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Article

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Structure of the producing side of the wine industry: Firm typologies, networks of firms and clusters

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Abstract

The purpose of this article is to introduce what is traditionally known in France as the wine *filière*. The paper is divided into two parts. First, we will introduce the theoretical approaches and the main research questions relating to the ‘*filière* analysis’, by combining older references with the complementary approaches derived from more recent theoretical contributions. The *filière* analysis is based on three main historical theoretical streams and on four complementary and more recent approaches: the innovation chains, the global value chain (GVC), the theory of transaction costs and the marketing approach. In the second part of the paper, we will provide a general overview of the wine *filière* and conduct an analysis of the main actors, grape growers, co-operatives, wine brokers, wine merchants and clusters according to the research questions introduced previously.

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Keywords: Wine industry; *Filière*; Market chain; Theoretical references; Industrial organization

1. Introduction

The purpose of this article is to introduce what is traditionally known, in Southern European countries, as the wine *filière*. The concept is often reflected by the term ‘market chain’ in Anglo-American literature. The current presentation of this ‘chain’ involves depicting the actors in graphic form through linkages with arrows symbolizing the relationships operating between them. After a strong development of this tool during the 1960s–1970s, in particular as a result of a national industrial policy based on that approach,¹ economists gradually distanced themselves from that reference. This may be attributed to the opening of new research

avenues, criticism concerning the difficulties in defining the boundaries for these chains precisely and the lack of a theoretical frame work, or even to the absence of a research question justifying the representation.

It was therefore the agricultural and food sector which most frequently adopted the *filière* approach and this still applies today.

In order to show the utility and the richness of this approach, we have divided this work into two parts. In the first part, we start by looking at the ‘origins’ through a focus on the theoretical underpinnings of the ‘*filière*’ approach considered in two ways: first, by recalling the theoretical references historically dated and second, by showing how recent contributions, even if produced outside the literature on the wine industry, could provide a substantial contribution to understanding the economics of this industry. Although not designed to be exhaustive, the inclusion of this complementary literature adds to the founding works to enrich the meso-analysis literature. Therefore, in the first part we define the approach adopted to conduct the ‘*filière*’ analysis which we then apply in the second part. In short, this article intends to redefine a modern tool and to apply it to the upstream level of the wine chain.

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¹Current events in July 2012 highlighted in the French press: “A plan to assist the automobile *filière*”.

2. Theoretical foundations of the *filière* analysis

The *filière* analysis is based on three main historical theoretical streams and on four complementary and more recent approaches.

2.1. The historical references

2.1.1. The circuit: Technical and liberal productivist references

As previously pointed out by Lauret (1983), the flow of goods and their counterparts in kind or in currencies is as old as economics. The term *circuit* was first introduced by Bois-Guillebert around 1700. The landowner spends his rent buying his clothes made by the tailor. The ‘worker’ is at the origin of the ‘circuit’. A graphic representation was often used in *filière* studies and it was first introduced in the ‘input–output table’ as a means of providing a clear view of the accounts. Adam Smith, in his chapter about the division of labor, describes the *filière* that leads to this mechanism as simple as a pair of scissors: ‘the miner, the builder of the furnace to melt down the mineral, coal maker, the adjuster, the blacksmith, the cutler’.

This notion of ‘*circuit*’ is closely associated with engineering sciences and thus to the *technique* as the means of explaining how goods are manufactured. In agriculture, the term ‘technical itinerary’ is often used to describe the way the operations are interconnected.

2.1.2. The Marxist approach: Kautsky (1900)

The Marxist approach also considers the *circuit*, but it stresses the relationships between producers and the downstream industries. One striking example of this chain is based on the linkages established between Nestlé and cattle farmers: ‘180 Swiss towns lost their economic autonomy and became subjects of the House of Nestlé’. The question in terms of bargaining power among economic subjects is clearly shown. This approach guides researches with regard to market power, domination, the transfer of productivity gains, the share of value added and prices.

Also, it is possible to include in this stream the application to agriculture of the *filière* analysis (*Commodity Chain Analysis, CCA; Commodity System Analysis, CSA*) provided by William H. Friedland, Professor Emeritus in the Department of Sociology at the University of California at Santa Cruz, for his founding work on the mechanization of the harvesting of tomatoes and Iceberg lettuce, in 1984. He defines five components or subjects as part of the CSA: the production practices in modern agriculture, professional organizations, the supply of labor and implementation, scientific and technical research and marketing and distribution beyond the farm gate.

2.1.3. Systemic analysis and the general theory of the systems

The third reference to the *filière* analysis is found in the General Systems Theory (von Bertalanffy, 1950) and in the

systemic approach popularized in France by Yves Barel (1971) and later by Joël de Rosnay (1975). Systemic analysis defines *filières* as systems, a group of elements interacting and hierarchized in various levels. Systems analysis leads to an understanding of the diversity and complexity of the real world and to an awareness of the complementarities between the elements of the *filière*. As an outcome of other fields of implementation, this reference ignores, to some extent, the theoretical explanations and the identification of causalities in economics, facing a certain degree of ignorance and even rejection by the academic world.

In the General Systems Theory, Jean-Louis Lemoigne (1977) underlines the systemic paradigm and what he describes as a “new discourse on the method”. These are the new precepts which disconcert a lot of researchers as they introduce specific characteristics such as the local, the ‘ad hoc’ and the infinite. In short, it introduces a breakdown of reality according to the goals of the researcher and the basic research question, the positioning of the research object in relation to the whole, its interpretation according to its behavior and the impossible independence of the observer. Furthermore, the multiplication of the works in a field of research leads to a certain degree of convergence and the stability of the representations held, which will facilitate an initial synthesis for a given *filière*.

In our field of research, the reference to the work of Ray Goldberg (1957), who defined the ‘*Agribusiness concept*’, remains essential reading. This concept is of utmost importance to the major operators and the public authorities concerned by a product. On the one hand is the first desire to control the relationships with suppliers and customers while on the other hand we see the second desire to plan, control and intervene in the industrial sectors.

2.2. Renewal and improvements

Despite of the lack of interest by academic theoreticians, *filière* analysis benefited from some more recent works contributing to its improvement.² Without exploring them in too much detail, we will address four streams of research which remain quite independent: the innovation chains, the global value chain (GVC), the theory of transaction costs and the marketing approach.

