THE PORT WINE NETWORK

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ABSTRACT

The port wine sector is characterised by a number of features that make it a particularly interesting case: economic activity is deeply embedded in a stable and structured social system where technological innovation is relatively unimportant when compared with other forms of innovation (e.g. organisational). Furthermore, it is a business constrained by a severe regulative and protective regulation which is likely to play a significant role in the system’s change.

This working paper analyses the port wine sector from a network perspective. Looking not only at resources and actors, the paper focuses on both individual and collective relationships, and offers an explanation for the dynamics and evolution of this sector.

Key words: Port Wine. Industrial Networks. Groups of Interests. Cooperation. Collective Action.
THE PORT WINE NETWORK

Port is a fortified wine named after Porto (or Oporto in its anglicised form) since it has traditionally been shipped from the Porto suburb of Vila Nova de Gaia. However, port begins its life in the Douro region which starts some 100 km east of Porto and extends as far as the Spanish border. This is an administratively demarcated region where an estimated 30,000 farmers grow what is considered to be one of the great wines in the world.

This working paper analyses the port wine sector from a network perspective. It begins with an overview of the network approach, a stream of research whose roots can be found in the first IMP. (International Marketing and Purchasing) project, a pan European study on relationships between industrial buyers and sellers. The second section offers a general picture of the port wine network followed by two sections dedicated to the most fundamental nets of relationships within that system: the Douro valley net and the trade net. The final section addresses the institutional arrangement and the role played by the Port Wine Institute, a governmental body whose impact on both nets cannot be neglected when attempting to understand the evolution and present structure of the overall port wine network.

1. THE NETWORK APPROACH

Firms are not independent entities acting on their own in the market. To develop their activity they have to interact with other firms and organisations such as governmental departments, associations or regulatory commissions. This process of interaction tends to create lasting and stable relations through which firms adjust products, production and routines. Such relations are often built over a long period since their development requires time and resources, and may involve commitments for the future. Firms' behaviour can thus be described as a cumulative process where
relationships are created and developed to guarantee firms' control over the resources they need, the selling of their output, and, in general, the pursuit of their objectives. This web of interdependent organisations engaged in the production, distribution and utilisation of goods and services, forms a system where the particular position assumed by one actor affects not only its performance but also the evolution of other actors.

This vision owes much to the network approach, a model which resulted from research initially carried out at the University of Uppsala and at the Stockholm School of Economics, and further developed by other research centres mainly in Europe (cf. Ford, Håkansson and Johanson, 1986; Easton and Araújo, 1989; Axelsson and Easton, 1992; Håkansson and Johanson, 1993; Håkansson and Snehota, 1995). For a detailed description of the history and provenance of the network approach, see Easton (1992).

The network approach describes industrial systems in terms of three basic variables: actors, activities and resources.

- **Actors**
  
  In industrial networks, actors are those who, being goal oriented, perform activities and/or control resources. They can be individuals, firms, groups of individuals, groups of firms, or even parts of firms (Håkansson, 1989). Embedded in a web of social and economic relationships, actors perform activities by using, consuming and creating heterogeneous bundles of resources which can be controlled either directly or indirectly. The difference between these two types of control is of particular interest since while the former is based on ownership, the latter is achieved through relationships. The importance of indirect control stems from the fact that when an actor establishes exchange relationships with other actors, links of dependence are created and, consequently, their resources come, at least partly, under the control of the focal actor.
As Håkansson and Snehota (1989) stress, this perspective contrasts with the conventional view about organisational boundaries which adopts a hierarchical (proprietary or contractual) perspective. As a consequence, it does not capture all the resources and activities that may actually affect the performance of firms. For example, the conventional view may consider as 'external' to a firm, resources that are actually under its influence and control. This is the case of many intangible resources (e.g. knowledge, reputation and skills) which, playing often a key role in firms' effectiveness, are frequently created through relationships with other organisations (Itami, 1987; Vicari, 1988).

- **Activities**
  When actors combine, develop, exchange or create resources they are performing activities. The network approach distinguishes two basic kinds of activities: transformation and transfer activities (Håkansson and Johanson, 1992). The former comprises those that, being directly controlled by one actor, change or improve resources in some way. Transfer activities are those which link transformation activities and transfer the direct control over a resource from one actor to another.

- **Resources**
  Resources, the third variable of the model, are a precondition for any activity. Resources may have an unlimited number of dimensions which allow for their utilisation in a number of different ways. Nevertheless, for the sake of simplicity, it is usual to subdivide them in three main categories: physical resources (e.g. materials, equipment or buildings), financial resources, and human resources such as labour, knowledge and relationships (Håkansson, 1987).

Relations established among these three basic variables (actors, activities and resources) give rise to structures that can be conceived as networks. Actors, for instance, can be bound together not only by formal arrangements but also by product and process adjustments, logistical coordination or personal ties. In the same way,
activities are related to each other in accordance with, for example, technological patterns or power-dependence relationships between actors. This means that the three networks are connected with each other forming an overall network of relations.

When firms perform transformation and transfer activities they have to establish relations not only with suppliers and customers but also with other actors such as competitors, customers of customers, consultants, governmental organisations, or associations (Mattsson, 1985). These relationships may give rise to various forms of dependence - e.g. technological, knowledge, social and legal (Hammarkvist et al., 1982). Although such bonds ensure stability, they act as well as a constraint inasmuch as actors are not entirely free to dissolve relationships with other organisations (Easton and Araújo, 1989). Furthermore, dependence between the parties and the eventual complementarity of their objectives lead to a division of work within the network which makes the coordination of activities a central issue in industrial networks. However, as Johanson and Mattsson (1988, p. 291) put it, such a "...coordination is not brought about through a central plan or an organisational hierarchy, nor does it take place through the price mechanism as in the traditional market model. Instead, co-ordination occurs through interaction between firms in the network, where price is just one of several influencing conditions."

