014). Bacharach and Lawler (1981) look at power between parties in a negotiation process and claim that negotiation power is perceived power. Furthermore, they point out that meaningful power in a business relationship does not exist beyond the parties' perceptions of power. Therefore, power is measured from farmers' perceptions on the ability of intermediaries to influence price, payment terms and amount paid through Likert scale statements. All selected elements are in line with market power theory but are also the elements which are negotiated the most in trading relationships between farmers and intermediaries in emerging/developing countries.

Interestingly, the empirical findings from our study point out that when the intermediary has excessive power or – on the other hand – low power, the performance of the trading relationship is lower than when the intermediary's power exists at an optimal level. To the best of authors knowledge, this is the first time that empirical research casts light on the complexity and non-linearity of relations between power and trading relationship performance. Furthermore, this paper provides contribution to the literature by applying machine learning techniques which is rather new in the research domain of power in agri-food value chains.

The rest of the paper is structured as follows: Section 2 provides the literature review, Section 3 consists of an overview of the vineyard and wine sector in Kosovo, Section 4 describes the research methods used, Section 5 shows the empirical findings, which are discussed in Section 6 and Section 7 provides the concluding remarks.

## 2. Power in agri-food value chains

### 2.1 Value chain coordination in the global agribusiness and wine business

Today, the prevailing strategy in the agri-food sector focuses on vertically coordinated supply chains to adjust with the different changes in the agri-food sector (Carillo *et al.*, 2017; Ménard, 2004). Reasons for the development are issues of food safety, food security, changing consumer preferences, ethical concerns, and greater awareness of the environmental impact of food production. A self-evident reason for the formation of vertical networks instead of single line chains is the differing sizes of firms along the food chain – from extremely small-medium sized farms due to historical reasons to concentrated manufacturers and food retailers (Saitone and Sexton, 2017). Furthermore, product differentiation – to meet customer needs – plays a role in pushing supply chains to be more vertically or horizontally coordinated. In this context, Lazzarini *et al.* (2001) define netchains as 'a set of networks comprised of horizontal ties between firms within a particular industry or group, such that these networks (or layers) are sequentially arranged based on the vertical ties between firms in different layers'. Supply chain networks or netchains are mainly organised in a pyramidal-hierarchical structure, in which a focal firm from the downstream chain part is the centralised decision-making unit (Jarillo, 1988). Other network partners are dependent on the focal firm, due to long-lasting relationships. Thorelli (1986) describes networks as long-term relationships of power and trust through which organisations exchange influence and resources between at least two or more actors in the networks. If the focal firm depends on critical inputs from the suppliers, mutual dependencies exist, and the suppliers reclaim some of the power (Medcof, 2001). The focal firm coordinates the network to reach the strategic objectives and it possesses the necessary authority to do so (Lorenzoni and Baden-Fuller, 1995).

The wine sector represents rather a special case (Bitsch and Hanf, 2022). Strong efforts have been made to ensure quality upgrade and product differentiation to better meet demand. The wine has changed due to a greater attention to quality and diversification including aspects such as sustainability and organic (Carbone, 2021). The importance of high quality, when combined with perishability that characterises grape, require close coordination between growers and processors during the growing and harvest season to avoid disruption and instability in the supply chain, which have a negative impact on the quality and quantity of the final

product (Ashenfelter, 2007). Grape quality is a critical competitive factor for wine producers, requiring large investments in the vineyard and efficient management mechanisms of the grape material supply chain. There are numerous approaches for organizing and managing the supply of wine grapes, ranging from simple oral agreements to formally written contracts and joint ownership and management of neighboring stages in the supply chain (Bitsch, 2022; Franken, 2014). Numerous studies have well examined the mechanisms of vertical coordination in traditional and mature wine regions in France (i.e. Champagne) (Chambolle and Saulpic, 2006), Spain (i.e. Rioja) (Fernández-Olmos *et al.*, 2009), the United States (i.e. California) (Goodhue *et al.*, 2003; Franken, 2014), Australia (Fraser, 2005) and Germany (Bitsch and Hanf, 2022; Hanf *et al.*, 2012; Richter and Hanf, 2021). Findings in these studies indicate that the uncertainty, grape quality, investments on inputs, size of cooperating partners, etc. play essential roles in the decisions of supply chain management and contractual relationship. For emerging wine regions some results confirm earlier findings of other studies such as firm size, product quality and the level of specialised investments matter for coordination decisions (Bitsch *et al.*, 2019; Chaddad *et al.*, 2017; Hanf *et al.*, 2016; Li *et al.*, 2021).

