

Bitsch, Linda; Atoyan, Silva; Richter, Barbara; Hanf, Jon; Gagalyuk, Taras

Book Part — Published Version

Including smallholders with vertical coordination

Suggested Citation: Bitsch, Linda; Atoyan, Silva; Richter, Barbara; Hanf, Jon; Gagalyuk, Taras (2021) : Including smallholders with vertical coordination, In: Amao, Ifeoluwapo O. Adeoye, Iyabo B. (Ed.): Agricultural Economics, ISBN 978-1-83968-538-5, IntechOpen, London, pp. 55-70,
<https://doi.org/10.5772/intechopen.92395>

This Version is available at:

<https://hdl.handle.net/10419/251725>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



<https://creativecommons.org/licenses/by/3.0/legalcode>

Including Smallholders with Vertical Coordination

*Linda Bitsch, Silva Atoyán, Barbara Richter, Jon Hanf
and Taras Gagalyuk*

Abstract

The current chapter demonstrates an application of the theoretical framework of vertical coordination, more specifically the application of contracting in productive partnerships, to integrate smallholders into the value chain of a specialised crop. The aim of the chapter is to derive implications for industry participants on how to integrate smallholders with vertical coordination. Therefore, we take a closer look on vertical coordination and contracting in productive partnerships. We have taken the value chain of brandy production in Armenia and used the Yerevan Brandy Company (YBC) to perform our case study, with which we can analyse vertical coordination mechanisms used by the company. Further, we want to identify factors that drive processors and smallholders to enter into contracts. Qualitative interviews were conducted with the YBC, their grape suppliers, as well as experts from related fields. We analysed the data with a qualitative content approach. Results show that the YBC uses different measures of vertical coordination, i.e., contracts and farm assistance in the form of consultancy and input supply. The company tends to use production contracts rather than pure marketing contracts, as it is actively engaged in the production process. The use of contract farming is beneficial for both the processing company and the smallholders.

Keywords: value chain, vertical coordination, contracting, smallholders, brandy, Armenia

1. Introduction

After the collapse of the Soviet Union in 1991, the whole food chains in Armenia and other Eastern European countries experienced an economic breakdown due to the beginning of the transition process. Problems occurred at the beginning of the transformation process. After land privatisation, and the liberalisation of prices and trades, the prevailing structures did not fit to the open market [1].

Disruption and instability in the supply chain from farmers to retailers had a negative impact on qualities and quantities. At the same time, changing consumer demands forced retailers and processors to adjust and improve the structure of the food chains to meet consumer demands and to overcome the supply problems. The agricultural policy could not provide frameworks and institutions fast enough to restructure the food commodity chains to guarantee stable and higher qualities as well as quantities. As a consequence, retailers and processors were engaged mainly in the approach of private-driven vertical coordination with partners along the supply

chain to overcome the problems of supply disruption and minor quality [2, 3]. These structural changes and their consequences are still present today.

To adapt to the new environment, the Yerevan Brandy Company (YBC), the producer of Ararat brandies, was acquired by the international Pernod Ricard Group with French origin in 1998, shortly after the collapse of the Soviet Union.

Investments of foreign companies can cause structural changes in the agri-food sector. The requirements of the newly established procurement systems demand that suppliers can guarantee both disruption-free product flows and delivery of products of a certain quality, thus forcing domestic producers to keep up with quantity and quality demands to prevent the import of products [4].

Literature on the influence of foreign direct investment (FDI) on transition economies mentions several positive effects of FDI such as follows: (1) it facilitates economic growth [5, 6], (2) it reduces poverty [7, 8], and (3) it can induce technology transfer, technical innovation as well as enterprise restructuring [7]. Dyker points out that those investing companies have to impose their corporate organisational structures on subsidiaries or partners [9]. Those organisational structures are based on the disposition of hierarchies, lines of responsibility, the use of intra-firm e-mail systems, etc. Hanf et al. show the influence that foreign investors have taken in the development of the Armenian wine and brandy business. They use different Armenian companies, among others, the YBC [10].

This is why we take the YBC as a case study to show exemplarily how an international company manages to integrate local smallholders (grape growers) into their national and international value chains by successfully installing a procurement system by using different measures of vertical coordination.

The case of the YBC in the Armenian brandy industry can be seen as a benchmark example for other countries and their agricultural sectors where the structure of smallholders is still prevailing, too. Based on the case study, we derive implications for the participants.

The chapter is structured as follows. To show the theoretical background on integration of smallholders into value chains, the next chapter gives an overview about vertical coordination, and vertical coordination mechanisms, i.e., contracting in productive partnerships.¹ In the third chapter, background information on the Armenian wine industry is provided. The fourth chapter presents the case study results from the Yerevan Brandy Company. Finally, concluding remarks are offered.

2. Integration of smallholders into the value chain: vertical coordination and contracting

2.1 Vertical coordination

In everyday business, companies face decisions about the synchronisation of successive stages in the marketing channel from producers to consumers. Traditionally either spot market transactions or integrated processes in companies have been used. The spot market and vertical integration can be considered as classical modes, which continue to be applied in nowadays businesses.

The spot market represents the classic *buy* (on the market) decision, where the company organises the transaction directly on the market. That means, the company buys, for example, an input on the market place. In this case, individual

¹ The theoretical frame is mainly based on the published chapter “Integration of Small Farmers into Value Chains: Evidence from Eastern Europe and Central Asia” [11]. For a detailed review on vertical coordination, look into Hanf and Gagalyuk [11].

economic actors follow their self-interest and focus on short-term, opportunistic exchange relationships, in which the individual actors can preserve their independence and high flexibility [12].