Relationships among actors in a network tend to be built over a long period, calling for time and resources, and involving commitments for the future. In other words, relationships, like many assets, can be conceived as the product of investment processes (Johanson and Mattsson, 1985; Mattsson, 1989). This cumulative character of market activities makes networks both stable and changing. Networks are stable exactly because of the investment nature of most relationships. In fact, the likely high cost of changing a set of relationships leads firms to favour durable and stable links (Gadde and Mattsson, 1987). However, this does not mean that networks are static. Although interaction processes take place within the existing sets of relationships, they are permanently evolving over time. This dynamic process may be the outcome of changes in the economic cycle - i.e. the way actors transform and transfer activities - as well as the result of actors attempting to reinforce their power within the network (Håkansson and Johanson, 1992).
The long-term character of market activities makes the position of firms in the network an important issue. According to Mattsson (1985), the firm's position is characterised by the role assumed by the firm when it relates, directly or indirectly, to other organisations. This concept can be analysed both at a micro- and at a macro-level. The micro-position refers to the relationships between two individual actors. It is characterised by the strength of their relationships, the role assumed by the focal actor, and its importance to the other organisation. The macro-position is a concept qualitatively different. It reflects the actor's relations to the network as a whole. It is characterised by the strength of the relationships with the other organisations, the role assumed by the focal actor and its relative importance in the context of the network, and the identity of the other organisations with which the focal actor has relationships. Mattsson (1985) has suggested that macro-positions could be perceived as aggregations of micro-positions. However, the author has later changed his point of view. In 1986, for example, Johanson and Mattsson claimed that "... the macro-position, which referring to the whole network, is not an aggregation of the micro-positions in the network". The reason for this is that while macro-positions are affected by all network interdependences, micro-positions are not.

The position assumed by any firm within the industrial network is thus a key element for understanding not only its current situation but also its potential for future development. From this perspective, corporate strategy is not confined to the actions carried out by companies aiming to influence their relations with a faceless, atomistic and competitive environment. As Johanson and Mattsson (1992) point out, the firm's strategic action comprises all the efforts to change or preserve its position(s) in the network(s) to which it belongs. In this sense, the position is a link between the past and the future. The past because it is the result of past activities, both performed by the focal firm and other actors; the future because it influences the strategic alternatives for the future evolution of the firm.

In this context, the position in the network does not only act as a limitation - it can also be regarded as a development potential (Håkansson and Johanson, 1988). As mentioned before, the position assumed by each actor in the network depends on the
set of exchange relationships it has with other actors. However, there will be, probably, a great number of relationships not yet developed. This means that if an actor builds new relations and finds new partners, its position is being used as a way of changing its strategic position in the network. Such a strategic action may aim not only to reinforce its position in the network but also to get involved in new networks - for example, those in which its counterparts are also involved.

This perspective on network positions leads us to regard the firm's strategic action as a way of relating with the network rather than as a mere adaptation to the environment. In fact, since positions of different actors in a network are partly interdependent, firms are not entirely free to choose the 'best' strategic alternative in each moment. Their action does not depend only on what they think to be the 'best' strategy but also on the way other firms act and react.

These concepts of network position and strategic action contrast with the perspective adopted by most corporate strategy writers who stress the competitive nature of firms rather than their complementarity. According to this perspective, the firm's position refers to the place assumed by its products in the market. In this context, the objective of any firm would be to seek out a target market segment where its skills and resources could be fully utilised to build a competitive advantage (Day, 1990). The network approach provides a different picture. Firstly, the market is perceived as a system where interdependence amongst firms is characterised not only by competitive but also by complementary activities. Secondly, in the industrial networks model the unit of analysis is not the firm and its resources (stricto sensu), but the relationships established among actors, activities and resources. In sum, relationships, rather than resources, are the major strategic tool firms can use (Mattsson, 1987).

2. THE PORT WINE NETWORK: BRIEF OVERVIEW
The network approach describes industrial systems in terms of three basic variables: actors, activities and resources. For each variable, the relations established amongst its elements create a structure that can be conceived as a network. Furthermore, interdependences among the three networks give rise to an overall network of relations which binds together the three basic variables. This section is dedicated to a brief description of the most significant actors, activities and resources involved in the port wine business as well as the main relations among them. Its purpose is to offer a general picture of the overall network so that a more detailed characterisation can be addressed by the next two sections.

The two most current styles of port are ruby and tawny. The former is a young wine, somewhat full-bodied and fruity, with an open red colour. It is usually bottled after three years' maturation in wood and it is ready for drinking immediately. Ruby port is very popular in France where it is mainly appreciated as an aperitif. Tawny, on the other hand, is in general matured in wood for longer than ruby. The wine becomes smoother, and acquires a brownish and lighter style. Tawny is considered the most 'versatile' of ports: it can be appreciated both as an aperitif (chilled preferably) and as a dessert wine. The great majority of ports fall into one of these categories. Nevertheless, a third category, consumed mainly in Portugal, must also be mentioned: white port. This, as its name suggests, is made only with white grapes, and can be sweet or dry. After ageing usually 3 to 5 years in concrete vats, it is consumed chilled as an aperitif or summer drink.

In addition to this general classification, there are several special categories which correspond to the best quality wines. These are classified in accordance with a number of features such as the colour, organoleptic characteristics, degree of sweetness and the ageing process used. Vintage, late bottled vintage and dated ports are some examples of the best categories (see Appendix 1 for a comprehensive description).

Producing such a complex wine is a long process (Figure 1). Everything starts in the demarcated region of the Douro valley which covers an area of 250,000 hectares comprising approximately 85,000 vineyards. At harvest time, which usually occurs in
September or October, grapes are picked and taken to wineries. In the past, wine making was a very traditional process since grapes were trodden in granite troughs called lagares. However, although the human foot is still considered the ideal treading device because it pulps without crushing the pips, very few port grapes are trodden today. In general, they are crushed in enclosed stainless steel tanks designated autovinificators which look like giant coffee percolators. With either method, the mix of skins, pips and pulp produces a grape juice called mosto which, soon after, begins to ferment - i.e. to convert grape sugar into alcohol. When this reaches a certain level, the mosto is run off into vats where it is fortified with grape brandy named aguardente, at a ratio of 440 litres of mosto to 110 litres of aguardente. This arrests fermentation and gives rise to a sweet wine with approximately 19 per cent of alcohol by volume.

**FIGURE 1**

**PORT PRODUCTION**

1. **VINTAGE**
   - Grapes are picked and taken to the press house.

2. **FERMENTATION**
   - Grapes are either trodden in an open lagar (stone trough) or fermented in a tank, where the must or grapes juice is regularly pumped over to extract the maximum amount of colour and flavour in a short time. As fermentation proceeds, more and more of the sugar is converted into alcohol.