Goodhue *et al.* (2003) find that more formal coordination is associated with higher product quality. As noted by Fernández-Olmos *et al.* (2009), wineries that produce high-quality wines are more likely to integrate vertically than those producing low-quality wines. Consistent with the broad quality-coordination relationship, it is found that different contract specifications are employed by wineries to motivate particular desired behaviors by growers in different regions, which is also supported by Fraser (2005). Contracts for grapes in premium grape regions are more likely to specify production practices that affect subtle wine attributes, while contracts for grapes in low-quality regions are more likely to be of longer duration and to specify price incentives for sugar and other easily measured characteristics rather than to emphasise the results of viticultural practices or wine quality (Goodhue *et al.*, 2003). Similarly, previous studies highlight that the degree of integration is significantly affected by specific growing investments, grape varietals, and the size of operation (Franken, 2014; Woods *et al.*, 2011).

Goodhue *et al.* (2003) find that the bonding between partners indicated by the length of a contractual relationship is more likely to be a substitute for contracting rather than learning and trust. Relationships can be driven by mutual understanding and trust (which makes the use of formal contract less important (Fraser, 2005)), and/or power. In terms of the unbalanced bargaining power between the merchant and growers, Chambolle and Saulpic (2006) demonstrate that when the tradable yield is high enough, imposed prices by the interprofessional system allows enhancing growers' position during grape price negotiations.

## 2.2 Vertical coordination and power

A crucial question in vertical coordination is how to align the actions and interests of the multitude of involved companies (Mentzer *et al.*, 2001). In this context a huge body of literature deals with trust as an appropriate tool (Belya *et al.*, 2015; Gulati, 1995; Hanf and Pieniadz, 2007). However, looking at the agri-food business, in the majority of cases supply chains consist of a powerful retailer or processor coordinating various less powerful suppliers and/or buyers. In such an environment trust is often non-existent and very hard to establish, whereas power is 'naturally' there (Cox, 2001; Reve and Stern, 1979; Wilkinson, 1973). However, the question arises whether power can be used to align the interests and actions of the various actors. According to Kähkönen (2014), the relationships between buyers and sellers are mostly uneven. They state that buyers have usually more power, and relationships of balanced power are rather rare.

Configuration of power relations is crucial to agri-food systems' transformations (Rossi *et al.*, 2019). The distribution of power in the agri-foods value chain is increasingly associated with definitions of what constitutes a 'good' quality product or production, and that, itself, is related to the power in the chain (Renard, 2005). Since wine is considered as a quality product, and the higher quality of wine is associated with much higher price premiums (when compared to other agri-food products or commodities), it is of interest to investigate how power within the wine value chain is associated with value chain performance.

Vertical procurement relationships are consisting of heterogeneous firms (e.g. retailers, processors and farmers). Often, they serve as a focal company (Gagalyuk *et al.*, 2013; Hanf and Dautzenberg, 2006; Mentzer *et al.*, 2001). Thus, such relationships are providing a pyramidal-hierarchical structure (Gulati *et al.*, 2000; Hanf *et al.*, 2019; Jarillo, 1988). In this context, power has received increasing attention in the literature (Belya and Hanf, 2012; Hingley 2005; Kumar, 2005; Sodano, 2006; Xhoxhi *et al.*, 2020). Because power can seriously hamper cooperation through its interactions with other constructs of the relationship atmosphere, making it very important for understanding supply chain issues to investigate power in buyer-supplier relationships (Chatziaslan *et al.*, 2005). In business-to-business relationships, the role of power has been treated in contrasting ways in the literature.

Naudé and Buttle (2000) express the idea that power has a negative influence and therefore is unhelpful for the building of relationship quality. Kumar *et al.* (1998) also view power as the antithesis of trust. This is manifested in a negative way in some cases, such as when retailers attempt to control the resources of their suppliers and limit their ability to take advantage of new opportunities, such as the development of new international markets and customer relationships (Johnsen and Ford, 2001). Xhoxhi *et al.* (2014) emphasise the necessity for more power symmetry between farmers' and intermediaries to foster a more collaborative relationship and to produce improved chain and trading parties' performance. In this context, power asymmetries are associated with less stability and more conflict and are considered to be detrimental to sustaining a business relationship (Ganesan, 1994; Hanf *et al.*, 2013; Rokkan and Haugland, 2002). All-in-all, in this situation, power appears to be synonymous with oppression, coercion, and force, even though such negative approaches are just one aspect of power (Duke, 1998).