Vertical integration is considered to be the *make* (inside the company) decision, which means that a company integrates a successive stage, which can be an upstream or a downstream process. Hence, vertical integration combines different levels of the value chain within one firm [11]. Internal, intra-firm transactions replace various market transactions. This can be achieved either by forming a subsidiary or by a merger or acquisition. In vertically integrated firms, management directives dictate the transfer of resources across stages [2].

The classic *make vs. buy* decision has been researched quite well. Based on Coase's work about boundaries of a firm that make the difference whether companies choose to *make* or *buy* the product [13], Williamson [14] was one of the first to speak about hybrid governance structures. Based on the previous research made on the topic of hybrid coordination strategies and hybrid governance structures, Peterson et al. have highlighted the hybrid strategies and the nature of the so-called vertical coordination continuum. Depending on the type of vertical transaction, firms decide between the spot market, vertical coordination (productive partnerships) and vertical integration [12, 15]. Vertical integration combines different levels of the value chain within one firm [11]. Internal, intra-firm transactions replace various market transactions. This can be achieved either by forming a subsidiary or by a merger or acquisition. In vertically integrated firms, management directives dictate the transfer of resources across stages [2].

Vertical coordination can be described as the synchronisation of successive stages in the marketing channel from producers to consumers, leaving out spot market transactions, where the commodity exchange is only based on pricing. Productive partnerships, a kind of vertical integration, are characterised by collaborations of independent firms, in which the partners share interests as well as knowledge and resources to improve the outcomes of the supply chain activity. Productive partnerships can be based on specification contracts (production and marketing contracts²), relational-based alliances and equity-based alliances [12]. It can take different organisational forms possible: from loose or tacit agreements to stable, long-term and trust-based cooperation contracts [14, 17].

One can assume that the higher the priority to secure quality and/or quantity of raw materials, the stronger is the shift from spot market transactions towards advanced vertical coordination mechanisms [18]. This is closely related to the intensity of control, which increases along the continuum (**Figure 1**). With spot markets, the intensity of control is low, as exchange partners decide on whether to realise the transaction or not. With specification contracts, the control increases from that related to spot markets. As in relation-based alliances, involved firms share risks and benefits; coordination control arises from mutual interests and decision-making. In equity-based alliances, the intensity of control is even higher, because partners are key stakeholders and control and decision-making are decentralised among the ownership parties. Examples for equity-based alliances are cooperatives and joint ventures [12, 15].

2.2 Contracting in productive partnerships

The key for all types of vertical coordination is contracting. Vertical coordination aims to overcome the disruptions in supply and inferior-quality products. However, the key actors (retailers and processors) find themselves constrained not

² For an overview on different classifications of agricultural contracts, see Drescher [16].

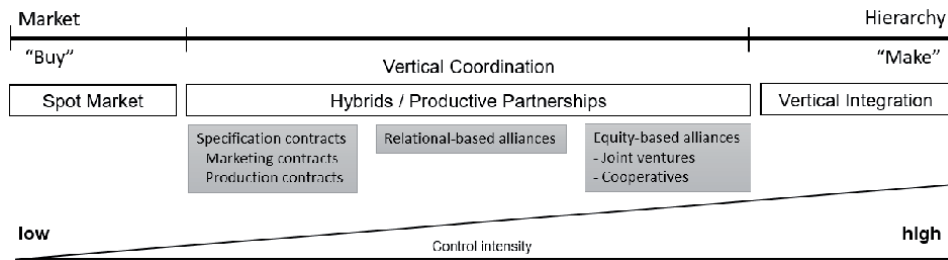


Figure 1.
Framework vertical coordination (based upon [12]).

by their capital capacity but by that of other participants along the chains on which they depend for critical inputs. This is because traditional lending institutions such as banks do not give credit to enhance the inter-firm product flow. Contract farming can be defined as an agreement between legally independent firms for the production of a commodity or product for a future market [16]. Götz et al. state: “An essential element of contract farming is the provision of some degree of assistance to the farmers, with the aim of increasing supply quantity or quality, or reducing seasonality” ([19], p. 364). Overall, farm assistance can include input supply programmes, investment assistance, trade credits, bank loan guarantees, extension and management advisory services, etc [4]. Thus, farm assistance programmes must be accompanied by appropriate governance mechanisms.

Production contracts (resource-providing contracts) are predominantly used to address quality concerns [20]. Developed markets have various consumer segments with differentiated demands. In production contracts, the contractor provides, on the one hand, a market for the goods and, on the other hand, engages in many of the producer’s decisions and retains ownership of essential production inputs to secure higher-quality products to attend to the differentiated demands of the consumer segments [21]. However, when the higher-quality products become standardised (e.g. IFS or GlobalGAP certified) and there are no supply difficulties and/or the overall product quality is not complex, mainly marketing contracts will be used.

Marketing contracts address only the issue of supply disruptions by private contractual initiatives [22, 23]. The contractor usually provides a market for the goods but—on the contrary to production contracts—engages in few or none of the producer’s decisions. In marketing contracts, the contractor and producer may negotiate the delivery schedule, pricing method and product characteristics.

For both types of contracts, Swinnen states that “these private contract initiatives can be quite substantial” ([2], p. 1). Empirical evidence indicates that they include farm management assistance, extension services, quality controls, farm input assistance programmes, trade credits and even bank loan guarantees. The programmes generate essential improvements in the credit situation of the farms, as they contribute directly to improved access to finance (e.g. through trade credit) and indirectly as they improve contracting farms’ access to loans from banks or external financial institutions (through loan guarantees, enhanced farm profitability and improved future cash flows). Summing up, there are different factors influencing participants towards contract arrangements.