2.2.1. Innovation chains

The concept of innovation chains is an application of the *filière* approach within the General Systems Theory at a second level of analysis. Basically, it involves connecting a product linked to a *filière* with a group of innovation chains that contribute (systemic vision) to both the technology and competition dynamics in the agricultural or industrial sector.

²Those theoretical contributions were generated outside and independently of the *filière* analysis. However, their dissemination across the wine *filière* by various authors made a strong contribution to the method.

We adapted this tool to study the technological paths in the wine chain (Montaigne, 1992, 1996a,b). This approach fully integrates innovation as an evolutionist approach in the field of Industrial Economics, featuring the dynamics of technology as an endogenous variable in economics (Dosi et al., 1988).

We defined ‘innovation chain’ as a ‘group of firms and public or private organizations participating in the process of setting up technology, that is to say a solution for a technological paradigm, in its technical and economic appraisal within the companies concerned and therefore in the definition of a technological trajectory as a group of technological trajectories of the basic firms.’

The concept enables the definition of a relevant observation field in a case study applied to a particular field. It justifies the economist studying technology as an intrinsic boundary to the technological paradigm. It allows the study of interactions between actors when examining a given sector. In the boundaries of a technological trajectory, it dissociates the involvement of upstream and downstream firms from the technological paradigm in itself and from the structure of the innovation chain. It requires the specific management and decision-making criteria applied by the firms to be listed. It justifies the study of the key links in the upstream and downstream product-chains and, finally, it clarifies the application of the research policies.

2.2.2. Gereffi: From the global commodity chain to the global value chain

The origins of this approach date back to the work of Hopkins and Wallerstein (1977) in *Sociology of Development* (Bair, 2005). These authors study the territorial expansion of capitalism. They disapprove of the mainstream views of globalization and of continuous market expansion, as well as the theory of world-systems promoted by the French historian Fernand Braudel. They define the ‘commodity chain’ starting from the downstream elements of the chain: from consumers to raw materials, back to the worker and his food. The Marxist reference remains highly present. They observe globalization, its scale changes and mass production of “standard” goods (commodities). The social reproduction of work is at the heart of the analysis. They study the way ‘commodity chains’ structure and reproduce a world-system stratified and organized into a hierarchy. We find here the centre-periphery analysis of unequal distribution of wealth (value added) in the ‘commodity chain’.

Gereffi and Korzeniewicz (1994) defined a ‘Global Commodity Chain’ as an ‘inter-organizational network’ linking households, firms and states together in a world economy’. The central goal here is to determine where, how and by whom the value is created and distributed across the *filière*. They focus on national development, local particularities and linkages, the strength of the leading firms and their role in development. The question is specifically meso-analytical and based on many case

studies of international networks. The purpose here is to understand the role of those chains of goods in national development, including by taking account of the impacts on competitiveness, and in upgrading. Thus, we find here the classical question of *filière* analysis, but more in terms of development issues and considered from an international perspective. These issues were discussed in detail in Raikes et al. (2000).

Therefore, we study here the input–output structures, the technical itinerary, the governance structure, the control over the various stages in the production process, the appropriation of the value created and the power relationships across the chain. Here, when compared to transaction costs (see below), the network of inter-firms is not an organizational form: neither a market nor a hierarchy, and the power in the chain is not an outcome of ownership. Considerable importance is granted to the territorial and geographical dimensions, as well as the socio-institutional context.

We classify this approach to the *filières* in two sub-categories. Authors distinguish between ‘buyer-driven chains’ (BDC), for those controlled by the downstream actors, and the ‘producer-driven chains’ (PDC), for those controlled by the upstream actors. The first include labor-intensive industries (toys, clothing) driven by the leading retail firms through outsourcing, with a significant geographic dispersion of production. The second are driven by multinational firms, which are both finance and know-how intensive (automobile industry, electronics). Coordination is both internal, through its subsidiaries and affiliates, and external. This category demonstrates a lower geographic dispersion. These works highlight the importance of dependency on standards established by the major firms, as well as the high level of heterogeneity of national and local production systems.

In the wine industry, internationalization was only partly assessed within this framework. A first reflection on the globalization of the wine chain was introduced in one of our previous studies (Montaigne et al., 2002). Later, Coelho and Rastoin (2005) focused on the strategy of the firms and finance-driven dynamics.

Together with the community of researchers studying the production networks in global economies, Gereffi extended the analysis by adopting the complementary concept of global value chain (GVC). His analysis accords considerable importance to the governance structures which vary according to the characteristics of the production process, the organization of the industry (sophistication, technology), the existence or the lack of standards, market reversals and the speed of adaptation. To some extent, we can say that the concept of the global value chain is an enrichment of the concept of the global commodity chain through the addition of many case studies and the essential contribution of the transaction costs approach (Humphrey and Schmitz, 2001; Sturgeon, 2001; Gereffi et al., 2005).

This central role granted to the transaction costs approach represents the third research stream that renews the *filière* analysis.

2.2.3. The contribution of transaction costs theory

The main contributions of transaction costs theory to economics since Ronald H. Coase, the Nobel Prize winner in 1991, and Oliver E. Williamson are by now widely recognized and in general use. They can be summarized as follows: exchanges in markets or within firms produce costs referred to as ‘transaction costs’. These costs influence the organizational, contractual and strategic choices in the short and long term. This theoretical approach raises the question of the nature of the firm and its boundaries. What is of interest to our analysis is the extent to which it completes the set of methods used in the *filière* analysis.

The first essential contribution involves ‘theorizing’ the boundaries of the *filière*. We explained above how the researcher could make arbitrary choices when defining the boundaries of each part of the system. Transaction costs assume that production and transaction costs together are minimized, which justifies differences in organizational forms, i.e., markets, contracts or integration. This leads us to examine the role of transaction costs in the ‘form’ of *filière*. We studied the role of market intermediaries in the wine industry which are generally known as ‘countryside wine brokers’. We concluded that they were match-makers and their business profession was created to minimize transaction costs, considering that wine is a product with variable quality and with geographic dispersion (Baritau et al., 2005).