Kumar *et al.* (1995) argue that if the powerful party treats the weaker, vulnerable party fairly, then trustful partnerships could be built. Furthermore, the possession of power does not necessarily have to result in exploitation or frequent use of coercion or force (Blau, 1964; Stern and Heskett 1969; Xhoxhi *et al.*, 2018); it may involve any degree of compulsion, ranging from the gentlest suggestion to absolute domination (Beier and Stern, 1969). In fact, Stern and Heskett (1969) argue that power can have a positive role in the achievement of integration, adaptation, and goal attainment within the channel system. Bierstedt (1950) suggests that power stands behind every association and sustains its structure; without power there is no organisation, no order. Therefore, and based on the review of the literature, it is hypothesised that:

**Hypothesis:** Intermediary's power and farmer-intermediary's trading relationship performance follows a quadratic relationship of an inverted U shape (i.e. at the extremes where power is low (left) and high (right) relationship performance is lower than in the middle area).

### 3. Overview of the wine sector in Kosovo

Kosovo is situated in the Western Balkans, with a population of 1.8 million. About half of the population lives in rural areas. Kosovo belonged to a centrally planned economy under Yugoslavia until late 1980s, while it underwent a notorious conflict and emerged as an independent country in the following decade. The conflict resulted in human losses as well as devastated the economy – the infrastructure of Kosovo was neglected for years, and fell into serious disrepair, and all forms of production capacities were damaged, including agriculture and specifically vineyards. Since the end of that conflict, Kosovo has continued to face many challenges, such as insufficient efforts to revive the weak institutional framework, which has affected also the agri-food markets and value chain organisation (FAO, 2016).

Wine production and vineyards growing is one of the most important agri-food sectors in Kosovo – wine is one of the main exported agri-food products. Indeed, wine and vineyards have historical importance – archaeological findings in Kosovo show that vineyards were cultivated over 2,000 years ago. Suitable agro-ecological conditions combined with tradition of wine making have been key factors for the growth of wine production. In 1980s, the Kosovo wine and viticulture sector covered an area of more than 9,000 hectares, and most of the wine and grapes produced from this area has been exported. However, after

achieving a production peak in the 1980s, the sector faced a major setback in the following decade, caused by the 1990s conflict, when many vineyards were destroyed, and the production of grape and wine were reduced drastically. After the conflict, there were revived efforts by private business, government, and donors to support the vineyard and wine sector, which resulted in growth and renewed investments in the sector (Zhllima *et al.*, 2020).

In 2019, the total area cultivated with grapes was 3,367 ha, of which 2,489 were used by wine grape varieties. There are altogether 26 registered companies producing 5,754,000 liters of wine (MAFRD, 2020). There is a lack of studies on wine sector / value chain trends. According to a study carried out by FAO (2016), the sector has been marked by overall growth and consolidation trend, as output is dominated by few large wineries (3 largest wineries make up for about 75% of the total wine production). Larger wineries have their own vineyards which are expanding but even in the case of wineries possessing their vineyards, supply from (small) farmers is crucial. About two thirds of grape supplies are being produced by farms smaller than 5 hectares, and most farms have less than 1 hectare. As a result, the number of grape suppliers per winery is very large, while power asymmetries occur frequently. Due to the current situation, part of the produce is being traded on 'spot market' terms, resulting in both large variance of quantity provided, and prices paid (FAO, 2016).

While some larger processors focus on producing/selling large volumes at affordable prices for local and especially export markets, there have emerged some processors focused on quality and niche markets. Downstream, there are different trends – while it is still common for many households to buy wine (and raki) directly from farmers (informally, at low prices), there have been established or expanded specialised wine shops, serving (both local and imported) quality wine. Improved quality of local wine, combined with evolving Kosovo consumer preferences as well as consumer ethnocentrism (FAO, 2016; Miftari *et al.*, 2021) imply a consolidation potential for the supply chain for local quality wine.

Kosovo's grape and wine industry is struggling to maintain its presence in the export market (targeting neighboring countries, notably Albania), while increasing its sales in the small but growing local market. Being a transitional economy, Kosovo household income and lifestyles are changing fast, implying a potentially higher demand for (quality) wine (Zhllima *et al.*, 2020). The perceived quality associated with a higher price may spur people to choose higher-priced wine (and other food products) especially in countries like Kosovo which have weak institutional frameworks related to food safety and quality standards control. Previous studies on consumer preferences for wine in Kosovo (*ibid*) and neighboring Albania (Zhllima *et al.*, 2012) show that some consumer groups prefer more expensive wine (*ceteris paribus*). Thus, achieving high quality not only is important to improve overall market access, but is crucial to reach higher paying consumers who are quality rather than price sensitive.