3. **FORTIFICATION**
   - When the sugar content has reached the required level, the must is run off into large vats (tonels), where it is fortified with brandy. The resulting wine has approximately 19% of alcohol.

4. **MATURATION**
   - The young wine is wintered in the tonels, where it clarifies.

5. **TRANSPORT TO THE LODGE**
   - The wine is transferred to lodge pipes and taken to Vila Nova de Gaia for maturation.

6. **SECOND FORTIFICATION**
   - On arrival at the shipper’s lodge, the young wine is refreshed with more brandy, making the strength approximately 20% alcohol. The wine is classified as wood port or vintage port (for which only the very finest wine is selected).

**SOURCE:** Cockburn, 1989, p. 9

This young fortified wine remains in vats until the spring following the vintage. Then it is almost entirely transported to an entrepôt located in the Porto suburb of Vila Nova de Gaia for maturation. On arrival, the wine is fortified with more brandy, and then matures for at least three years before commercialisation is legally permitted. The reason why port is traditionally not matured in the Douro region has to do with
its climate. Indeed, the region is very hot in summer and freezing cold in winter. This makes it a very unsuitable place for ageing port because this needs a more stable climatic pattern. On the contrary, since Vila Nova the Gaia is located nearby the sea, its temperate climate is considered to be the best for long periods of storage.

Despite the intervention of tens of thousands of actors in the whole process described above, there are only four main categories of actors: farmers, wine cooperative societies, shippers and distributors. Traditionally, grape growing and port making were undertaken by independent farmers who sold their wine to the shipping-houses. These, in turn, organised the transport of the wine from the Douro valley down the river, and stored and aged it in their lodges located in Vila Nova de Gaia. Furthermore, the shippers promoted and sold the wine all over the world to hundreds of distributors (Figure 2).

![FIGURE 2
TRANSACTION CHAIN](image)

However, over the past decades some meaningful changes have occurred in this process, most of them related to the emergence of new actors and processes of vertical (dis)integration. Firstly, a number of wine cooperatives in the Douro region have been created since the early 1950s. Originally these co-ops received the grapes
from the farmers, produced the wine and then sold it to the shippers. Today this is
different inasmuch as some cooperatives are also selling part of their production
directly to the distributors. Secondly, most farmers, who continued to sell their
production to the shippers, have closed their wineries. This means that they are
exclusively producing grapes while a major part of the wine is made by the shippers.
This shift was even reinforced because most shippers have also acquired large estates
(called quinta) in the Douro valley where they grow some of the grapes they need.
Finally, since the mid-1980s some few farmers have begun to age and bottle their
wine, and ship it directly from the Douro valley.

This brief overview of the most significant patterns of economic exchange
relationships is the basis for a more detailed understanding of the overall port
network. Figure 3 represents diagrammatically the main actors involved in the port
wine network and the most significant relationships among them. It makes clear the
existence of two basic nets of relationships. One is connected with the production of
port in the Douro valley. It includes not only the farmers and wine cooperatives but
also a number of associations such as the Casa do Douro, the Port Wine Growers' and
Bottlers' Association, the Wine Cooperative Societies' Association and ADVID. The
second net is centred around the trade of port. It includes the shippers, Grupporto (a
consortium of shipping-houses) as well as a number of associations - e.g. the Port
Wine Shippers' Association and the British Association.

The Douro valley net and the trade net are connected by both economic and non-
economic links. The former involves essentially the farmer-shipper relationship
intermediated or not by the wine cooperatives. The latter encompasses the
relationships established with and through a number of collectivities such as ADVID,
the association for the development of viticulture in the Douro region.
FIGURE 3
THE PORT WINE NETWORK

THE DOURO VALLEY NET

THE TRADE NET

KEY
Economic exchange relationships
Non-economic exchange relationships
Nonetheless, such a representation is no more than a simple draft. Firstly, the network represented in Figure 3 is necessarily incomplete not only because of the complexity of the structures and processes within the overall network but also because of the contingency and volatility of most actors and links. Secondly, the diagram, being static in nature, does not capture some of the most key features of the port wine sector, in particular those related to its process of change. Finally, no business is an island and port business is not an exception. In fact, the diagram neglects a range of other actors - e.g. bottle manufacturers and banks - whose links with the system are, however, much weaker than those described earlier. It is exactly the significant difference in strength between these links and the intra-network relationships that is on the basis of the definition of the system's boundaries and integrity in this particular case.

While bearing in mind their interdependence, the analysis which follows addresses the two major nets of relationships within the overall network: the Douro valley net and the trade net.

3. THE DOURO VALLEY NET

Although port production is in general associated with the Douro valley and its trade with Vila Nova de Gaia, this is not a completely accurate picture. Firstly, though port production starts in the Douro valley, it only ends after a period of maturation which usually takes place in the shippers' lodges located in Vila Nova de Gaia. Secondly, nowadays the roles of the major groups of actors are not so distinctly defined as they were in the past. On the one hand, farmers and cooperatives do not exclusively produce wine - in some cases they also trade it. On the other hand, shippers are increasingly taking in their hands part of the production of the wines they need for commercialisation. For this reason this section is entitled 'The Douro Valley Net' rather than 'The Production Net'. Its purpose is to describe and make understandable the structure of relationships established between/among the actors operating predominantly in the valley. Nevertheless, whenever necessary, explicit references
will be made to the links and interdependences between actors-activities-resources involved in this net and those mainly involved in the trade net.

3.1 THE DEMARCATED REGION

The demarcated region of port is a rugged territory with rather peculiar climatic and geological characteristics. The hills of Serra do Marão in the west end of the Douro valley, and of Serra de Montemuro in the south, protect the vineyards from the more temperate Atlantic winds. This makes for a dry climate with cold winters and scorching summers. The soil, in turn, is mainly schistous. This characteristic, coupled with steep hills, required the building of the famous terraces for the cultivation of vines. For this reason the yield per vine is one of the lowest in the world, but the grapes have a rather singular character.

For centuries the valley has been an isolated region. People are in general harsh and uncompromising which partly reflects the culture of the farmers and other actors in the region (Barreto, 1993). However, the coming of the railway in the last century and the new roads built during the twentieth century are changing the situation. Nevertheless, people keep repeating an old saying which reflects that mixture of isolationism and rugged character: 'Para cá do Marão mandam os que cá estão' (behind the hills of Marão, they who live there make the law).