The main reason why processors enter into contracts includes the control over input supply. Further, processors use contracts to achieve uniformity and predictability to suit consumers, but they also benefit from lower costs in processing, packing and grading [24–27].

The main motivating factors for farmers to enter into contracts are the following, as reported by the USDA (1996): (I) income stability (to reduce risk compared

to other ways of selling on traditional marketing channels); (II) improved efficiency (management decisions are transferred to the farmers); (III) market security (entering the contract provides a certain security in that the product will be sold if it meets with the requirements); and (IV) access to capital (contractor often provides inputs for farmers, which reduces the usage of credits) [28].

However, two reasons for the breaching of contracts have been detected. First, a lack of trust in business relations between producers and their buyers, as in transition countries, many buyers experienced that businesses were not able to pay. According to Ring and Van de Ven, trust is not built based on contracts; it rather emerges over time due to the commitment of assets or satisfactory performance [29].

Second, they may not be able to fulfil a contract because they cannot access basic production factors [23]. Contract enforcement is still an important problem. In the World Bank study, the enforcement problem was regarded as one of the most important barriers for successful vertical coordination [4]. However, in some cases, public enforcement institutions are not fully functioning. Furthermore, since transition countries are often described as having limited social capital, there is also an absence of societal enforcement mechanisms (e.g. peer or community pressure, a sense of mutual obligation and an overall sense of distrust). Thus, to improve the farmer's access to basic production factors (capital and specific inputs) and know-how/information (knowledge and experience), means have to be worked out and put down in writing, i.e., contracts have to be signed [4].

The change to modern procurement systems is one reason for initiating vertical coordination and, therefore, chain-based financing. The requirements set by these systems favour large-scale farm production for two purposes: (1) significantly fewer large suppliers are needed, and hence the complexity of the system is lowered, which decreases transaction costs, and (2) it is more costly to assist small farms than larger farms [4]. As a result, many retailers and processors would like to see growth in farm size.

However, retailers and processors are (still) forced to include smallholders. Smallholders are essential for ensuring the required quantities in some countries. Particularly in labour-intensive sectors, small-scale farming has significant cost

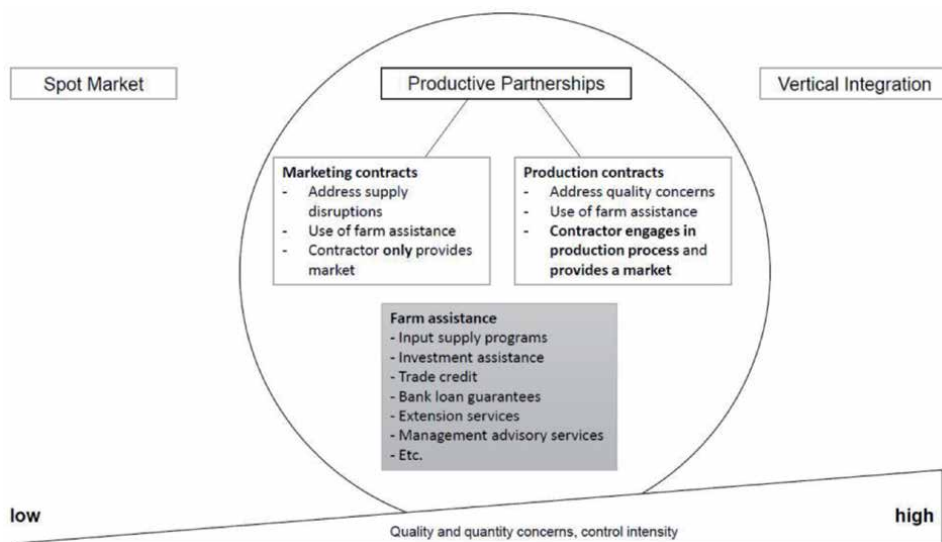


Figure 2.
Contracting in productive partnerships.

advantages. If the (farm) suppliers get too large, they begin to recapture some power. Since larger farms have the feeling that they can survive just by themselves, it may be more likely that smaller farmers join horizontal collaborations and ultimately create much larger units. The degree of market development is essential for the degree of vertical coordination. The less a market and its institutional environment are developed, the less likely it is that a complex system of vertical coordination will emerge (where marketing contracts are dominant). The more developed a market (i.e. the greater the demand for higher-quality products), the higher the degree of vertical coordination will be, and production contracts are favoured. These contracts vary in control allocation and risk transformation across stages.

Figure 2 sums up the elements of contracting in productive partnerships.

3. Background information: Armenian wine industry

During the communist era, the satellite countries were divided to focus on the production of particular products. Therefore, Armenian table wine production was shifted mainly to brandy production, which led to a significant change in the Armenian wine culture. Other countries, such as Georgia and Moldova, were focusing on wine production, which preserved the wine culture within these countries [30].

The production area has gone through a tremendous decline after a very peak in 1985 with 35,000 ha (~88.4 million litres). During the Soviet times, Armenia processed more than 200,000 tons of grapes mostly for brandy, a little bit of wine and sparkling wine. The major part of the production was consumed in Russia and the empire of the Soviet Union. Especially the anti-alcohol campaign in 1985 initiated by Michail Gorbatschow had an enormous influence on the area until the collapse of the Soviet Union in 1991 [31]. His goal was to improve the Soviet morale, to reduce the expenses and deaths due to high alcohol consumption. Many old vineyards were cut off or removed to reduce the production of alcoholic beverages [32]. **Figure 3** gives an overview of the wine production from 1971 to 2017.