## 4. Data and methods

### 4.1 Data

The paper is based on a structured farm survey, which was conducted in 2016 in the Rahovec region of Kosovo, where most grape production is concentrated. The survey consisted of direct face-to-face interviews conducted by trained graduate students. In total, 222 vineyard farmers were interviewed, of which 105 specialised in table grapes and the others on wine grapes. The farm household heads are on average 51 years old and have extensive experience in vineyard farming (29 years on average). Table 1 provides some statistics on sample characteristics

Reflecting the mixed farm structure that characterises the Kosovo agriculture sector, grape production appears a major (but not the exclusive) farming activity, covering almost half of the farm cultivated area. Depending on the product orientation (table vs wine grapes) and farm profile, different marketing channels are observed for commercialisation of the produce. Table 2 shows the main channels of grape distribution. However, it should be noted that it is common that some farms have combined activities (both wine and table grape)

**Table 1.** Sample characteristics.

| Variables  | Mean  | Std. dev <sup>1</sup> |
|--|-------|-----------------------|
| Farmers' (household head) age                        | 51.45 | 12.28                 |
| Farmers' (household head) education (years)          | 10.50 | 3.53                  |
| No. of family adult members (>18 years)              | 5.95  | 3.51                  |
| Experience cultivating grapes (years)                | 29.27 | 12.47                 |
| Area cultivated with grapes (ha)                     | 1.15  | 1.07                  |
| Specialisation (vineyard area /total farm size area) | 0.44  | 0.35                  |

<sup>1</sup> Std. dev = standard deviation.

**Table 2.** Three types of intermediaries in market channels used by farmers.

| Market channel | Frequency | Percentage |
|----------------|-----------|------------|
| Wholesaler     | 82        | 36.9       |
| Processor      | 67        | 30.2       |
| Retailer       | 73        | 32.9       |
| Total          | 222       | 100        |

and/or rely on multiple channels, but in context of the analysis, we focus on the main channel. On the other hand, wholesalers may serve as middlemen both for table and wine grapes, however, quality wine producers tend to buy directly from farmers (avoiding middlemen) to ensure raw grape quality.

#### 4.2 Measurement development

To develop measures for the latent constructs of the study such as intermediary's power, relationship performance, farmers' access to information and farmers' financial literacy confirmatory factor analysis (CFA) is employed, which generates measures and psychometric properties of each construct. To be space parsimonious, the items pertaining to each factor are presented in Supplementary Table S1. The items for each latent constructs were derived from a combination of literature review and qualitative in-depth interviews with farmers. Thus, construct reliability is assessed by estimating composite reliability (CR) and maximum reliability MaxR(H). According to Nunnally (1981), the minimum acceptable value for  $\alpha$  is 0.70. Table 3 shows that each construct has a CR greater than the suggested threshold value of 0.7.

Beyond reliability, each construct should be valid. A construct is considered valid when it fulfils two main conditions: convergent validity (i.e. items loading significantly on the factor they are measuring) and the condition of discriminant validity (ensuring that these factors are distinct and have a low covariance among each other) (Bagozzi *et al.*, 1991). Convergent validity can be assessed through AVE (average variance extracted). The suggested threshold value for AVE is 0.5 (Hair *et al.*, 2010). From Table 3, all variables have an AVE greater than 0.5.

Regarding discriminant validity, Hair *et al.* (2010) suggests two threshold values: (1) AVE should be larger than the maximum shared squared variance (MSV); and (2) the square root of AVE should be greater than inter-construct correlations. Based on the results of Table 3, all the threshold values suggested by Hair *et al.* (2010) are satisfied. Thus, it can be concluded that the constructs fulfil the conditions of convergent and discriminant validity. In addition, the model goodness of fit indices of the confirmatory factor analysis in Table 4 are all within the threshold values suggested by Hu and Bentler (1999). Having developed the variables of interests', multiple linear regression is employed to test the study hypothesis.

**Table 3.** Validity and reliability.<sup>1</sup>

|                                   | CR    | AVE   | MSV   | MaxR<br>(H) | Int.<br>power. | Rel.<br>perf. | Farm.<br>acc. info. | Farm.<br>fin. liter. |
|-----------------------------------|-------|-------|-------|-------------|----------------|---------------|---------------------|----------------------|
| Intermediary's power              | 0.775 | 0.535 | 0.085 | 0.778       | <b>0.732</b>   |               |                     |                      |
| Relationship performance          | 0.888 | 0.667 | 0.052 | 0.906       | -0.059         | <b>0.817</b>  |                     |                      |
| Farmers' access to<br>information | 0.841 | 0.579 | 0.052 | 0.926       | 0.201          | 0.227         | <b>0.761</b>        |                      |
| Farmers' financial literacy       | 0.955 | 0.913 | 0.085 | 0.958       | -0.292         | 0.098         | -0.092              | <b>0.956</b>         |

<sup>1</sup> AVE = average variance extracted; CR = composite reliability; MaxR(H) = maximum reliability; MSV = maximum shared squared variance. In bold square root of the AVE on the diagonal below this diagonal factor correlations.