The demarcated region includes approximately 85,000 vineyards, belonging to some 30,000 landowner farmers, which cover an area of 33,000 hectares (Instituto do Vinho do Porto, 1991). This means that only 13 per cent of the total area of the Douro valley is actually planted with vines. The great majority of vineyards belong to very small farmers. Estimates suggest that 83 per cent of the farmers produce less than 10 pipes of wine per year, and only four per thousand is supposed to produce more than 100 pipes (Table 1A).
TABLE 1
PORT WINE PRODUCTION

A. SIZE OF THE FARM

<table>
<thead>
<tr>
<th>Sub-region</th>
<th>Up to 5 pipes</th>
<th>6 to 10 pipes</th>
<th>11 to 20 pipes</th>
<th>21 to 50 pipes</th>
<th>51 to 100 pipes</th>
<th>More than 100 pipes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baixo Corgo</td>
<td>63.7%</td>
<td>16.6%</td>
<td>10.0%</td>
<td>6.9%</td>
<td>2.2%</td>
<td>.6%</td>
<td>100%</td>
</tr>
<tr>
<td>Cima Corgo</td>
<td>68.2%</td>
<td>16.0%</td>
<td>10.0%</td>
<td>4.5%</td>
<td>1.0%</td>
<td>.3%</td>
<td>100%</td>
</tr>
<tr>
<td>Douro Sup.</td>
<td>69.6%</td>
<td>16.6%</td>
<td>8.6%</td>
<td>4.1%</td>
<td>.9%</td>
<td>.2%</td>
<td>100%</td>
</tr>
<tr>
<td>Totals</td>
<td>66.4%</td>
<td>16.4%</td>
<td>9.8%</td>
<td>5.5%</td>
<td>1.5%</td>
<td>.4%</td>
<td>100%</td>
</tr>
</tbody>
</table>

SOURCE: Cálem, 1990

B. PLANTED AREA

<table>
<thead>
<tr>
<th>Sub-region</th>
<th>Demarcated Area</th>
<th>Area of Vine</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vine/Demarcation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baixo Corgo</td>
<td>45,000 ha</td>
<td>15,180 ha</td>
<td>33.7%</td>
</tr>
<tr>
<td>Cima Corgo</td>
<td>95,000 ha</td>
<td>13,035 ha</td>
<td>13.7%</td>
</tr>
<tr>
<td>Douro Superior</td>
<td>110,000 ha</td>
<td>4,785 ha</td>
<td>4.4%</td>
</tr>
<tr>
<td>Totals</td>
<td>250,000 ha</td>
<td>33,000 ha</td>
<td>13.2%</td>
</tr>
</tbody>
</table>


However, these percentages are not uniform for the whole Douro valley since this encompasses three sub-regions with different geological and climatic conditions: Baixo Corgo, Cima Corgo and Douro Superior. The former (Lower Corgo) is the
most westerly sub-region and was the birthplace of port. Its importance stems from the area planted and number of farmers. In fact, though this is the smallest of the three producing sub-regions, one third of its total area is planted with vines, which reflects the importance of viticulture for its economy (Table 1B). Cima Corgo (Upper Corgo) is the central part of the Douro valley. Although only 14 per cent of its area is planted with vines, it is considered the heart of the demarcated port-producing region. Its Atlantic-Mediterranean climate creates the conditions for the production of the finest quality port grapes. Some of the best estates - most of them owned by the shippers - are located there (Liddell and Price, 1992). Finally, Douro Superior (Upper Douro) is the most easterly and largest sub-region, almost two and a half times larger than Baixo Corgo. Nevertheless, the land mass covered by vineyards is no more than one third of the vine area in Baixo Corgo. This is partly because most of the sub-region does not have appropriate geological conditions, and partly for historic reasons since Douro Superior has traditionally been the most isolated sub-region. However, as it becomes increasingly more accessible, most shippers are producing very good quality wines in some of their new built estates.

3.2 THE NET OF ECONOMIC EXCHANGE RELATIONSHIPS

◊ **Independent Farmers**

Farmers have typically been the most important group of actors in the Douro valley. They can be divided into three categories. The first comprises thousands of small or very small growers, some of them producing just a few baskets of grapes (70 kg per basket). In general, these farmers sell their production in the grape form since they do not own facilities for vinification. The second category is made up of medium or large-scale farmers. Several of them make the wine in their own wineries. The third category comprises absentee landlords, most of them Portuguese businessmen living in Porto or Lisbon.

More than 50 per cent of the farmers sell their production to the shippers. Most of them, especially the smallest ones, sell only grapes. In this case, the transaction is usually established through an intermediary called *ajuntador* (collector) who collects the grapes and organises their transport to the shippers' vinification centres. In other
cases, the farmers vinify the grapes and sell their production in the form of *mosto*. In this case, the shippers use to send a *feitor* (steward) who inspects the farmers' installations before the vintage, provides the brandy to be added to the *mosto*, and supervises wine making.

Very frequently, farmers, especially those who own good quality vineyards, enjoy long-term relationships with shipping-houses to whom they have sold their production for generations based on unwritten contracts and trust. It is possible to trace farmer-shipper relationships that have lasted for over 120 years. However, although these farmers and shippers respect and trust each other, it is questionable whether they really understand each other. In fact, the discourse of both farmers and shippers appears to value highly the element of trust in their relationships. But when their respective discourse practices are analysed in context, the meaning of trust is interpreted differently by them. On the one hand, trust for a shipper has to be understood in the context of a large business run by people with a wide knowledge of both the production and trading systems. Moreover, the shippers have in general a large choice of suppliers with virtually no switching costs. On the other hand, for a farmer, trusting a shipper has to be understood in the context of realising the whole revenue of one year from one single transaction.

In short, the perceptions and practices both farmers and shippers have about their relationship seem to be affected by their own situation and conceptual frames of reference. The meaning of trust for each party is not equivalent nor is the translation of the term necessarily meaningful in the language of the other party.