In the post-Soviet period, the grape-growing industry declined heavily in Armenia and other Soviet countries, and so did the wine sector due to changes in

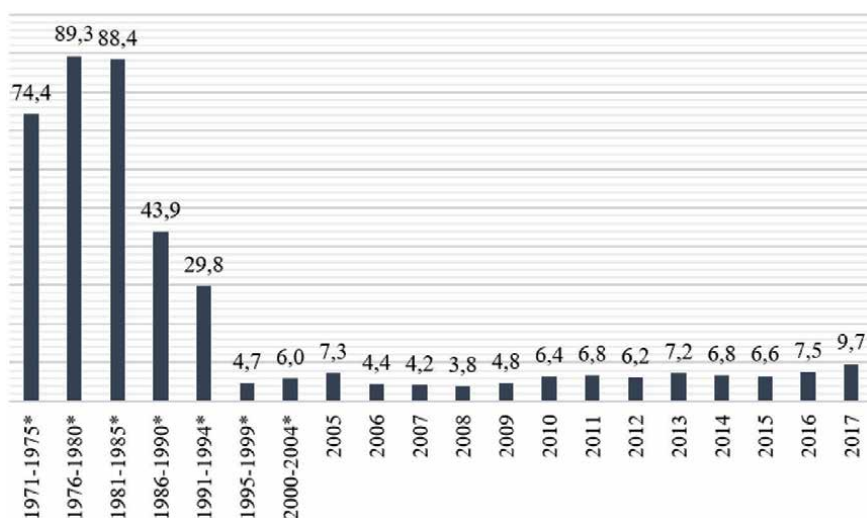


Figure 3. Wine production (incl. base wine for brandy) in million litres in Armenia from 1971 to 2017 annually (based upon [33, 34]).

land privatisation. Other influencing factors were the absence of replantation of vineyards and the shift of some farmers to other more profitable crops [1]. Triggered by the lack of productivity, outdated machinery and issues in bulk purchasing systems, problems of adaptation to new emerging markets occurred. All these issues led to a drastic rise in terms of vine cultivation costs [31, 35]. Some producers terminated their production ultimately or shifted to new industries. Since the early 1990s (with an interruption due to the financial crisis), the grape-growing sector slowly has recovered in terms of production numbers, mainly because of an upswing in the brandy sector.

For brandy production, mainly white grape varieties, which can deliver higher yields and sugar levels (to obtain higher alcohol content for brandy making), are cultivated. Those varieties are less suitable for table wine production. Red varieties are mostly used for table wine production, where, in addition to sugar level, healthiness and other quality aspects such as ripeness, acidity and pH level are more important. Therefore, prices between red and white grapes are tremendously different—white grapes receive overall lower payments [1].

Producers purchase mostly grapes from small rural households with small average sizes of grape-growing units leaving the grape growers in a weak spot for bargaining. According to Hanf et al., most of the grape-buying agreements (besides YBC contracts) in the wine and brandy industry are based on quantity and trust [10]. They do not include quality criteria. Currently, informal, 1-year oral agreements are usually closed before harvest, but mostly repetitive during the years. The case of not observed contracts was also found in Armenia and has led to mistrust [10].

In 2017, overall, 66,544 farmers cultivated grapes in an average plot size of 0.23 ha [36]. Due to their plot sizes, many smallholders cannot manage to finance their winemaking facilities and/or get access to the market to sell the high-valued final product. That is why farmers are heavily dependent on their grape sales to a few operating production plants such as wineries or brandy factories [1]. The dependence on grape sale for smallholders is still high, as it is the primary source of rural income.

4. The case study: Yerevan brandy company

The YBC is (still) the leading brandy-producing enterprise of Armenia. Currently, the YBC has around 2500 private farmers delivering grapes to the company on a contract basis. It produces a range of brandies of different ages. The brand Ararat belongs to the company. The YBC exports up to 90% of the production to 33 countries worldwide. The primary export destination is Russia. The company comprises four production sites, in three grapes are received, the juice is fermented, and the interim product (wine) is distilled. In all four sites, the distillate is aged. The fourth site is in Yerevan, where the ageing, blending and bottling facilities as well as other divisions such as HR, IT, accountancy and administration are situated. The YBC has branches in Ararat, Armavir and Tavush.

To gain insights into the production structures, operational procedures and business relationship to the smallholders which supply grapes to the company, a qualitative research approach was chosen. Qualitative research is dedicated to a limited number of cases that are investigated as precisely as possible. Therefore, face-to-face individual interviews were conducted with different industry participants. Besides representatives of the company itself, we interviewed smallholders (grape producers) and industry experts from politics and education as well as experts from foreign help organisations, e.g. Deutsche Gesellschaft

für Internationale Zusammenarbeit (GIZ), Center for Agribusiness and Rural Development (CARD), Centre for the Promotion of Imports (CBI) from developing countries, etc. Additionally, we interviewed the director of the Vine and Wine Foundation of Armenia, who represents all grape growers and processors in the industry. Regarding the company's perspective, we interviewed the heads of grape purchasing and quality control at the YBC and two of the YBC agronomists, who work directly together with the farmers in the vineyards. Moreover, we conducted interviews with 15 smallholders who have a contract with the company. To cover all production sites of the YBC, we have interviewed five farmers from each region. Some of the farmers have worked with the YBC for many years, and others have just recently started the collaboration. Interviews are based on a semi-structured interview guideline and were carried out by the authors personally. The interviews took place between May 2018 and January 2020. The interviews were conducted in Armenian and then translated into English to guarantee full exploitation of information.

For the qualitative analysis of the interviews, the approach of Gläser and Laudel [37] was used. They use a method called extractive qualitative content analysis. It is based on a structuring technique to extract relevant and complex information during the whole process. The process is completely open for new and unexpected information. After the information is extracted from the original text material (transcribed interviews), the information is processed and analysed.