**Table 4.** Measurement model goodness of fit.<sup>1,2</sup>

| Measure               | Threshold                      | Model values |
|-----------------------|--------------------------------|--------------|
| Chi-square/df         | <3                             | (86/47) 1.83 |
| P-value for the model | >0.05                          | 0.004        |
| CFI                   | >0.95 great; >0.90 moderate    | 0.976        |
| SRMR                  | <0.09                          | 0.043        |
| RMSEA                 | <0.05 good, 0.05-0.10 moderate | 0.061        |
| PCLOSE                | >0.05                          | 0.171        |

<sup>1</sup> Chi-square/df is the chi-square value of the model divided by model degrees of freedom; P-value for the model – tests whether the departure of the data from the model is significant and a P-value  $\leq 0.05$  means the difference between the data and the model is significant.

<sup>2</sup> CFI = comparative fit index; PCLOSE = tests the null hypothesis that the population RMSEA is no greater than 0.05; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual.

#### 4.3 Estimation

The multiple linear regression procedure with ordinary least squares (OLS) estimation is employed to test the study hypothesis. In Table 5 is described how each of the variables in the model is operationalised. To get more reliable results, robust standard errors to heteroskedasticity are calculated and presented in Table 6. The model was also checked for the presence of outliers and influential cases, which do not appear to be an issue. Moreover, multicollinearity is not problematic since all variance inflation factor (VIF) values are below five. To further validate the results, machine learning (i.e. random forest) is used to model the factors affecting the relationship performance between farmers and intermediaries, which is a much more robust algorithm than OLS. Whereas the effects are visualised through the accumulated local effects (ALE) method (Apley and Jingyu, 2020).

## 5. Results

Table 6 presents the results of the multiple linear regression. As can be seen, the main factor to explain the trading relationship performance between intermediaries and farmers are farmers' access to information and intermediary's power. The results support the study hypothesis that low and high/excessive intermediary's power show lower levels of relationship performance. The vertex is at -3.93, meaning that up to -3.93 intermediary's power, the relationship performance between farmer-intermediary increases, and after that, the performance starts to decrease. The latent construct intermediary's power values range from -12.06 to 8.35.

**Table 5.** Variable's operationalisation.<sup>1</sup>

| Variables                               | Operationalisation  |
|---|---|
| Relationship performance                | CFA – latent factor – composite – dependent variable                    |
| Farmers' access to information          | CFA – latent factor – composite   |
| Farmers' financial literacy             | CFA – latent factor – composite   |
| Intermediary's power                    | CFA – latent factor – composite   |
| No. family members >18 years            | Continuous  |
| Years of experience cultivating grapes  | Continuous  |
| Area cultivated with grapes (ha)        | Continuous  |
| Specialisation (grapes/total farm size) | Continuous – ratio total area cultivated with grapes to total farm size |
| Farmers' education                      | Continuous – year of education  |
| Farmers' age                            | Continuous  |
| Selling to processors                   | Binary – selling to processors vs selling to other channels             |
| Selling to retailers                    | Binary – selling to retailers vs selling to other channels              |

<sup>1</sup> CFA = confirmatory factor analysis.