These close and stable relationships between many farmers and shippers involve not only mutual respect and trust but also coordination of activities (e.g. scheduling harvests in different farms whose grapes are sold to the same shipper) as well as technical help and advice (e.g. shippers sometimes give advice in terms of cultivation or protection against vine diseases). Through a careful planning and coordination of activities, shippers get close control over the production process. This helps the selection of special types of grapes which becomes the basis of a house style, a considerable advantage in a sector where product differentiation is so important.

Nevertheless, some farmers do not enjoy such close relationships with the shipping-houses. This can happen either because they do not produce good quality grapes, or
because they believe that their production is so special that they should command premium prices. In this event, more complex negotiations take place during the harvest or at the beginning of the following year. Quite often the farmer argues that the price offered does not cover production costs, and threatens to sell to another shipper. The shipper usually replies that the price offered is in line with the current market price, and there is no reason to pay a premium.

In any way, an interesting point is that the farmers who have always sold their production to the same shipper generally get a relatively higher price in years of oversupply and a relatively lower one when there is scarcity. In other words, a close farmer-shipper relationship seems to give security and stability to both parties. The farmer's bargaining strategy, whilst maximising opportunities for profitable deals in times of scarce supply, appears to penalise him or her every time there is excess of supply.

◊ **Wine Cooperative Societies**

Over the past forty years a number of wine cooperative societies have been established in the Douro valley (Figure 4). Their creation was, in most cases, encouraged by the Portuguese government which supplied loans at particularly low interest rates. From the point of view of the farmers, the advantages of these cooperatives are twofold. First, they have benefited from economies of scale and from the use of more efficient wine making facilities. Second, farmers have increased their bargaining power vis-à-vis the shippers.
Originally, cooperatives aimed solely at producing wine. This was later sold to the shipping-houses which took in their hands the whole process of trading port. However, co-ops are now maturing and trading a small part of their production. Nowadays there are 24 cooperatives with 13,000 members which account for 40 per cent of all port produced.

Nevertheless, co-ops face two major problems. Firstly, in general they are not properly managed due to a lack of good directors and qualified technicians. Secondly, the farmers' commitment to the cooperatives is very low. The way farmers deliver their grapes in vintage time illustrates well this point. Immediately after the harvest, the farmers who are partners in cooperatives take their grapes to the cooperatives' wineries, and receive a credit card for the grapes supplied. From the farmers' point of view their responsibility ends at this point. In general, they do not know or care any more whether their grapes will produce a good quality wine or not. In sum, relationships between cooperatives and shippers, unlike many farmer-shipper relationships, are, in general, unstable and characterised by a great amount of distrust.

◊ Growers and Bottlers
Until 1986, Portuguese law stipulated that all port had to pass through the entrepôt located at Vila Nova de Gaia before being exported. This means that shippers enjoyed a monopoly over port exports. Farmers for a long time claimed that such a monopoly clashed with their interests and obstructed the development of the Douro region. Furthermore, the integration of Portugal as a full member of the European Community in the mid-1980s made this situation difficult to sustain since it was not in accordance with free trade regulations adopted by the Community. As a consequence, in May 1986 the Portuguese government changed laws in order to allow independent farmers to export their wine directly from the Douro valley to the international market. This fact gave rise to the emergence of a new type of actor - the grower and bottler.

Nevertheless, the law stipulates a number of restrictions aimed at maintaining a minimum degree of quality and ensuring a build up of stocks for the future. Firstly, grapes used have to come from one single estate, and have to be pressed and vinified on site. Secondly, growers and bottlers, such as the shippers, have to maintain a stock equivalent to three times their annual sales. This explains, in part, that what could have been a big step towards the breaking of the shippers' domination of port trade has, in fact, produced very limited effects so far. In 1992, for instance, only 5 growers marketed their own port. Such a modest participation in trade is a consequence of the restrictions stipulated by law. In fact, if port production is an expensive activity, its maturation and further shipment requires an amount of capital that almost no grower is able to raise. Moreover, the vast majority of growers are not commercially prepared to compete with big shipping-houses, most of them established in the market for hundreds of years.

◊ Shippers' Estates

Over the past few decades there has been an increasing number of large estates owned by shippers in the Douro valley. In many cases they are rather like châteaux in the Bordeaux region. Despite the fact that only a limited quantity of port is produced there (approximately 10 per cent) these estates are producing first-class wines (Liddell and Price, 1992).
Since these investments in new estates are not likely to be returned in the short run, their purpose appears to be mainly long-term and strategic in nature. The control of the whole production process allows shippers to produce better and more distinctive wines. This internalisation of activities creates the conditions for an increasing asset specificity of the resources and activities involved in port production. Furthermore, these well-groomed estates are also used to accommodate guests - very frequently customers - and constitute a visible symbol of the shipper's status.

3.3 INTEREST ASSOCIATIONS

In parallel to the net of economic exchange relationships, there are a number of collectivities created in order to promote or defend the interests of groups of actors who aim to change or preserve their position within the overall port network.

◊ Casa do Douro

The most important association operating in the Douro region is the Casa do Douro, the Farmers' and Wine Growers' Federation, created in 1932 during the governmental reorganisation undertaken by the prime-minister António Salazar. Its headquarters are located at Régua, the capital of the producing region. The Casa was (and still partly is) a typical corporatist organisation. Formed mainly through governmental intervention, the Casa is empowered by law to administer and control some of the most vital activities connected to the initial stages of production. Furthermore, all grape growers have to register as members.

One of the most important activities performed by the Casa do Douro is the classification of vineyards. To maintain the balance between supply and demand, the Portuguese government (through the Port Wine Institute which will be described later in this working paper) establishes each year the total amount of port to be produced. Once that decision has been taken, the Casa issues production quotas for each property. The central piece of this system is the Cadastro (Register) whose purpose is to ensure that port is produced with the best quality grapes available each year. The Register is an official record held and updated by the Casa that classifies all vineyards
according to their quality. It is then on the basis of this classification that the Casa determines the production quota for each vineyard. For this reason, the Register plays obviously a vital role in the region since it regulates the proportion each farmer can make into port. This means that the Register can be considered an instrument of power inasmuch as the organisation responsible for it has the power to control the most important basis for the distribution of revenue in the region.

Furthermore, the Casa do Douro also acts as a broker on behalf of the Government, buying and storing wine in years of plenty, and releasing it during years of low production. This aims at ensuring stability and security to all grape growers in the region. In addition, the Casa controls the amounts of port stocks held by every grower, cooperative or shipper within the demarcated region. Finally, it renders, in general, all services requested by the Port Wine Institute.