The second contribution is provided by what is known as the ‘contracts theory’, which contributes to renewing the perception of the contractual relationship in the only controversial dimension of bargaining power in order to share the value added as a function of the grape price level. The creation of a contractual quasi-rent as a result of specific investments provided by both parties creates a more positive dimension as a result of the additional value creation induced. The study of contractual relationships between grape growers and winemakers in order to manage quality is a true exemplification of this issue (Montaigne et al., 2005, 2007).

The third contribution of this theoretical framework is based on its positioning outside the neoclassical mainstream approach, while maintaining the optimization criteria of this last approach. By considering the assumptions of bounded rationality, uncertainty, opportunism and asset specificity, transaction costs theory provides explanations for specific contractual arrangements, with self-interest conscious agents, and specific assets. The choice to integrate grape production by wine merchants or not is often explained in our surveys (Montaigne et al., 2007) as a result of uncertainties in grape production, derived from both weather and market conditions or the need to control the upstream quality of the grapes, only reachable through direct grape growing.

2.2.4. The analysis of value chains by managers

The concept of the value chain was developed by Michael Porter in his landmark book published in 1980.

The concept of the value chain has been used as a strategic management tool for the planning of organizations over the last few decades. The goal of this method of value chain analysis consists of maximizing value creation while ensuring cost minimization. It aims to develop a competitive advantage for one organization. When applied to agricultural *filieres* in developing countries, this method aims to foster both export growth and rural development (Asian Development Bank, n.d.).

The framework proposed by managers introduces a more pragmatic and normative view. This approach does not raise questions about the nature of the structure of the *filière*. It assumes that the structure of the *filière* is already established. It focuses on the determinants of the competitiveness of the *filière*, almost independently of the bargaining power and of the resulting conflicts. It identifies the constraints imposed on producers relating to growth and competitiveness, the limits to investments and therefore job creation, the political and institutional factors and the infrastructures impacting the market environment.

This approach is based on the central idea that the value of the *filière* is, in the end, determined by the consumer and therefore the products must primarily be ‘pulled-out’ by consumers and not ‘pushed-out’ by producers. We must therefore eliminate activities which do not create value and, in contrast, maintain or develop those which do create value. Particular attention is paid to cost reduction in order to meet customer demands when looking to reduce expenditure.

First, the method involves choosing a sector. It is then a question of analyzing the market at national and international levels, ‘drawing up a map’ of the value chain, measuring its performance and analyzing deviations, while identifying market and state failures. It therefore consists of observing the tariff and non-tariff barriers to trade, taxation, the state of infrastructures and services, prices, legislative barriers and their application, administrative barriers, the factors of market rigidity, the freezing of prices and subsidies and finally an appraisal of the quality standards.

In the wine sector, several research works have been undertaken by professional bodies or public authorities in order to better understand the competitiveness of the *filieres* at the international level (Brugière et al., 2006).

2.3. Conclusion

In this first section we proposed an updated synthesis of the theoretical tools that might be useful to the *filière* analysis. The presentation of the *filière* almost always appeared as a ‘description’ for which we did not have enough theoretical references in order to provide a better understanding of the way the *filière* analysis was conducted. It is therefore important to retain here the traditional questions: the technical itinerary as an outcome of the laws of nature, technical progress and the extent of actors’ specialization; bargaining power within the *filière* and the share of value-added and finally, the systemic

breakdown and the mechanisms and laws regulating the system. The innovation *filières*, together with product *filières*, influence competition dynamics in particular through technology. The globalization of markets renewed development economics and the internationalization of *filières* within the global commodity chains driven by the upstream or downstream issues in those chains. The transaction costs approach fostered the transition from GCC towards the global value chain and it facilitated the detailed analysis of new linkages and mechanisms within the *filières*. Some of those linkages include the intermediary professions such as wine brokers or the conditions for controlling qualitative relationships between the segments of the *filière* by means of contracts.

The above discussion provides a large panel of ‘tools’ to fine tune our knowledge about a large industrial sector. This group of instruments guides academic research and, used together, provides a more complete and detailed representation of an industrial sector. The choice of questions is as essential as the way in which the research is conducted.

3. The actors in the wine chain

3.1. Grape growers

The production of grapes for winemaking is the basis of the wine chain. Despite major technological changes, most of the winemaking countries have extremely heterogeneous farm holdings. Generally speaking, we identify four main factors that explain the diversity in grape farms (Traversac et al., 2006). (1) The first is the degree of specialization, which classifies viticulture into two groups: dominant and secondary. (2) The second concerns the structure of vine farms, identifying two different groups: professional vine farms and small commercial viticulture. The first type includes four different groups: viticulture with employees, family viticulture, individual viticulture (the owner of the farm) and viticulture as a complement (to other activities). The second type is often qualified as small commercial viticulture. These farms are quite small in size in order to produce a sufficient income for the grape grower and his family. Off-farm income originates from multiple activity or is provided by social transfers (unemployment, retirement or semi-retirement, diversification). (3) The third factor is the degree of vertical integration of the different functions in the wine chain. Indeed, the grape grower may sell his grapes or choose to process the grapes through a co-operative or on his own, selling it in bulk or bottled, fully integrating all the stages of the wine chain. (4) The fourth factor is the regional location. Every region has its own institutions: in Europe, the inter-professional bodies and the registered designation councils (*syndicats*, *consorzi di tutela*, *consejos reguladores*), in the Americas the organization of clusters. This registered designation plays an essential role in constructing a collective reputation, building a product

range, and setting price levels.³ These dimensions, even considered in different forms, may be found in all the vineyards across the world.

These typologies vary according to the countries, the statistical sources available and the choices and goals of the researchers who develop these typologies. They combine different criteria such as economic profits (gross standard margin or the unit of economic dimension), economic feasibility, size, family and non-family workers and off-farm revenues.

The criteria related to the economic dimension are quite important from the standpoint of economic policy because it provides a better understanding of the capacity for resistance in small farms. These farms operate essentially with a ‘reserve’ or labor registered in the accounting. In the event of overproduction and low prices, these labor-intensive farms make certain technical choices to reduce input expenditure (e.g., cuttings from hybrids in the *minifundia* of Romania) and do not pay for fixed assets (depreciation of assets). In these cases, only variable costs, minimized as far as possible, are taken into account (Villemin et al., 2011). A constant debate in the Ministries of Agriculture and in the European administration in Brussels concerns the opportunity to include or not these categories within the social protection system. Likewise, in Latin America the debate on *minifundia* and *latifundia* remains valid.