**Table 6.** Multiple linear regression results.<sup>a</sup>

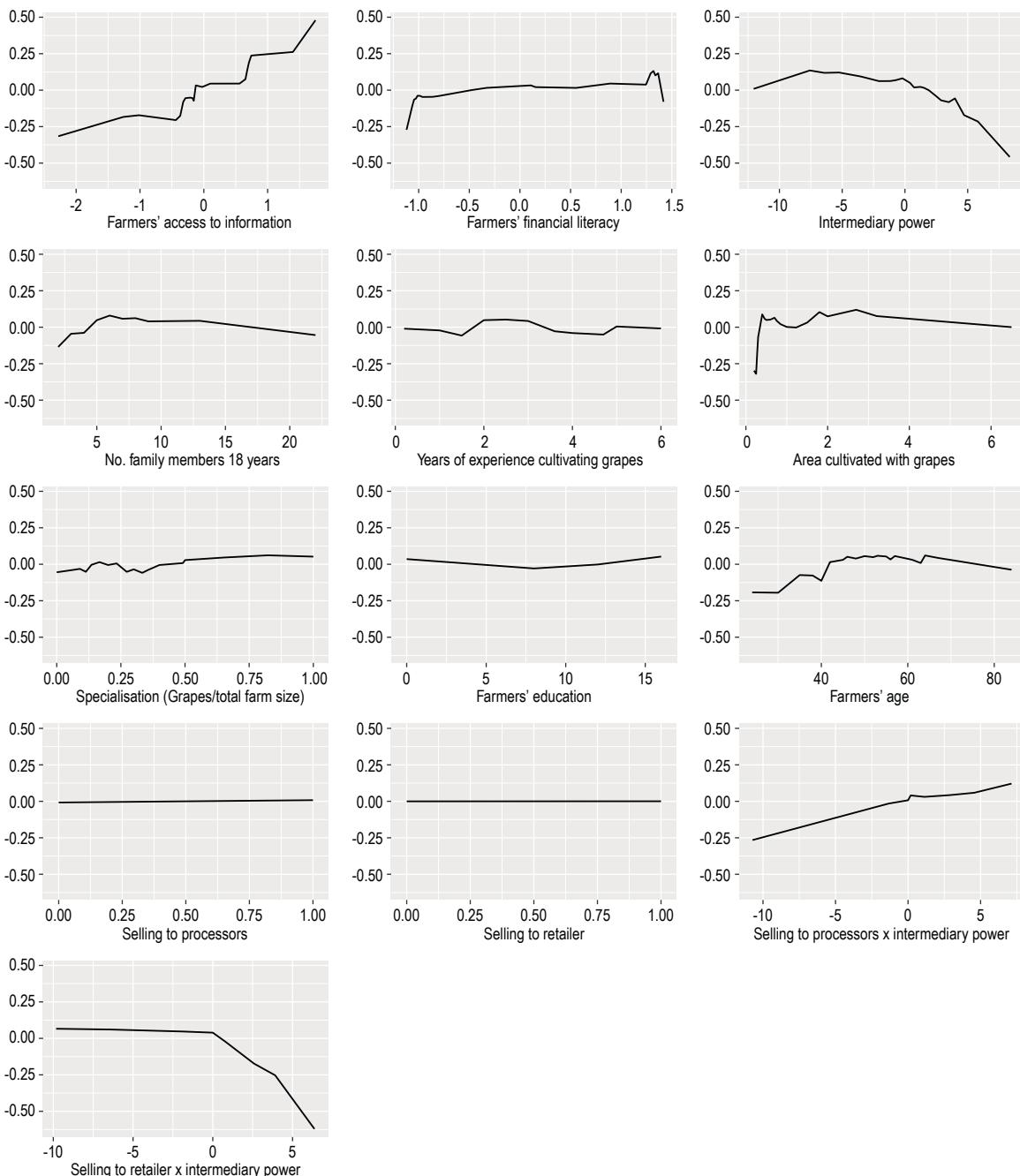
|  | Dependent variable: relationship performance |         |
|--|--|---------|
| Farmers' access to information               | 0.338***                                     | (0.085) |
| Farmers' financial literacy                  | 0.053  | (0.064) |
| Intermediary's power                         | -0.055**                                     | (0.026) |
| Intermediary's power <sup>2</sup>            | -0.007**                                     | (0.003) |
| No. family members >18 years                 | 0.014  | (0.014) |
| Years of experience cultivating grapes       | 0.002  | (0.006) |
| Area cultivated with grapes                  | 0.024  | (0.06)  |
| Specialisation (grapes/total farm size)      | 0.138  | (0.197) |
| Farmers' education                           | 0.017  | (0.017) |
| Farmers' age                                 | 0.009  | (0.006) |
| Selling to processors                        | 0.111  | (0.135) |
| Selling to processors × intermediary's power | 0.072**                                      | (0.03)  |
| Selling to retailer                          | -0.022                                       | (0.143) |
| Selling to retailer × intermediary's power   | -0.037                                       | (0.033) |
| Constant                                     | -0.827**                                     | (0.4)   |

<sup>a</sup> \* $P<0.1$ , \*\* $P<0.05$ , \*\*\* $P<0.01$ ; observation = 222; Adjusted  $R^2 = 0.127$ ; F statistic 3.3\*\*\* on (df=14; 207); in parenthesis = robust standard errors.

On the other hand, the more farmers have access to information (e.g. about markets and standards) the higher the performance of their relationship with intermediary. In addition, interestingly, the interaction effect between intermediary's power and processor channel is significant and has a positive effect on the trading relationship performance.