In summary, the Casa do Douro is a collective actor which operates as regulator of the business system. Firstly, it defines who is inside or outside the grape growing net - i.e. who is qualified or not to be considered an actor in that system. Secondly, it aims at ensuring predictability, stability and security to all grape growers in the region.

◊ **Other Associations**

Beside the Casa do Douro, there are other collective actors operating in the Douro valley. However, in contrast to the Casa, most of them are typical bottom-up collectivities. Since they are emergent forms of cooperation amongst actors which result in the creation of associations acting as representative bodies of special groups of interests. What follows is a brief description of some of these interest associations.

*Associação de Produtores Engarrafadores de Vinho do Porto*

(Port Wine Growers' and Bottlers' Association)

This association was created in the aftermath of the legislation issued in May 1986 which allows producers to export directly from the Douro valley. Founded by some well-known producers such as Luís Roseira of Quinta do Infantado and Miguel Champalimaud of Quinta do Côtto, this association
comprises a number of growers and wine producers with bottling facilities. Its main objective is to promote and increase the exports of port directly from the Douro valley.

**União das Adegas Cooperativas da Região Demarcada do Douro**  
(Wine Cooperative Societies' Association)  
Established in 1965 and with headquarters in Régua, this association is made up of the 24 wine cooperatives operating in the region. It has two main objectives: to coordinate the economic activity amongst its members, and to defend the common interests of its membership. More recently, this association has been particularly involved in the struggle for the enlargement of the participation of cooperatives in the port trade. Indeed, as stated before, though cooperatives account for 40 per cent of the total port production, they only represent a very small amount of total exports.

**União de Viticultores Durienses**  
(Association of Growers of the Douro Region)  
This is an association informally created in 1992 which aggregated about 1,000 farmers. It was created as an opposition force to the Board of Directors of the Casa do Douro since its promoters argue that the Casa is not looking effectively after the interests of the farmers. This association has never assumed a formalised nature and disappeared in 1994.

**ADVID - Associação para o Desenvolvimento da Viticultura Duriense**  
(Association for the Development of Viticulture in the Douro Region)  
This is an organisation made up of both farmers and shippers whose members collaborate in terms of technical research on viticulture and vinification processes. Amongst its members, one should mention Cockburn, Barros e Almeida, Ferreira, Quinta dos Murças and Quinta do Noval. The outcome of the research is publicised by books, seminars and conferences in order to disseminate technical information to other actors in the region.

**Vitidouro**  
In 1985 started in the Douro valley an important project aimed at re-planting vast areas capable of producing top grade ports. The project,
funded by the World Bank, presumed that such top quality wines would be absorbed by increasing consumption at home and abroad of premium ports such as vintage, LBV and old tawnies. However, falling export prices along with a downturn in exports since 1989, after over a decade of steady growth, have badly affected the farmers who had benefited from that scheme. In fact, instead of being granted the right to produce 8 pipes of port per hectare (as it had been established in the project), these farmers were allowed to produce less than 6 pipes. As these problems coincided with the start of the repayments of loans to the World Bank, many growers faced tremendous financial difficulties. This led to the creation of Vitidouro, an association made up of some 400 farmers involved in the scheme. The main purpose of Vitidouro is to defend the interests of its membership, particularly in terms of production quotas.

The proliferation of interest associations in the Douro valley has important consequences. In fact, at the heart of these collective forms of organisation is the desire of single actors to grow bigger in size so that they can increase their influence within the network. Let us take, for instance, the case of the Growers' and Bottlers' Association. This can be regarded as an attempt made by the growers with bottling facilities to increase their centrality in the network by creating a new actor, bigger in size and hopefully able to make other elements of the business system more dependent on itself. In summary, such forms of association, being instruments of power, are means of inducing change or preserving stability.

4. THE TRADE NET

Only a very small amount of port is directly exported from the Douro valley. In fact, almost all port produced in the valley is transported during the spring next to the vintage to Vila Nova de Gaia where shippers' lodges are located. On arriving there, the wine is analysed in updated laboratories, tasted and classified. Then it matures for at least three years before being ready for commercialisation.
This section addresses the net of relationships established around the actors most involved with the trade of port - the shippers.

4.1 THE SHIPPERS

There are some dozens of shipping-houses. Some of them are descendants of old British families established in Porto in the early eighteenth century. Croft, Warre and Taylor, Fladgate & Yeatman are examples of firms three hundred years old or so. The existence of such firms is another symptom of a major characteristic of this sector: stability. This does not, however, mean that the sector does not change. On the contrary, since changes have always occurred, this reflects the capacity of the whole sector to adapt to new economic, social and political conditions. In other words, it is exactly because changes have occurred that the sector has survived for so long.

During the past fifteen years, the trade net has faced some important changes. First, there has been a concentration of ownership in the hands of a few number of large firms. In fact, almost fifty houses are now aggregated into fifteen groups which account for more than 75 per cent of the total volume exported. In addition, some shipping-houses have been acquired by multinationals most of them connected with the drinks trade. For instance, Sandman is owned by Seagram, Forrester by Martini & Rossi, Gran Cruz by Martiniquaise, and Cockburn by Allied Lyons. Furthermore, the control by the parent company and coordination amongst different firms belonging to the same group is often reinforced by interlocking directorships.

Alongside the houses owned by multinationals, there is the so-called independent sector made up of almost forty firms, most of them run by British or Portuguese families. The British sector includes, amongst others, the Symington group which comprises five firms owned by the Symington family, and the Taylor group with two firms. In turn, the Portuguese sector encompasses, for example, the Companhia Velha group (which comprises three firms owned by the Silva Reis family), the Barros Almeida group with seven firms, the Ferreira group with two firms owned by Sogrape, and the Cálem group with three firms.
Traditionally, nationality differences have been connected with distinct market orientations. In general, the Portuguese sector has dominated the home market along with very strong positions in France and Belgium where the taste is for port mainly as an aperitif. France and Belgium are the first two leading markets. In 1995 they accounted for 36 per cent and 15 per cent of total sales respectively. Their profile is similar: consumers are in general interested in cheap and young ports, and have little or no brand awareness. Indeed, much trade is conducted with distributors which retail under their own labels. Several are bulk purchasers for whom price is the critical factor in securing contracts. This means uncertainty about orders, low profit margins, and minimal influence over the market.