For many years in Europe, family viticulture has been the basis of the Common Agricultural Policy (CAP) and the systems of ensuring revenues based on prices were justified through ‘political’ backing for maintaining incomes. In those regions characterized by specialized vine farms, wine prices have increasingly been the key variable determining revenue levels while other expenditures almost always remain stable. This situation has also been based on the role played by the co-operatives, discussed hereafter, through the separation of grape-growing activities from winemaking, according to the high level of investment

³It might be pointed out that those organizations should be included in the *filière* and a detailed explanation should be provided, but that was not our choice. A first issue concerns the definition of the borders of the system that one plans to analyze. Therefore, the analysis requires a ‘cross section’ of the sector. Where should the researcher stop this ‘cross section’? This question remains open because it is possible to add to our selection teaching and research activities, technical institutes, transfers and even specialized state institutions. We could possibly add laboratories, specialized lawyers and even banks. This cross section raises the question of the choice of borders in the system. Concerning professional organizations, we selected the transaction costs approach. It focus on the organization contributing to the definition of the rules and norms and therefore structuring the institutional environment, more than the firms contributing to production or service providers depending on the main *filière* or even ‘dedicated’ services taking charge of administrative tasks. Therefore, this choice explains why we did not select those actors as specific entities to the wine *filière*. The cluster approach enlarges this perspective.

required in the farm which characterizes the vines as a significant ‘patrimonial reserve’ and the nature of a perennial plant, thereby explaining the inertia of significant changes.

Traditionally, one contrasts co-operatives and independent winemakers, the latter deemed to produce the best quality wines and adapt more quickly to grape varietal evolutions. The broad diversity of the results within both categories of wine producers, together with detailed monograph studies, shows a greater diversification among their paths. However, it seems obvious that in the regions which were among the first to develop the registered designation system and obtaining better prices for the wines, we find a greater number of estates, châteaux and private cellars. The differentiation of the products provides better returns for this other type of productive and commercial organization (AOC/PDO).

Outside Europe, the development of new vine farms through the establishment of large-scale properties has often adopted a fully ‘integrated’ structure. We find here some investment projects with financing coming from outside (non-wine) and financial investors. The Tupungato region in Argentina and the Central and East European countries illustrates this situation.

The full diversity of viticulture and its regional economic outcomes is summarized through a unique variable, essential for the understanding of the sector: land prices. Most of the land experts evaluate the land price following the economic profits of the two or three previous years through a medium-term smoothing out. Land value is related essentially to the quality level and to the value level of the products on the market. Differences come essentially from supply pressures. For example, differences in land values may result from the heterogeneity of practices related to vine planting rights of some of the European regions, or due restrictive choices and relaxed behaviors from the collective organizations (Montaigne et al., 2012).⁴ Crisis periods led to strong falls of land prices in the countries without regulations: –50% in Australia over the last few years.⁵ The same impact was produced with the implementation of the grubbing-up vine scheme in Europe in the period ranging from 2007 to 2012.

3.2. Co-operatives

A co-operative is an enterprise created by farmers in order to ensure a shared use of production materials, packaging, bottling, warehousing and marketing, processing of agricultural products from farm holdings, the supply of fertilizers and other raw materials. ‘One man,

one voice’ is one of the founding principles of co-operatives. Therefore, irrespective of the amount of grapes or wine that members produce, all members have the same voting power in assemblies. ‘New generation’ co-operatives have introduced some variations to this principle. At the tax level, co-operatives in France are an extension of farm holdings and therefore do not disclose any profits. In the case of financial profits, co-operative members get a ‘discounted price’ proportional to the activity volume they share with their co-operative.

Co-operatives play a major role in the wine chain. This organizational form may control up to 75% of the wine volumes in some regions, such as Languedoc–Roussillon (France), South Africa and Tunisia. In other countries they are highly dominant, accounting for total wine volumes ranging from 50% to 70%, as is the case in Spain, Italy, Greece and Portugal (Touzard et al., 2008). Since the emerging of co-operatives at the end of the 19th century, they have continuously evolved under the impact of the technical, political and economic changes in the institutional environment (Touzard et al., 2008). Beyond local and national specificities, co-operatives as a whole have followed a ‘life-cycle’ that we can divide into four different phases: emergence, extension, specialization and finally, restructuring.

The first wine co-operatives emerged in the United States (1867), in Germany (1868), in Switzerland, in Italy (1872), and in Spain (1890). After the turn of the century, new organizations emerged in France (Maraussan, 1901) and in the rest of the world. The common ground for the development of this ‘non-profit’ form of organization was the reaction to the economic crisis in the industry related to the plethora of goods and to the fall in prices. Following the 1907 crisis and the violent confrontations, the Languedoc region became the French reference to illustrate this situation. The choice of collective groupings was a means of obtaining economic advantages related to (1) improved market power as a result of the enhancement of the size of these enterprises, the possibilities related to stocks and the management of the wine supply and the improvement of wine quality; (2) the economies of scale resulting from the use of technology in winemaking depend on the scale of the equipment, the specialization of the winemaker and the size of the facilities; (3) access to financing for the harvest and to investments. In addition to these economic motivations, co-operatives undertook various social projects allowing small producers and their families to be maintained based on the humanist values of solidarity, education and social progress.

Throughout the 20th century the number of co-operatives increased in all countries. This does not imply that they did not face drawbacks or failures. The strength of the expansion varied according to the region, the type of farm, the experience as co-operative members and the reputation of the vineyards, and therefore the price level at which the vines were sold. Indeed, in the regions benefiting from a Designation of Origin system (AOC/PDO), a higher

⁴In 2010, the price of land per hectare reached € 907,900 in Champagne, € 225,000 in Napa, € 35,000 in Médoc but € 1 650,000 in Pauillac, € 60,000 in the Spanish Basque country and € 31,500 in Rioja.

⁵WineAlley, 2009, L’Australie vers une sortie des marchés de masse (accessed 2009-07-28); http://www.winealley.com/dossier_50072_fr.htm.

price ensured the survival of the smaller vine farms, through the differentiation of quality and wines held in private cellars. Nevertheless, the standard form of organization is the small village co-operative producing bulk wines.