As outlined in estimation subsection 4.3, to get further results validity, a machine learning approach is employed to model the relationship between the predictors and the relationship performance of farmer-intermediary. More specifically, the random forest is used for the modeling part and ALE method to visualise the effects (Apley and Jingyu, 2020). Figure 1 shows the results of this approach.

As can be seen from the Figure 1, the visualised effect produced through ALE from the random forest model converge with the results of the OLS estimation. Also, the inverted U-shape relationship between intermediary's power and relationship performance is visible. In addition, the positive association of farmers access to information and performance is again confirmed by this approach. Lastly, while the curve effect of selling to processor channel is straight (i.e. no effect), the interaction with intermediary's power shows a positive association with relationship performance.



**Figure 1.** Visualizing the effects of the factors affecting relationship performance with accumulated local effects.

## 6. Discussion

The literature has treated the role of power in business-to-business relationships in contrasting ways. Many authors view power as a negative phenomenon, which leads to conflict, distrust, uncollaborative relationship and low trading relationship performance as shown in the introduction and literature review sections of this paper. However, other authors (Dwyer *et al.*, 1987; Xhoxhi *et al.*, 2018) point out that power is a necessary mechanism to effectively coordinate an exchange relationship; without power there is ‘chaos’ – the power is vital, because it can take the relationship out of the realm of chance and give it purpose, order, and direction. This is particularly relevant in the context of a developing or emerging economy (like the case of Kosovo), where the enabling environment and public institutions fail to (properly) play the crucial role of guaranteeing (safety) standards in the market.

In such a context, the role and power of the value chain leader is crucial, to ensure compliance with quality and safety standards, especially for markets or products which are sensitive to quality (such as wine and export markets). Furthermore, the wine sector represents an interesting set of analysis, because wine is considered a quality product, and the quality of wine can be rewarded with far higher premium when compared to other agri-food products. Therefore, it is rational that the main effort of the value chain leaders or intermediary would be to exercise a level of power which maximises quality, since that can translate in higher prices and margins (potentially for all actors in the chain).

In this study it is shown that the relationship between power and relationship performance is not linear as assumed in most studies. Here, the results point out that when the intermediary has excessive power, it leads to low trading relationship performance with farmers (in line with the branch of the literature that has a negative view on power) (Bretherton and Carswell, 2002; Kumar *et al.*, 1998; Naudé and Buttle, 2000). Also, when the intermediary has little/no power, the relationship performance with farmers behaves in a similar way to when the intermediary possesses excessive power, whereas when power is within optimal (middle) levels, the relationship performance appears high (in line with the branch that has a positive view on power) (Dwyer *et al.*, 1987; Xhoxhi *et al.*, 2018).

The goal of the intermediary and the goal of the farmers form a shared goal as they are mutually and integrally linked in the agri-food value chain. With less stability and more conflict associated with the power asymmetry of the intermediary in the spot market, where there are large fluctuations in price and quantity of product of dispersed farmers, and where the customer is less sensitive to price than product quality, the intermediary stabilises the market and reduces price-induced farmer conflict, co-creating a community focused on increasing product quality and consolidating relational trust. This increased price benefits the intermediary as well as the farmers. In this case, the asymmetric power of the intermediary, driven by a shared goal, is more advantageous than if he were without power vis-à-vis the highly dispersed farmers. In turn, greater symmetry of power between farmers and the intermediary would favor the dominance of more farmers and less stability in this peculiar highly dispersed market of farmers.

Not only does the power of the intermediary co-create order in the market as a bridge between farmers and customers, but his asymmetrical power, by perpetuating relational trust, creates the prospect of his ‘power’ not controlling but co-creating partnership and trust in the community over a longer period than just the time of spot market transactions. The power of the intermediary in the community is not an attribute of his superiority but serves to perpetuate relational trust and co-create a value chain oriented towards the quality of the product and the price dependent on it, contributing to the improvement of the relationship performance.

Another interesting finding of the study is the interaction effect of farmers’ selling to the processor channel with the processor power level, which appears to have a positive effect on relationship performance. In other words, when the processors have high power, farmers selling to them experience higher levels of trading relationship performance. Consequently, since the quality of the final product of the processor is highly influenced by the raw product supplied by farmers, processors with large power influence farmers to produce

high quality grapes by influencing their production technology. In turn, by ensuring high quality grapes, a higher standard of wine is produced. Thus, the processors are in a better position to market their products, and thereby they also have a greater capacity to better pay farmers (e.g. in terms of price and timing of payment). This result is consistent with the broad quality-coordination relationship literature, which points out that more formal coordination is associated with higher product quality (Fernández-Olmos *et al.*, 2009; Fraser, 2005; Goodhue *et al.*, 2003).