Portugal is another leading market accounting for 12 to 15 per cent of total sales. Consumers tend to prefer standard quality ports, particularly tawnies and white ports. Shippers' well-known brands have had a major impact on consumer preferences although recent cases of heavy advertising and aggressive discounts have also succeeded.

On the other hand, the British shippers have dominated the after-dinner segment, where quality and brand prestige are important factors in consumers' preferences. The United Kingdom is the largest market for premium ports, though in recent years this segment has grown considerably in some other countries such as the United States and Italy. The United Kingdom is the best example of a premium market. Special categories of port represent one-third of the total volume consumed there. Although vintage is considered to be the symbol of the British market, consumers are now moving towards lighter ports such as old tawnies. For this reason, most shippers have launched new types of port in this segment - e.g. Cockburn's Special Reserve Tawny, Graham's 40-year-old tawny, and Croft's Distinction. But even these more current ports have, in general, very good quality. As a result, their price is on average 30 per cent higher than the average price of current ports shipped to France or Belgium. Nevertheless, a significant part of port distributed in the UK is under the own label of the purchasers which reduces, to some extent, the shippers' control over the market.

The United States and Italy are other premium markets where British shipping-houses have strong positions. In particular, the former is considered the best market for port in terms of quality. Firstly, for many years all port shipped to the US was bottled in Portugal which left little room for low profile distribution strategies. Secondly, almost
35 per cent of the consumption is of the more expensive special styles, namely vintage. Finally, even the more current port is characterised by its superior quality and high price.

Within this context, the role played by the shippers, regardless of their national origin, has always been crucial. Indeed, they have acted as linking-pins connecting thousands of growers and other actors operating in the Douro valley, with the distribution system which includes hundreds of actors spread throughout dozens of countries. In fact, the shippers have not only organised the transport of the wine from the Douro valley to Vila Nova de Gaia, and stored and aged it in their lodges. They have also promoted it and sold it all over the world. This technical and marketing knowledge along with their financial resources confers on them a central role within the overall port network.

In summary, the pivotal role assumed by the shippers revolves partly around their ability to straddle across and connect the Douro valley net and the trade net. They have to deal with both growers and associations in the Douro valley, and complex networks of distribution channels. In doing so, they have also to cope with the cultural distance that separates them from the Douro communities since life is totally different in the Douro valley and in the Porto area. The former has been one of the most isolated wine regions in Europe with a low standard of living. The latter is an urban centre, the head of an industrialised region. In short, it is the rural and backward district versus the cosmopolitan city.

4.2 SHIPPERS' ASSOCIATIONS

A number of associations, representing different forms of cooperation amongst shippers, are directly connected with port trade. The most important is the Associação de Empresas de Vinho do Porto (Port Wine Shippers' Association), a trade association which includes the great majority of shippers. Its headquarters have recently been moved from the Stock Exchange Building in Porto to Vila Nova de Gaia, side by side with the shippers' lodges. The Association's main objective is the promotion and development of port trade all over the world. It is a very strong representative body, created to uphold the interests of the shippers, with a relevant role in lobbying. It also
performs important publicity and public relations functions on behalf of its membership.

Other organisations with either strong links to shippers or formed as a result of cooperation among shippers are:

*Confraria do Vinho do Porto*
(Port Wine Brotherhood)
This is an organisation created in 1982 whose members, called *confrades*, are managers, owners or people who in one way or another are connected with port. According to its status, its main objective is the diffusion, promotion and consolidation of the worldwide reputation of port wine. Acting as guardian of traditions and rites connected with production and trade of port, the Brotherhood undertakes a number of initiatives such as solemn enthronements of new members and blind vintage tasting.

*British Association*
Created in the nineteenth century, this association is made up of British port shippers, their partners, and individual directors - men only. Its chairman, known as Treasurer, is appointed annually from its membership on a rota basis. Since 1814 the headquarters of this association are located at the Factory House, an imposing granite building made by the English factors. Acting mostly as a British club for those in the port business, the Wednesday lunch at the Factory House is one of the most famous and traditional events in the sector. Every week most members and their guests, who frequently include bankers and lawyers, meet together at lunch time. Talks often concern business problems and opportunities, or political and social events. Because of this, the weekly lunch performs an important function in terms of diffusing information, social norms, beliefs and expectations amongst individual actors involved in the business.

*Gruporto*
This is a consortium made up of the great majority of the shippers as well as some few farmers. It was created in 1991 for joint sourcing of *aguardente*. It has been a tremendous success because of the enormous economies of scale obtained. Later Gruporto became also a buyer of large amounts of port
when excess stocks were accumulated by the farmers and co-ops as a result of some years of overproduction.

In contrast to the associations in the Douro valley, the associations formed by the shippers represent more strategic and formal attempts to defend their members' interests. Their foundations are more secure than those of the associations described in relation to the actors in the Douro valley, and tend to be more permanent in character. Their clear orientation towards the economic issues related to port trade provides a strong contrast to the farmers' associations which are more concerned, in general, with vague and diffuse 'defence of interests' frequently not shared or perceived by all their membership. Moreover, the strength of the associations made up of shippers is apparently much greater than their fragmented and fragile counterparts in the Douro valley net.

5. THE INSTITUTIONAL ARRANGEMENT

The institutional arrangement is mainly centred around the Instituto do Vinho do Porto (Port Wine Institute), an organisation with a strong influence over the evolution of the port business as well as the structure of the overall network. The Port Wine Institute is a government funded and sponsored body created in the early 1930s aiming to harmonise the interests of the actors involved in port production and trade. As a matter of fact, the Institute performs the critical task of conciliating the objectives and interests of farmers, cooperatives, and shippers - which are often conflicting in the short run - within the legislative and regulatory framework established by the Portuguese government.