The case study of the YBC shows how an international company manages to integrate local smallholders (grape growers) into their national and international value chains by using means of vertical coordination in the form of contracting. Moreover, the case study demonstrates how a procurement system can be installed successfully in a weak institutional setting. The YBC was the first company in Armenia to introduce the contracting system between the grape growers and processors in 2003. Later it was recognised by the government as an exemplary one.

After the Yerevan Brandy Company became part of the Pernod Ricard Group in 1998, an internal restructuring process has taken place to tackle the issues of the brandy industry and to align them with the international standards of the markets. Main changes were carried out in infrastructure, refurbishment, huge investments specifically in winemaking facilities and distilleries were made, but the most important changes were made in business management. The introduction of the first written, enforceable and long-term contracts changed the standards of the wine and brandy industry in Armenia.

The main reason why the YBC entered into contracting was to ensure sustainable grape supply in terms of quantity. To secure the needed quantity, the company has to purchase all their grapes from independent grape growers, as the YBC does not possess a large area of own vineyards except for 0.5 ha of trial vineyard. The company is forced to include smallholders to ensure the required quantity.

The contract, which is set up between the company and the grape growers, contains specifically the grape quantity, variety, contract length, characteristics of the plot where the grapes are grown and a few quality criteria such as the healthiness of the grapes and the minimum sugar level. One interviewed grape grower mentioned, for instance: "It is required to deliver healthy grapes. The delivered quantity should contain the smallest possible amount of material other than grapes (e.g. leaves, stones). The contract also includes the grape varieties which can be delivered to the company". The guaranteed quantity enables grape growers to plan in terms of income, input supplies and production. Through the long-lasting approach (3–5 years of contracting), trust is built between both parties. As one interview partner said: "For me it's not only the profit that matters. Most important is the long-term collaboration with the YBC, as it gives me a feeling of stability".

The interviewed farmers stated that the duration of the long-term contracts in the past was even 7 years.

Furthermore, the contract includes terms of payments and delivery (e.g. number and time of payments). All types of contracts include minimal prices. The company philosophy aims to purchase grapes at a price above the farmer's production cost, which is company-wide evaluated before harvest.

In general, the price is announced in spring, which gives farmers the possibility to decide what to do. However, in some exceptional years (e.g. 2018) pricing details can vary, so the YBC announces the updated price before the harvest. As prices are included in the contracts and the contracts are legally enforceable, neither the farmer nor the YBC can negotiate on prices after the contract has been set up.

An annex of the contract takes into account the potential deviation from the contractual agreements due to quantity fluctuations. In August, shortly before the harvest starts, the YBC agronomists visit the vineyards and calculate the potential yield. If weather conditions were unfavourable and the farmer could not obtain the required quantity (or, in turn, the yield is higher than expected), the agronomists and farmers can fix the required quantity according to the situation. A grape grower stated: "The yield is always predicted by the agronomists beforehand. Depending on year the quantities can be higher or lower, but it is negotiable by the contract annex".

Ten agronomists are working at the YBC doing quality control within the contracted vineyards to provide consultancy to the farmers. One of the farmers, for instance, said: "There was a time we were implementing old cultivation methods damaging our crop. In the beginning it was difficult to change our mind-set and follow the instructions of the YBC agronomists. Time proved the effectiveness of their consultancy so we became more open to their suggestions, even more motivated to find out new information, learn new cultivation technologies". The consultancy includes good agricultural practices such as pruning, canopy management, spraying times with herbicides/pesticides, greenings, etc. Additionally, the agronomists also conduct monitoring to make sure that the expected grape quality and yield are going to be received. Based on the evaluation of the agronomists, the company subsidises smallholders with farm input assistance—if needed—with pesticides, herbicides and fertilisers. Another grape grower mentioned: "The company provides tools, sprayers, and pesticides at convenient prices. The payment for these inputs is directly taken out from the pay-out we receive for the delivered grapes".

To provide knowledge and new techniques, the YBC owns 0.5 ha of experimental plots for trials. For instance, in 2006 the company started some trials on their experimental plots together with the Pernod Ricard research centre, to demonstrate their grape suppliers that new cultivation methods in the grape production can be less time-consuming and more profitable.

For smallholders, the main motivating factors to enter into contracts with the YBC are based on the benefits the farmers receive from working with the company. The YBC provides constant market access for grapes and gives the smallholders a guarantee of grape purchase. Farmers who do not breach the contract have a stable, reliable and almost predictable profit/income. The long-term relationship between the company and the farmers offers the opportunity to build trust between the contracting parties. This increases reliability between them and gives income security to the farmers. Besides some 1-year contracts, mostly 3–5 years of contract length (if there is no contract breach), are used. Another advantage is that grape delivery and payments are scheduled ahead; hence, no price negotiations of the YBC are possible if the farmer meets the contract requirement due to legal enforcement. The company provides farm assistance in the form of inputs (chemicals, fertilisers, etc.) and consultancy (pruning, irrigation, spraying times, dosage and frequency,

etc.), if necessary. Farmers have access to knowledge and new techniques through the YBC. Grape producers also benefit from working with the YBC because they are delivering high-quality grapes for high-quality brandy production and thus benefit of the company's reputation.

One of the smallholders, for example, said as a concluding remark: "My father and I were practicing grape cultivation ever since land privatisation in Armenia. We had a small plot and low quantities. Slowly, gaining experience in this field, our expectations rose, and at the same time, the vineyard territories expanded, especially in the period when PR bought the YBC and we started collaboration. The organizational skills of the company positively surprised us from the very beginning. It was the first time in Armenia, when the farmer delivers the grapes without being stuck in huge queue. Everything was planned with a contract".