The legislative framework for co-operatives became more structured and included both property rights and the form of governance. The flagship principle of ‘one man, one vote’ summarizes those principles. At the political level, the significant number of co-operative members justifies state support through tax exemptions and subsidies for investment. Services provided in co-operative form were created for financing (agricultural co-operative banking), mechanization (co-operative suppliers of machinery), wine distilling, and oenologist guidance (Institut Coopératif du Vin). This organization facilitated a strong resistance to crisis but sometimes also became a barrier to change in the case of small vine farms. At the institutional level, co-operatives created an association (*Fédération*) in order to ensure their political and lobbying strength.⁶

This raises problems relating to collective action: the choice and level of investments, controls and frauds, the costs and ‘complexity’ of collective decision-making. But the development of table wines and of a certain type of standardization of the product limited these difficulties. During the entire period, the economic advantages became more significant than the difficulties of strategic governance.

‘The most widely recognized processes of the expansion of the co-operatives follows the path of the dissemination of an organizational innovation impacted by national external forces, the conditions of the ‘starting ground’ and the building of a scientific path through a chain of investments in relational, institutional and cognitive, equipment achieved by groups of grape growers that later become members of the co-operative’ (Touzard et al., 2008).

This form of co-operative would lock itself onto mass production and corporatist governance. During the 1960s–1980s, the co-operative movement reached maturity with a significant part of winemaking resulting from the co-operatives. Likewise, co-operatives also developed in the regions producing quality wines. In Eastern European countries, the transition towards a market economy disrupted the organization of agricultural co-operatives in the communist economies. In Chile, co-operatives disappeared after the coup d’État and the new privatization policy. Elsewhere, mass production developed further and was backed, and protected, by the action of professional unions (*syndicats*).

At the same time, the context of the market was inexorably transformed: the daily consumption model of table wine progressively disappeared in all traditional wine countries. This included not only Europe, but also Argentina, Chile and South Africa. A new consumption model emerged characterized by occasional consumption, more

celebration-rooted, focused on superior quality with differentiated and more expensive wines.

Starting in the 1980s, the industry adapted and restructured to include new grape varieties and better quality in the different price-brackets. The number of co-operatives decreased sharply through mergers, absorption or failure. Depending on the country or the region considered, this reduction might (or might not) be due to the reduction of the supply by vine-growers by uprooting vines and so reducing the increased fixed costs. Otherwise it might also be the result of a strategic merger or a privatization. Wine product ranges began to diversify. Some monopolies like those of KWV in South Africa disappeared. The internationalization of the wine market became more intense, the Common Agricultural Policy (CAP) moved from a policy of backing the markets through distilling to financial aid, the promotion of products and support for rural and local development. New consumer requirements were also taken into account: health, pesticides, ecology, heritage and ethical issues.

In this context, coordination problems neglected in the past re-emerged: the trade-off concerning investments, the soft connections between grape growing and cellars to manage quality, the assumption of strategic risks at market-level and product-level and the costs related to collective decision-making. Economies of scale do not operate as the main driver and are not uniform. Economies of scope became an important driver. Many wine co-operatives established common-law wine subsidiaries (non co-operative) whose main goal was to market the wine from those same co-operatives. We identify here the signs of a converging trend in line with the business practices of profit-driven firms.⁷

Today, specialists in wine co-operatives distinguish five different typical forms of co-operatives (Touzard et al., 2008):

1. The small village co-operative producing basic wine. This type of co-operative is now an older form which is gradually disappearing.
2. The small co-operative producing quality wines and achieving good performances. It uses distribution networks that recognize efforts made concerning quality. The circuits may include direct sales, wine stores or specialized exports. This type of co-operative looks to achieve a balance between the values of the grapes paid to co-operative members and the development of the enterprise.
3. The agro-industrial co-operative dealing with high volumes of wine. This entity manages a great diversity

⁶In new and emerging world regions we also find federations of wine co-operatives (example, Fecovinho in Brazil and Fecovita in Argentina).

⁷More precisely, co-operatives are non-profit driven organizations. Co-operatives have always been considered as an extension of farm holdings. Therefore, profit and loss accounts are distributed to co-operative members or allocated to the reserve. Accounting practices in those organizations are therefore different from those in profit-driven firms, although rational managers are also profit maximizers. The means of redistributing earnings in co-operatives has also become a strategic issue.

of activities and competencies. The co-operative controls its costs and may build a full range of products through brand-building processes.

4. The specialized co-operative within a second- or third-tier group of co-operatives. It provides all the production to a producer organization or to a second-tier group of co-operatives that develops an offensive commercial strategy like a competitive wine merchant.
5. The quasi-integrated co-operative. This form of organization has close ties with wine merchants. The wine-making is based on a contractual arrangement with wine merchants. The contract aims to produce quality wines under the supervision of the wine merchant. Contracts are renewed tacitly. The design of contracts may vary according to the levels of quality required. The durability of the contract depends on market trends (Montaigne et al., 2007).

This atypical form of organization is an outcome of a historical tradition. Following more than a century of the co-operative movement, the phenomena of convergence with traditional forms of corporate capitalism and the persistence of an original organization with different values became a reality (see, for example, Chaddad and Cook, 2004; Cook and Chaddad, 2004).

3.3. Wine brokers

Wine brokers are unknown actors but remain essential. To our knowledge there are no other studies outside France about this business profession. Thus, we introduce here some of the results of the research undertaken in France. Wine brokers operate in the upstream part of the wine chain, on behalf of wholesalers (bulk wine, tanks, not packaged) accounting for almost 60% of the first wine market commercialization in France. We estimate that these wines contribute up to 60% (volume) of trade both for table wines and for wines with geographic indication (*vin de pays*). It accounts for approximately 80% for the trade in AOC wines (Baritau et al., 2005). We focus our analysis on ‘countryside wine brokers’,⁸ whose mission can be summarized in three main points: (1) to provide every stakeholder with the conditions of the transaction, (2) to provide information about the market situation and (3) to advise and try to reconcile their interests, which may be divergent.