Furthermore, compared to the producers of grapes, processors have more market information, i.e. they know which grape varieties and grape qualities are demanded. They translate this market knowledge into 'grape' production knowledge which is shared with the grape producers. Therefore, farmers are accepting them as 'expert' which can't easily be cheated. This result can be regarded as a source of power which has a positive connotation, (i.e. it does not hamper the relation between grape producers and grape processors).

On the other hand, retailers or wholesalers may often source grapes for lower quality and mass marketed wines, they may not be so critical regarding the grape quality; sufficient quantity and low cost is more of concern. Thus, they do not pay so much attention to quality control and prefer coordination mechanisms that dispose over a lower degree of vertical coordination, which results in a lower product quality (Goodhue *et al.*, 2003). Hence, typical traders have lower specific assets investments, and are less likely to establish long term relations with both buyers and supplying farmers, and thus may be more likely to behave opportunistically in relation with the supplying farmers. Similar result is found in Woods *et al.* (2011) and Franken (2014) pointing out that the degree of integration is significantly affected by specific investments.

Lastly, the findings show that farmers' access to information culminates in improved trading relationship performance with intermediaries. This result has implication for both policymakers and enterprises which are pointed out in the conclusion section.

## 7. Conclusions

There are differing views about the importance and effect of intermediary's power in relation to farmers – each of the previous studies tends to take a stand, considering (excessive) possession power as either 'good' or 'bad'. However, the importance of power should be discussed in the context of the specific country (including the country's enabling environment) and sector. In cases of developing or emerging (transition) economies, where enabling environment and public institutions fail to play the crucial role of guaranteeing (safety) standards in the market, the role and power of the value chain leader is crucial, to ensure compliance with quality and safety standards. Furthermore, the sector context is very important – in the case of commodities, which are limited in terms of increasing added value and prices, the intermediary's power may not be as crucial as it is for commodities (e.g. wine), where improved quality can result in significant increase of added value and prices.

Consequently, in the context of a weak institutional framework (government failure), free-market mechanism cannot function perfectly for distributing and allocating goods and for guarantying standards. A solution in this case would be the power of the value chain leader to coordinate the other agents to fulfill the common value chain goal.

The main contribution of this paper to the debate on the role of power in business-to-business relationships is that it points out an alternative explanation; stating that there is an optimal level zone that power needs to exist, in order to achieve above-average trading relationship performance. Outside this zone, either in the case of excessive/high power or in the case of little/no power, relationship performance deteriorates.

Indeed, it is rational – and further, it is a good investment for the processor to share part of the created added value with the farmers, to incentivise their growth and quality standards compliance. This is particularly

relevant for larger wine processors, because of the high cost of fixed investments and specific assets, which encourages them to think in the long term in relation to the suppliers as well as end markets.

The findings also show that farmers' access to information improves trading relationship performance with intermediaries. This implies that enabling better access to information among farmers through extension services or ICT platforms (e.g. with information about market prices, information and training materials on good agricultural practices) can improve farmers and value chain performance, which could lead to an amelioration of farmers' business and livelihood conditions. In addition, business practitioners (e.g. processors, exporters) who seek to achieve above-average performance should be sensitive about the sources they use for generating power (i.e. they should rather use 'position' and 'expert' power). Furthermore, they should provide information to farmers about quality standards, about specific harvesting packaging procedures to reduce post-harvest losses, and about potential markets and required varieties that can be explored in the future. They should explain and demonstrate to farmers why and how improved (grape and relatedly wine) quality enhances market access and enables better prices, which in turn can make both farmers and processors more prosperous. Thus, possessing and exercising an optimal level of power by quality wineries combined with information can result both in better wine and happier farmers.

The study has several limitations. First, the survey took place about six years ago and as such, there should be caution over its interpretation in the context of the current situation. Although there have not been more recent studies on the subject and chosen sector (in Kosovo), literature suggests that farm typology and main issues remain similar as in the past (Kostov *et al.*, 2021). Furthermore, the study is focused on one single sector and country – replication of this study to other contexts would yield more insight. Furthermore, the study relies on cross-sectional observations – panel data can provide deeper insights into the association between power and relationship performance. Lastly, the dependent variable relationship performance measured through a subjective measurement approach which might have some bias – future research work might consider more objective indicators such as product quality and post-harvest losses.

## Supplementary material

Supplementary material can be found online at <https://doi.org/10.22434/IFAMR2021.0143>

Table S1. Confirmatory factor analysis standardised factor loading.

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## Conflict of interest

The authors declare no conflict of interest.

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