If it comes to the credit situation of the smallholders, the YBC is not helping them directly by providing loans, loan guarantees or trade credits. However, smallholders who work with the YBC over a longer period increase their chances to get a credit or loan at external institutions because of the fixed, long-term contracts with the YBC and, hence, a stable and enhanced profitability or improved future cash flows based on their past performances. This provides security to external institutions, improving the probability for smallholders to finance investments. One statement of an interviewed grape grower was: "Having larger vineyards, one always needs financial support to do investments in, for example, the trellising system (metal wires, etc.). Recently I expanded my vineyard and needed a bank loan. When applying for the loan the bank considers your current economic situation as well as where you are trading your product. Seeing our contract with a serious company such as the YBC, the bank never rejects the application". In this setting, the YBC helps indirectly with access to capital.

In case a farmer cannot deliver the settled quality and/or quantity of grapes to the YBC, the contract is breached. Additionally, the competition among smallholders to work with the YBC is huge, creating societal pressure to follow the restrictions.

The contract design, as mentioned above, shows that the YBC is on the one hand working with marketing contracts to secure grape quantities and qualities for their brandy production. In general, the brandy production itself does not require highly differentiated grapes. Grape quality is mainly defined by a minimum sugar level and a minimum of the healthiness of grapes close to the harvest. However, the YBC sets up higher-quality restrictions. For instance, the company only purchases high-level healthy grapes (pest-free, disease-free, no foreign bodies, etc.) and certain grape varieties. The YBC does not purchase all grape varieties which can be used for brandy production.

In contrast to that, grape production for wine is more differentiated, and quality is also defined by sugar and healthiness, but it includes further grape characteristics such as colour, tannins and sugar and acid ratios. However, if we consider on the other hand the provided farm input assistance in the form of chemicals, fertilisers, etc. and the consultancy, e.g., pruning, irrigation and spraying times, this depicts a high involvement during the production process. The YBC actively engages in many critical decisions within the production process, adding production contract features.

Further interviews with some producers of table wine and experts from related fields such as education, politics and related fields/companies were conducted additionally. The interviews revealed that after the successful implementation of contracts in the brandy sector, many table wine producers followed. One of the experts stated: "Most of the time grape purchases for table wine were based on customary rearrangements. In that area a very well developed relationship, only one company has. This is Yerevan Brandy Company, having written contracts with their

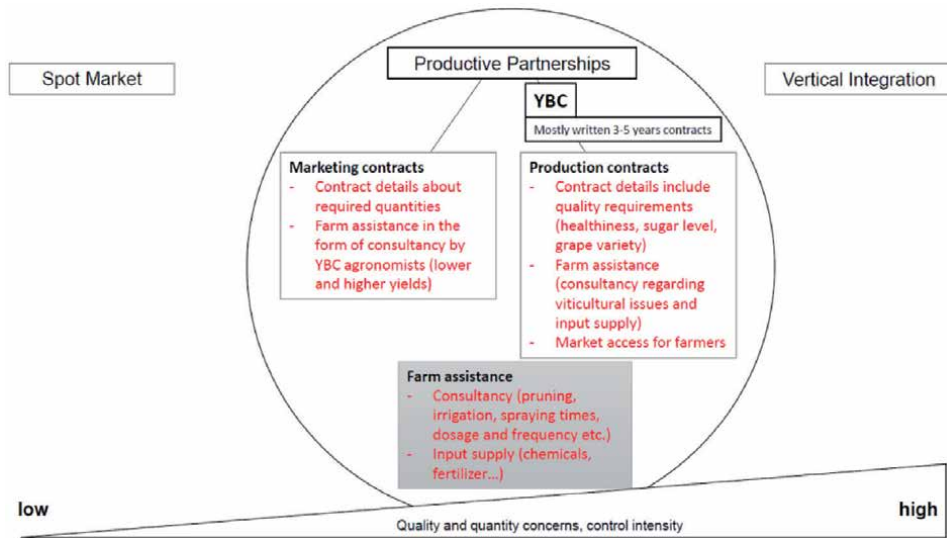


Figure 4.
 Results of vertical coordination in the YBC case study.

farmers. In this sense, Yerevan Brandy was a role model”. Another expert added that within the last years, a steady increase in contracts in the grape purchase was notable. Overall, the influence of the YBC in the brandy and wine sector of Armenia was shown.

Figure 4 sums up the results of vertical coordination mechanisms used in the productive partnerships of the YBC and the grape growers.

5. Conclusion

As a result of land privatisation which was part of the transition process, the average plot sizes of farmers are small. In 2017, overall, 66,544 farmers cultivated grapes in an average plot size of 0.23 ha. Due to their plot sizes, many smallholders cannot manage to finance their winemaking facilities and/or get access to the market to sell the high-valued final product, resulting in a high dependency of smallholders on grape sales to processors. In this context, the aim was to show how to integrate smallholders into national and international value chains by successfully installing a procurement system in weak institutional environments. In our case study of the Yerevan Brandy Company, we found that the company uses specification contracts as one type of vertical coordination, where independent individuals or firms of different stages in the value chain decide to collaborate. Currently, the YBC has around 2500 private farmers delivering grapes to the company on a contract basis. In order to avoid the disruptions in supply and inferior quality, the company introduced contracting from the early beginning. As a result, major disruptions in quantity and quality never occurred.

In 1998, Pernod Ricard Group bought the Yerevan Brandy Company, the most important Armenian brandy-producing company known by its Ararat brandy. This was when the first contracts between producers and smallholders were introduced. The YBC serves as a role model for other post-Soviet countries with similar issues up to the present.