What characterizes them as intermediaries of wholesalers is the fact that they do not buy the goods (non-trading intermediaries) but are instead paid on a commission basis (which generally corresponds to a fixed amount of money per unit of the product or alternatively to a percentage of the amount of the transaction). With respect to other intermediaries, they do not execute any

commercial transaction and therefore retain some level of independence associated with their specific competencies.

Wine brokers fulfill three main functions: they collect and transmit information, help negotiations and they ensure the follow-up of the transactions. The collection and transmission of information is by far the most important function. Therefore, information concerning the environment of the transaction (prices, stock levels ...) is often publicly available, at little cost, to all stakeholders in the market (*mercuriales*). In contrast, the specific information concerning the characteristics of the products (desired or proposed), the volumes and prices, the practices, including samples, is in the private domain.

Searching for information on the product characteristics, the supplier and the buyer, they involve grape growers and downstream operators in the market. It is an essential function. It helps achieve complex transactions in line with market needs and plays a significant role in the adaptation of the *filière*. Furthermore, this function reduces global transaction costs in order to optimize the ‘supply–demand’ fit, allowing these stakeholders to meet easily in the countryside.

In negotiations, wine brokers use standard contracts and assume a part of the administrative work. They nevertheless remain responsible for every commercial agreement. They inform all stakeholders about their reciprocal needs and contribute their knowledge. They then act as a mediator who is required to complete a wine sale, in particular to reach an agreement over prices. They are sometimes criticized during wine crises (lower prices). Their independent status remains essential because their connections with stakeholders, and therefore their reputation, remain their main strength.

Wine brokers reduce the risk of transactions through the control exerted over the contracting parts and their engagements; they are at the forefront of the discussions whenever difficulties arise. In the event of conflicts (deterioration of wine quality, maintaining the delay for wine removal ...), their reputation is at stake if they should go to court. The very few situations when wine brokers use courts to solve conflicts in the wine chain confirm and reinforce the image of efficiency of this type of coordination.

Wine brokers also play a role in the long term and in specific relationships. They adapt to evolution. In Champagne, transactions are based on grapes and the wine brokers are involved in more than 80% of grape purchases. In this region contracts established with wine merchants for delivering grapes may last several years. Long-term wine contracts or grape-based contracts develop in other regions according to the model characterizing New World wine producers. The concentration of the wine chain is another factor that threatens wine brokers, but the latter remain through the evolution of the activity of meeting suppliers and buyers in negotiations. They provide these relationships with a degree of flexibility by maintaining a communication activity and possibly a bargaining activity in an evolutionary and complex environment. Their contribution as information providers is a reaction to

⁸*Courtiers de campagne*, in the French literature.

a significant demand from stakeholders who remain attentive to the transaction conditions related to the on-going contracts.

At the theoretical level, as expressed in transaction costs theory, wine brokers appear as a hybrid form, identical to the (grape or wine) contract, involving neither integration nor the market and minimizing transaction costs. The unsuccessful attempts to create a market place or an auction market and the fact that the creation of stores, catalogues, etc ... are not adapted to the nature of the bulk wine market (atomization of operators, geographic dispersion, fragility, diversity, transportation and warehousing, qualitative uncertainty) confirm the effectiveness of a market based on bilateral transactions “intermediated” through wine brokers. ‘Not very well known but essential’—this expression summarizes the role of wine brokers in the French wine chain.

3.4. *Wine merchants*

In France, the definition of a ‘wine merchant’ is administrative: firms must acknowledge this status and its legal constraints to be authorized to buy and sell wine. Wine merchants operate in a different manner from wine brokers, as the first benefit from the transfer of the property right (wine assets). The structure of wine merchants’ linkages in the wine chain remains complex. Wine merchants are less concentrated than the leading firms in the other food industries. However, they remain characterized by a great diversity as a result of the historical evolution.⁹ Today, a wine estate becomes a wine merchant whenever it purchases and resells the wine of its neighbors if its own production is too scarce to satisfy customers. It is difficult to monitor the industry at the level of small and medium enterprises (Montaigne et al., 1997).

The precise definition of this segment of the *filière* therefore requires that we consider the total size of the company (number of employees, turnover), the share of wines produced with own vines (vineyard surfaces) and the (bulk) wines purchased, the type of wine treated (aging, aging methods, designation of origin) and the distribution networks (direct sales, hotels–restaurants–cafés, major retailers, exports). A particular form of wine merchant, not so widespread in France except for Champagne and ‘vins de sable’ (Languedoc), is the ‘winery’, which is common across the New World producing countries. The winery operates differently from traditional wine merchants as it mainly purchases the harvest and not the wine; the wines are processed in the facilities of the winery owner. Here,

the winery purchases the raw materials (grapes) from third-parties and drives the quality levels through contracts established with grape growers. (Montaigne et al., 2007).

In France, over the last forty years, the wine merchant sector has evolved significantly. Up until 1960s–1970s, it concerned mainly table wines. This beverage for everyday consumption should reach consumers at a reasonable price. This is why the classical model linked a wine merchant ensuring both shipping and importing in the Southern European regions with wine merchants bottling close to the site of consumption, i.e., mainly the major cities (Paris, Lyon, Marseille ...). Bulk transportation through a wagon-tank minimized transportation costs. Gradually, the changing consumption model – moving from table wines to quality wines – and the continuous development of major food retailers modified this logistical organization. The wine sold in advance in self-service facilities had to be packaged and backed by brands. The logistical organization of major food retailers supported through the development of logistical platforms for distribution optimized transportation and justified the packaging far from sales points. A great number of traditional wine merchants disappeared and bulk wine exports remain a controversial issue, generating social costs but environmental and economic benefits (disappearing jobs in the producing regions but lower transportation costs and CO₂ emissions).

Surviving companies purchased bottling lines and organized themselves to meet the requirements of this new distribution form. Producer organizations joined these companies, most often structured as second-tier co-operatives built up following the purchase of a failed wine merchant. In the consumption regions, beverage distributors also develop this activity through the stabilization of wine sourcing in the production regions. For that purpose, these operators more often than not undertake several mergers and acquisitions or sign specific contracts. A typical example of a wine merchant following this type of strategy became the main French wine exporter. In the registered designation regions, wine merchants integrating winemaking activities adapted their product lines and included varietal wines produced elsewhere. Consequently, concentration increased among wine merchants.