In this context, the main purposes of the Institute are to regulate the entire production process, to control the quality of port, and to protect its denomination of origin both in Portugal and abroad. To achieve these ends, the Institute performs a number of functions related to the regulation of not only the quality but also the quantities of port produced and traded. One of its most important functions has to do with the definition of benefício - i.e. how much Douro's wine may be turned into port each year. This amount depends on several factors such as the climatic conditions, the
evolution of the market and the level of stocks. Such an administrative definition of the quantity of port to be produced aims to prevent radical oscillations of the market price and to ensure a stable environment for growers, co-ops and shippers. Moreover, these groups of actors participate, albeit in a limited way, in the final decision of the Institute. In fact, the decision is taken after a session in the General Council which is a consultative body of the Institute made up of ten seats. Five are held by the Casa do Douro on behalf the farmers, three are held by the Port Wine Shippers' Association on behalf the shippers, and one is held by the cooperatives that commercialise their wine. The tenth seat is held by Real Companhia Velha because this shipping-house is not a member of the shippers' association. In practice, the administrative definition of the size of each vintage is a form of collective action resulting from the collaboration of a range of organisations aiming to defend their mutual interests.

Another function performed by the Institute has to do with the application and enforcement of the so-called Lei do Terço (One-Third Law). This law establishes that no shipper is allowed to export in the course of one year more than one-third of the stock held at the beginning of that year. Although subject to several criticisms, this law aims to ensure that the wine is properly matured, and that the actors that ship port have a responsible interest in stocking it. In addition, this rule also acts as a barrier to entry. By raising substantially the investment required to start up a business, the law protects, to some extent, the incumbent traders from new entrants.

The administrative definition of each vintage's size and the one-third law were partly designed to ensure a minimum level of quality of all port produced and traded. In addition to this, the Institute also performs a vital quality control activity over each shipment in its modern laboratories. In fact, the Institute alone is authorised to issue the Certificado de Origem (Certificate of Origin). In other words, the Institute has the power to certify the quality and the origin of the wine, without which port is not port. Furthermore, the Institute also issues the Selo de Garantia (Guarantee Seal) for all port bottled in Portugal which reduces the possibilities of further adulteration.

In addition to these functions which influence directly port production and trade, the Institute also performs other activities that are also likely to affect, albeit indirectly, the evolution of the sector. One of these activities is related to the transfer of information throughout the sector. Data about sales provided by the shippers is the basis of periodic studies carried out by the Institute. These studies are then distributed
by most actors within the network as well as other organisations such as government departments, banks and media. Needless to say, the dissemination of this type of information plays an important role in shaping expectations and beliefs of both involved actors and the public at large regarding the port business.

In summary, the Port Wine Institute acts as a regulator of the business system as well as a self-appointed representative body of the interests of a significant number of actors involved in the network. Moreover, it mediates conflict and attempts to conciliate different objectives as well as to promote dialogue, trust and cooperation. In doing so, the Port Wine Institute is a good example of an organisation engaged in promoting and shaping collective strategies.

In 1995 was created the Comissão Interprofissional da Região Demarcada do Douro, an interprofessional body, the head of a structure based on two other collectivities, one representing the farmers, and the other representing the shippers.

6. CONCLUSION

The port wine sector is characterised by a number of important features. Firstly, it is the product of an evolutionary process which has much to do with the dichotomy between stability and change. Indeed, on the one hand, the port wine sector is a sound example of stability. Most if its features are mainly long-term in nature - e.g. the lasting relationships between most farmers and shippers - or result from events which took place dozens or hundreds years ago - e.g. the state intervention. But, on the other hand, despite its stability, the port wine sector is far from being static as it is apparent from the analysis developed in this working paper. It is exactly because changes have always occurred that the sector has survived for so long.

The second characteristic has to do with the existence of a significant number of collective actors such as the Casa do Douro, the Port Wine Shippers' Association and Gruporto. Most of them can be regarded as attempts to influence the shape of the network inasmuch as they have contributed to the creation of rule systems that have guided and regulated business practices, upheld common values, and, in general,
tended to reinforce the strategic position of their members in the network. In other words, these collectivities have concerned themselves with defining, advancing and promoting their members' interests across a broad spectrum of issues as well as attempting to prevent instability and disorder in their dealings with other groups of actors. This means that different types of actors in the network have used different forms of both economic and non-economic relationships in their efforts to rewrite the scripts of interaction, change (or preserve) the rules that have governed business and social practice, and reverse balances of power. In other words, the motives and dynamics underlying the formation and persistence of these coalitions of actors as well as their role are critical to the understanding of change in the port wine sector.
APPENDIX 1
PORT SPECIAL CATEGORIES

**Vintage**
Vintage port is a wine of a single outstanding year, bottled two years after the harvest and matured in bottle thereafter. The length of time a vintage port needs to mature depends on the style of the vintage, but ten years is generally the absolute minimum, and 15 or 20 might be needed. Vintage ports are 'declared' by the shippers in perhaps two or three vintages in ten. The date of the vintage is stated on the label. Vintage port should be decanted before serving.

These ports are produced with grapes of a single year which have been allowed to use an indication of the date of that particular harvest.

**Late Bottled Vintage (LBV)**
LBV is port of a single year, bottled between the fourth and the sixth year after the harvest. Traditionally, the wine is unfiltered and needs six to eight years in bottle before being served. New-style LBVs (which are in the majority) are filtered before bottling, and do not need further maturation in bottle. They can be served without decanting. All LBVs bear the date of the harvest on their label, together with the date of bottling.

**Port with Indication of Age**
It can be ten, 20, 30 or, rarely, 40 years old. These ages, it should be noted, are average ages, and the old wines in the blend gain enormously from being refreshed by the addition of younger wine. These wines have been aged in cask and should not be aged further in bottle. Ten year old port is fresh and fruity; the older ports are progressively nuttier, with less overt fruit.

**Crusted**
Crusted port is known as the 'poor man's vintage'. It is a blend of different years, bottled after two or three years' ageing in cask. It requires a further three or four years' ageing in bottle, and must be decanted before serving to separate the wine from the deposit or 'crust' that it has thrown in bottle.

**Vintage Character**
This is a blend of ports of different years aged in wood before bottling. It is full red in colour with a touch of brown at the edges. Vintage character is smoother and more complex than ruby port but still fruity. Bottled for immediate consumption.

**Light Dry**
It is a white port usually drunk as an aperitif, chilled or with ice. Most is the same alcoholic strength as red port, but some shippers have recently introduced white ports that are lower in alcohol: about 17 per cent instead of 19 to 20 per cent.

**Port with the Date of Harvest**
REFERENCES