Introducing the contracting system Yerevan Brandy Company reached a synchronisation of successive stages in the vertical marketing channel from producers

to consumers to overcome problems of supply and quality. The YBC is taking different measures regarding vertical coordination. For example, the company uses mostly 3- to 5-year contracts, which include specifications of the grape quantity, variety, contract length, characteristics of the plot where the grapes are grown and a few quality criteria such as the healthiness of the grapes and the minimum sugar level. This shows that the YBC uses production contracts rather than pure marketing contracts. The company also offers farm assistance in the form of consultancy of YBC agronomists who closely work together with the farmers in the vineyards and in the form of input supply. Agronomists provide consultancy for viticultural practices, special viticultural issues, measures to take if yields are lower or higher than expected and input supply. The example of the YBC also shows that foreign direct investment not only brings capital, production facilities and technology transfers but also creates employment, provokes new job skills and offers management expertise.

The business environment in Armenia should embrace and reduce the obstacles for foreign companies to make investments in Armenia. This opens the opportunity for domestic producers to benefit financially, knowledge- and technology-wise, access to export markets as well as in business management from foreign direct investments.

In addition, the legal framework has to be improved to guarantee the enforcement of contracts and oral agreements. Especially grape growers, who are in a weak bargaining spot, would benefit from a legal improvement. Furthermore, NGOs or the ministry of agriculture could provide contract templates to reduce the numbers of oral agreements, as the legal setting for written contracts is more developed and enforcement exists.

The study finds that the institutional arrangements used in Armenia in the form of contract farming as part of vertical coordination are beneficial for both the processing company and the smallholders. In these contracts, the farmers agree to produce and supply agreed quantities of grapes. The study could not find any disadvantage for smallholders in terms of contract farming. In contrast, farmers who have a contract with the YBC benefit of secured market access, secured and stable income, access to bank loans, education, farm assistance in the form of consultancy or input supply.

For farmers who are not working with the YBC, a general recommendation is a higher financial support from the government or other institutions, which would help to ease their situation. The financial support in forms of credits or loans enables the grape growers to invest into more demanded varieties (e.g. red grapes for table winemaking) or even into other crops (e.g. lemons, peaches) which are more profitable.

Another option to support smallholders is the establishment of cooperatives. Cooperatives are beneficial for smallholders, as the bundling of quantities improves their bargain situation and knowledge—as well as investment—sharing is possible. The delivered grapes can be divided into quality categories, which then can be sold in different price segments to different market participants. The offer of differentiated quality levels with different prices leads to higher overall profits. Farmers who produce high-quality grapes gain higher patronage, giving an incentive for high-quality production. If wine or brandy producers need grapes or wine, they can bargain with the cooperative as a single entity for their needed quality category, and they do not have to bargain with many farmers to gain the same quantity.

All in all, the YBC manages to integrate smallholders (grape growers) into their national and international value chains by successfully installing a procurement system by using different measures of vertical coordination. Additionally, the YBC contributed to the development of the sector. Other companies start to adapt and

take the YBC as a role model. In future, the standards set by the YBC and the ongoing development (education, knowledge, experience, etc.) will improve the performance of many farmers and equalise the produced qualities on the market. Sugar levels, healthiness of the grapes and usage of certain grape varieties become basic quality requirements. When the higher-quality products become standardised (e.g. IFS or GlobalGAP certified), mainly marketing contracts will be used. Thus, in the long run, it can be assumed that the degree of vertical coordination will decrease and the contracts will further tend towards pure marketing contracts. However, in the short and medium term, the adjustment will assumingly be rather slow.

Author details

Linda Bitsch¹, Silva Atoyan², Barbara Richter^{1*}, Jon Hanf¹ and Taras Gagalyuk³


1 Hochschule Geisenheim University, Geisenheim, Germany

2 Armenian National Agrarian University, Yerevan, Armenia

3 Leibniz Institute of Agricultural Development in Transition Economies (IAMO), Halle (Saale), Germany

*Address all correspondence to: barbara.richter@hs-gm.de

IntechOpen

© 2020 The Author(s). Licensee IntechOpen. This chapter is distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/3.0>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. 

References

- [1] Bitsch L. A structural analysis of the Armenian Wine Industry: Elaboration of strategies for the domestic market [thesis]. Giessen: Justus-Liebig-Universität / Hochschule Geisenheim University. Yerevan: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH; 2017
- [2] Swinnen JFM, When the Market Comes to You – Or Not; The Dynamics of Vertical Coordination in Agri-Food Chains in Transition. Final report on “Dynamics of Vertical Coordination in ECA Agri-Food Chains: Implications for Policy and Bank Operations”. The World Bank; 2005
- [3] Buchenrieder G, Hanf JH, Pieniadz A. 20 years of transition in the agri-food sector. *German Journal of Agricultural Economics*. 2009;**58**(670-2016-45783):285-293
- [4] van Berkum S. Restructuring and vertical coordination in the dairy sector in Romania. In: Swinnen JFM, editor. *Case Studies: The Dynamics of Vertical Coordination in Agrifood Chains in Eastern Europe and Central Asia*. Washington, DC: World Bank; 2005. pp. 167-189
- [5] Blomström M, Sjöholm F. Technology transfer and spillovers: Does local participation with multinationals matter? *European Economic Review*. 1999;**43**:915-923
- [6] Borensztein E, De Gregorio J, Lee JW. How does foreign direct investment affect economic growth? *Journal of International Economics*. 1998;**45**:115-135
- [7] Barrell R, Holland D. Foreign direct investment and enterprise restructuring in Central Europe. *The Economics of Transition*. 2000;**82**:477-504
- [8] Bevan AA, Estrin S. The determinants of foreign direct investment into European transition economies. *Journal of Comparative Economics*. 2004;**32**:775-787
- [9] Dyker DA. Technology exchange and the foreign business sector in Russia. *Research Policy*. 2001;**30**:851-868
- [10] Hanf JH, Marquardt V, Urutyan V, Babayan A. The impact of foreign direct investment on the agribusiness of transition countries: The example of the Armenian wine business. *International Journal of Business and Globalisation*. 2016;**16**(4):423-447
- [11] Hanf JH, Gagalyuk T. Integration of small farmers into value chains: Evidence from Eastern Europe and Central Asia. In: Egilmez G, editor. *Agricultural Value Chain*. London: IntechOpen Ltd.; 2018
- [12] Peterson HC, Wysocki A, Harsh SB. Strategic choice along the vertical coordination continuum. *International Food and Agribusiness Management Review*. 2001;**4**(2):149-166
- [13] Coase RH. The nature of the firm. *Economica*. 1937;**4**(16):386-405
- [14] Williamson OE. *Markets and Hierarchies: Analysis and Antitrust Implications*. New York, NY: Free press; 1975
- [15] Martinez SW. *Vertical Coordination of Marketing Systems: Lessons from the Poultry, Egg, and Pork Industries*. USDA, AER: ERS; 2002. p. 807
- [16] Drescher K. Assessing aspects of agricultural contracts: An application to German agriculture. *Agribusiness: An International Journal*. 2000;**16**(4):385-398
- [17] World Bank. *Rural Finance Innovations: Topics and Case Studies*, Report No. 32726-GLB,