At a more strategic level, we noticed an increasing trend to better control or even integrate several functions of the wine chain. The upstream level of the wine chain (groups of co-operatives, wine merchants, distributors) integrated downstream activities (packaging, marketing, distribution); the downstream level (wine merchants bottling, wine merchants integrating winemaking) looked to a better integration of the sourcing activities. Additionally, several small and medium enterprises emerged with strong connections to a major vine farm.

At the level of the major firms, the recent history of the world wine industry has been influenced by the development and the internationalization of multinational wine firms. At the beginning of the 1980s, the major firms of the

⁹For example, in France, a co-operative that bottles its own wine and makes direct sales to consumers or/and sells directly to commercial marketing channels is not considered a wine merchant. However, if a co-operative purchases wine from other co-operatives or from wine merchants or, possibly, resells the wine, it must apply for the legal status of ‘wine merchant’. Most often, all the co-operatives or producing organizations developing this commercial activity have established wine merchant subsidiaries or adopted other legal statuses.

food industry (Nestlé, Coca-Cola) were significant operators in the wine industry. The restructuring implemented by the major wine companies changed the landscape and the hierarchy of the world leaders. The annual number of mergers and acquisitions increased from 50 in 1998 to a maximum of 350 in 2007. After this period, it recorded a sharp decrease following the financial crisis of 2007. The slowing down was also related to several uncertainties that impacted the international wine market (trends in prices, wine lakes in some Southern Hemisphere countries, increase in production, energy and environmental costs).

In the United States, mergers and acquisitions developed during this period of time. The exchange parity rate transformed American wineries into cheap targets for international investors. A great number of American wine firms are reaching the end of the first generation of owners and are now faced with many uncertainties (lack of successors, many founders wish to leave the industry). These conditions create a dynamic and attractive market for mergers and acquisitions. Changes observed in the world wine market result from the strategic moves of major firms, mostly headquartered in New World producing countries. We can therefore identify four main motivations structuring the strategic behavior of the major wine firms: (1) to secure grape sourcing; (2) the search for economies of scale and scope; (3) consolidation of notoriety; and (4) the control of the distribution networks.

The strategies of multinational firms alter the balance in the world wine chain through financialization, concentration and the emergence of new decision centers. We notice an increasing penetration of financial investors in the ownership of wine firms (banks, insurance companies, institutional investors, specialized wine funds, etc.). The financialization of corporate governance structures leads these firms to search for better risk-return trade-offs and an improvement in the listing on the stock exchanges (for public listed companies). New corporate operators emerge in the wine chain – particularly specialized wine funds – adopting new industrial (increasing focus on the core business of major wine multinationals) and financial (share buybacks for the public listed wine companies) strategies. The phenomenon of financialization leads the companies to move from an obligation of ‘means’ to an obligation of ‘profits’ and to focus excessively on short-term issues. The dissemination of the Anglo-American corporate governance model and the growing internationalization of the portfolio of wine investors foster convergence among the different international corporate governance models (Japan, Southern Europe).

The increasing concentration of firms in the world wine industry is underway. However, the trend has slowed down considerably over the last few years as a consequence of the international financial crisis. The top 40 world wine companies today account for approximately 40% of the value of the world wine markets. This level of concentration is far lower than in other categories of alcoholic (beer, distilled spirits) or non-alcoholic (soft drinks, bottled water) beverages.

In New World wine countries, the concentration of the industry is more marked. This means that the leading firms in those countries are able to achieve more significant economies of scale. It also means that these firms are less dependent on upstream and downstream operators. Therefore, *ceteris paribus*, pressure on the financial margins of leading New World firms is not so dependent on upstream elements (mainly inputs, caps, cork stoppers, bottlers, barrels, etc.) and downstream stakeholders (beverage wholesalers, major food retailers, hotels, restaurants, cafés ...)

The increasing concentration of firms in European Union countries is also endorsed by the common market organization (CMO) for wine. Wine co-operatives have been particularly impacted by mergers and acquisitions, mostly in the Southern European regions of Languedoc–Roussillon (France), Castilla La Mancha (Spain), and Southern Italy (Puglia, Sicily).

The international wine industry is currently structured as an oligopoly with ‘fringes’, i.e., a competition arena where a limited number of firms account for a significant proportion of wine sales. The ‘head’ of the oligopoly is accompanied by a large number of small and medium-sized firms (Coelho and Rastoin, 2004). At the head of the oligopoly we find today the leading Chinese firms, publicly listed on the stock exchange: Yantai Changyu (the main shareholder is Ilva Saronno, Italy) and Dynasty Fine Wine Group (the main shareholder is Rémy Cointreau, France). It includes also, the Argentinean leader, the Peñaflor Group (100% controlled by the Bemberg family). Some Indian and Brazilian leaders may eventually emerge in the longer term. Therefore, the competition arena in the wine industry remains quite open.

3.5. Clusters

Established research in economics defines ‘clusters’ as groupings, generally structured according to employment basins, involving companies in the same sector. Clusters are a source of positive externalities, generally known as network externalities. This concept refers to the landmark work of Alfred Marshall about ‘industrial districts’ at the beginning of the 20th century. The most quoted example concerns the ‘Third Italy’ described in the works of Becattini (1992). This approach was the basis for many studies in economic geography. Michael Porter also contributed to the development of this approach through its application to the Californian wine cluster (Porter, 1980, 1990). Competition and cooperation among firms inside and outside clusters ensure survival and the development of an industry. Clusters are therefore the basis for the competitiveness of an industry.

Migone and Howlett, (2010) surveyed the studies of wine clusters around the world. They raised the question of the ‘cluster’, a concept strongly embedded in a geographic location, and the ‘network’ concept, which is more rooted in knowledge flows. According to these authors, what makes a cluster successful is the ability to adapt to

economic shocks. Four main elements characterize ‘clusters’: (1) the heterogeneity of internal elements influenced by the diversity of firms and the existence of an offer of technical and banking services, the presence of government and research institutions as well as universities; (2) the establishment of linkages, both commercial and non-commercial, within the geographic location; (3) the development of innovation at the regional level, but not only at that level; and (4) the differentiation of wine clusters according to the scarcity of *terroirs*, climatic particularities and the political and economic legislation as well as the importance of tradition in terms of product quality.