The World Bank, Agriculture And Rural Development Department; 2005

[18] Hanf JH. Processor driven integration of small-scale farmers into value chains in Eastern Europe and Central Asia. In: Tanic S, editor. *Enhancing Efficiency and Inclusiveness of Agri-Food Chains in Eastern Europe and Central Asia*. Budapest: FAO Regional Office for Europe and Central Asia; 2015. pp. 13-36

[19] Götz L, Njavro M, Hanf JH, Pieniadz A. Vertical coordination with growers in the supermarket fresh fruit and vegetables supply chain in Croatia. *German Journal of Agricultural Economics*. 2009;58(670-2016-45660):363-370

[20] Gorton M, White J, Chernyshova S, Skripnik A, Vinichenko T, Dumitrasco M, et al. The reconfiguration of post-soviet food industries: Evidence from Ukraine and Moldova. *Agribusiness: An International Journal*. 2003;19:409-423

[21] Martinez SW, Reed A. *Vertical Coordination by Food Firms Rising Along with Contract Production*, Report AIB-720. Washington, DC: Economic Research Service/USDA; 1996

[22] Dries L, Swinnen JFM. Globalisation, quality management and vertical coordination in food chains of transition countries. In: *Proceedings of the 92nd EAAE seminar on Quality Management and Quality Assurance in Food Chains*. Göttingen; 2-4 March 2006

[23] Gow HR, Swinnen JFM. Up- and downstream restructuring, foreign direct investment, and hold-up problems in agricultural transition. *European Review of Agricultural Economics*. 1998;25:331-350

[24] Boland M, Barton D, Domine M. *Economic Issues with*

Vertical Coordination. Ames, IA: Agricultural Marketing Resource Center; 2002

[25] Drabenstott M. Consolidation in U.S. agriculture: The new rural landscape and public policy. *Economic Review*. 1999;84:63-71

[26] Sykuta M, Parcell J. Contract structure and design in identity-preserved soybean production. *Review of Agricultural Economics*. 2003;25(2):332-350

[27] Tsoulouhas T, Vukina T. Integrator contracts with many agents and bankruptcy. *American Journal of Agricultural Economics*. 1999;81:61-74

[28] USDA. *Farmers' Use of Marketing and Production Contracts*, Report No. 747. Washington, DC: Farm Business Economics Branch of the U.S. Department of Agriculture, Rural Economy Division, Economic Research Service; 1996

[29] Ring P, Van de Ven A. Developmental processes of cooperative interorganizational relationships. *Academy of Management Review*. 1994;19:90-118

[30] Bitsch L, Ghvanidze S, Hanf JH. "Die Wiege des Weinbaus" - weinwirtschaftliche Entwicklung im Kaukasus. In: *Deutsches Weinbau Jahrbuch*. Vol. 70. Stuttgart: Ulmer; 2019. pp. 144-149

[31] Johnson H, Robinson J. *The World Atlas of Wine*. 7th ed. London: Mitchell Beazley; 2013. p. 45

[32] Scannell NJ, Newton JG, Ohanian R. *Viticulture, wine production, and agriculture in armenia*. *Economic sectors in transition*. JABR. 2002;18:4. DOI: 10.19030/jabr.v18i4.2125

[33] NSS National Statistical Committee of the Republic of Armenia. *Statistical*

Yearbook of Armenia. Yerevan: State Council on Statistics; 2001-2016

[34] Harutyunyan A. Viticulture and Winemaking in Armenia. Yerevan: Written in Armenian; 2007

[35] Gasparyan S. Report of a working group on Vitis: First meeting. In: Maul E, Eiras Dias JE, Kaserer H, Lacombe T, Ortiz JM, Schneider A, et al., editors. European Cooperative Programme for Plant Genetic Resources ECPGR. Pálic, Serbia and Montenegro; 2003

[36] Urutyan V. Assessment of Management Systems of Wineries in Armenia. In: International Wine Conference Yerevan; 2017. Available from: https://icare.am/wp-content/uploads/2017/11/VWFA_Conference_Urutyan-2.pdf [Accessed: 08 April 2018]

[37] Gläser J, Laudel G. Experteninterviews und qualitative Inhaltsanalyse als Instrumente rekonstruierender Untersuchungen. 4th ed. VS-Verlag: Wiesbaden; 2010