Clusters are therefore collective projects whose goal is to foster the regional competitiveness of a given industry. Within the cluster, collective goals become more important than individual interests. The main elements of the cluster concept includes trust, leading firms, intermediaries, associations (*consorzi*, wine institutes, etc.) and the ability of the cluster to solve problems related to collective action. Governments provide support through activities related to research (R&D) and legislation. Differentiation of the leading firms operates through the capacity of those firms to innovate and to demonstrate the ‘best practices’ to small and medium enterprises, as well as their ability to interact with the public administration. The leading firms make a combined effort to improve long-term market shares in export markets. The way Australian leading wine firms penetrated the United Kingdom market during the 1990s, acting as ‘ice-breakers’ and opening the market to small and medium Australian wine producers, provides a good ‘case study’ for understanding the importance of leadership and cooperation in a cluster.

At the world wine industry level, we find clusters in many regions of New World wine producing countries: in Australia (Barossa Valley, Riverina ...), Chile, Argentina, South Africa and southern Brazil (Serra Gaúcha). The heterogeneity of research methods used on clusters and to assess externalities in clusters is a challenge for researchers (Migone and Howlett, 2010). In Europe, wine clusters are less developed, although we find some examples in regions such as Champagne, Rioja and Tuscany. The weak presence of clusters in Europe is explained due to the absence of the key elements defining the cluster: trust, the capacity of the members in a cluster to solve the problems related to collective action, opportunist behavior among intermediaries, the lack of true leading firms in terms of innovation and market-orientation, etc.

In line with these developments, competitiveness in a cluster is related to attractiveness and its capacity to bring new investors to the cluster location. The example of the deliberate strategy undertaken by the Chilean wine cluster illustrates this type of dynamics. Over the years, foreign investors, starting with Miguel Torres from Spain in the late 1970s, from the five continents invested in the Chilean wine cluster. Those investors brought important resources such as financing, knowledge and experience in competition on export markets. Clusters evolve through different

phases in the long run where learning economies and shared knowledge renew clusters and create the conditions necessary to achieve sustainable competitive advantages. In this respect, the 2007 agenda for the New Zealand wine cluster (i.e., *New Zealand—Pure Discovery*) focusing on sustainable development and increasing regionalization (Sauvignon Blanc in Marlborough, Pinot Noir in Central Otago ...) is in line with the cluster life-cycle dynamics. Clusters are also an essential asset as a collective means of resisting economic crises. Generally speaking, and in contrast to Southern European countries, New World wine producers follow this type of strategy.

The widely available literature with different case studies raises concerns about the issue of cluster governance. In this respect, McDermott (2007) highlights the role played by public and private institutions in the case of the Mendoza wine cluster). Uncertainty remains about the sources of information and the origins of innovation. For example, vines coming from sanitary and clonal selection used in the expansion of Chilean vineyards were provided through thirty years of French wine viticultural research. The causal nexus between the success of the wine chain and the cluster effects is hard to demonstrate. Some of the studies highlight different types of cluster: global, analytical, and mixed. The presence of those key ‘elements’ would appear to be a ‘facilitator’ of success, and the necessary adaptation of generic knowledge to the local context becomes obvious. It is not strange that wine clusters provide a better explanation for the expansion of new vineyards than for traditional vineyards where the dynamics of enterprises and institutions at the local level is older, more complex and more difficult to assess in terms of industrial success.

4. Conclusion

Looking back to the research questions raised by the *filière* analysis allowed us to justify and understand the perspectives associated with the different approaches and descriptions highlighted as well as to the activities of the stakeholders in the upstream levels of the wine chain.

The knowledge of a *filière* as complex as the wine *filière* at the world level is the result of a stream of research across time in different countries. The theoretical approaches that we synthesized here constitute a guide to understanding the way of ‘thinking’ this *filière*, i.e., to analyze and to offer the main actors, including political and professional decision-makers, a means of clarifying the strategic choices.

This introduction of the upstream section of the wine *filière* is not exhaustive but provides the main stylized-facts summarizing the operations of the *filière* in different countries, according to the differences reported but also the possible convergences and stabilities.

Technological dynamics are a central issue in assessing competitiveness in an apparently traditional and conservative field: the quality of plant material, clone selection and sanitary

measures, the age of vineyards; environmental-friendly methods used to fight parasites; mechanization, management of water stress and all the oenology improvements through the fine tuning of wine tanks and temperature controls and the new methods of stabilization and conditioning. The importance of these technologies is considered within the study of innovation *filieres* and of the strategic approaches related to clusters.

Trade-offs in the wine chain and the fight for sharing the value-added did not disappear within the *filieres*. Also, newly published work grounded in the transaction costs approach demonstrates the importance of driving the quality-levels through contracting and the creation of 'quasi-rents' among the actors, at the origin of an additional source of wealth to be shared.

New actors are constantly emerging: new grape growers, new wine merchants, new intermediaries, new strategic groups, but also new countries 'emerging' in the field of wine such as China, Brazil, India, Mexico and even Ethiopia. Each time, their positioning in the *filière* and the rationale behind their development deserve a detailed and precise analysis.

After summarizing the organization of the supply side in the wine industry, the essential issues to retain here include: the great diversity of operators and the persistence of this diversity in the long run. From this perspective, the evolutionist theory represents quite well, at the industry level, the persistence of diversity creation (principle of mutation) and the persistence of the mechanisms reducing diversity (principle of selection and adaptation) (Metcalf, 1995).

Over the last thirty years, a large extension of the European vineyards was grubbed up, the qualitative reconversion was pursued, economic transition in Eastern European countries and in the southern hemisphere became a reality, new markets developed and two economic crisis impacted the wine industry at the world level, one as a result of supply-side effects (2004) and the other one driven by the demand conditions (2008). In this landscape, characterized by strong changes, no alternative development model emerged. Likewise, no stakeholder at the upstream-level of the wine chain appeared as the dominant force. We observe a large number of new entries and exits in all countries and at all levels of the wine *filière*.

Finally, beyond the description of the operators, it seems that the most important issue is to identify the transformation mechanisms that emerge in that part of the *filière*.

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