

Transaction costs and *artisanal* food products

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Abstract

Mainstream economic theory has difficulty explaining the reasons why *artisanal*¹ food products continue to exist in highly competitive markets. *Artisanal* products are labor-intensive rather than capital-intensive and therefore cannot benefit from economies of scale. Our research looks at a particular form of *artisanal* production: the production of the same foodstuff by several *artisanal* enterprises using the same designation. Analyzing the strategies of the *artisanal* enterprises, we observe that they improve their chances of success by combining two main elements:

(1) They choose a collective way to define a common marketing strategy and build up a serious competitive advantage based on a high specificity of the product. To achieve this objective, they adopt a common code of practice. They also set up a service of technical and commercial information for the enterprises, organize common promotion of the product, develop common R&D programs, etc. Inter-professional bodies are created in order to manage the various aspects of the collective management. They gather representatives of the enterprises and make strategic decisions for the supply chain.

(2) The governance structures selected by the operators may minimize their transaction costs (Williamson 1975, 1985). We show, however, that collective decisions made within the inter-professional body through a multilateral negotiation process have a direct influence on the bilateral relations between the operators. Private collective institutions set up by the inter-professional body contribute to reducing transaction costs between the enterprises. Although we do not calculate the cost savings linked to the observed governance structure, we highlight the mechanisms, which lead to these cost reductions. The case-study of a traditional cheese produced in the Swiss Alps gives an example of the collective institutions set up to manage the supply chain from the milk producers to the cheese ripeners.

Key Words : Food supply chains, transaction costs, coordination, governance structure, product differentiation.

¹ We use the French adjective “artisanal” which does not exist in English but could be derived from the word “artisan”. The translation of “artisanal” in a dictionary is: (a) relating to crafts, (b) skilled and (c) on a small scale.

Introduction

In a developing trend of globalization where many rationalization efforts and mergers are taking place, relatively small food production structures are able to maintain their activities and sometimes even develop them.

New Institutional Economics theory gives us tools to better understand the reasons why the hybrid form remains the most observed governance structure in the supply chains of *artisanal* food products, as well as to identify the main issues related to the future of these forms. Our aim is not to calculate the transaction costs savings realized by the enterprises thanks to the selected governance structures. Our objective is to characterize the institutional form of the transactions and the collective strategic behavior of the enterprises.

In the first part of this article, we formulate some hypotheses to explain the continued presence of hybrid forms as governance structures for the production of *artisanal* foodstuffs thanks to the theoretical concepts of the New Institutional Economics and previous empirical studies.

In the second part, we present a case-study on the “Gruyère” cheese in Switzerland in order to test our hypotheses. To this end, we discuss the nature and effects of the particular institutional arrangements of the supply chain that help the enterprises face the context of globalization. Finally we discuss the impact of antitrust laws on the contractual agreements of the enterprises.

1. Theoretical background

1.1 *Theoretical roots*

Our objective is to understand why the hybrid form remains the most observed governance structure between small *artisanal* units of production when their main competitors are organized as integrated firms.

The mainstream economic paradigms explain why firms grow. The improvement of competitiveness through economies of scale, the increase in size to face the buyers’ market power, the monopolistic position to deal with the suppliers: all these factors are well known. It is more difficult to understand why and how a set of small production units manages to last in the present context of globalization when their buyers and the companies producing substitute products are rapidly merging into very big firms.

The complexity of this issue leads us to consider it through the New Institutional Economics framework. Commons first highlighted that the fundamental unit of the economic analysis should be the transaction when the purpose is to explain alternative modes of organization (Commons, 1931). Coase (1937) then considered the firm and the market as alternative modes of organization for the transactions. Williamson (1985) has shown that the hierarchies generate additional effects: (1) real-time co-ordination and conflict resolution are improved, (2) incentives are unavoidably weakened and (3) added bureaucratic costs result. Williamson

(1985, p. 42) introduced the notion of “hybrid form”; it “involves a comparative institutional assessment of discrete institutional alternatives – of which classical market contracting is located at one extreme; centralized hierarchical organization is located at the other; and mixed modes of firm and market organization are located in between”.

Closely related to our topic, Ménard (2000) has recently pointed out that in the case of collective trademarks, “...the Neo-classical approach has great difficulty taking these arrangements into consideration as they neither comply with the rules of the competitive market, nor can they be considered as integrated firms. It often tends to consider them as cartels, as attested by several decisions from antitrust authorities. The New Institutional Economics approach, however, identifies the characteristics of a specific arrangement, the hybrid organizational forms. The hybrid forms aim at combining the advantages of a tighter coordination than that of the market, with the advantages of stronger incentive mechanisms than those of the integrated firm ...” (translated from French).

1.2 Particular aspects of our analytical framework

In the agro-food sector, both the agro-food firms and the retailers have been merging rapidly in the last years. This concentration is partly due to the globalization of the markets (Kinsey, 1998; Rastoin, 2000; D’Hauteville, 2000).

In this context, we are interested in *artisanal* food products and in particular products of Protected Designation of Origin (PDO), which have a strong specificity linked to a defined geographical area². In several supply chains of these products³, a large number of small enterprises produce the same foodstuff according to a common code of practice. These enterprises have contractual agreements with the farmers who provide the agricultural raw material. Generally, both the processing enterprises and the farmers are members of a common inter-professional body⁴, within which most of the terms of the contracts are decided.

The disadvantages of these kinds of hybrid forms are easy to identify. First, the small-scale enterprises induce high costs of production. Second, sale conditions deteriorate rapidly when supply exceeds demand because of several small enterprises competing on prices against two or three large retailers. Moreover the situation is particularly difficult when the product has to face the competition of industrial, low-price substitutes produced by large firms who encounter no difficulties in managing production volumes through their hierarchical decision structures.

² These products are protected by a European law: Regulation EEC 2081/92 of 14 July 1992 on the protection of geographical indications and designations of origin for agricultural products and foodstuffs.

³ The English expression “supply chain” stands for the translation of the French word “*filière*”. A *filière* is a system composed by several different enterprises at different production levels in the supply chain. It involves only the production of raw material, the transformation and the elaboration of the product. Distribution activities and final sales to the consumers are not considered as being part of the system.

⁴ This body is a non-profit association and works like a “Product’s Union”.

1.3 *Reasons why the hybrid form lasts in PDO-supply chains*

The kind of governance structures that we observe in several PDO supply chains has existed for a long time and we assume that it is because they present certain advantages. We found several reasons why this kind of organizational form continues to exist despite the difficulties it encounters on the markets.

- **Historical issues**

These products have been produced in a traditional way for 100 years or more. At the beginning, they were not sold in large quantities outside their region of origin. Consumers were inhabitants of the region who were able to assess the quality of each producer. Transactions were simple and the competition between the producers was a good incentive to serve local consumers with the best product at the best price.

Around the beginning of the 20th century, production began to increase thanks to technical improvements. The economic exchanges grew rapidly with the improvement of the transport capacities. The competition from substitute products became stronger in the traditional production area. Producers had to look for consumers outside of the region if they wanted to maintain their production and a channel for the local raw material. A specialization occurred within the enterprises. Some focussed on the last step of the production process (the ripening of the cheese for example) and took over commercialization. A more complex system developed with contractual arrangements between the enterprises for the sale of the intermediary products. This led to the hybrid forms encountered nowadays.

- **Economic context and strategy issues**

At present, the economic context seems to give clear advantages to the hierarchical forms of organization of the transactions, and this for two main reasons. First, the enterprises have to face the market power of the large retailers. With the development of the common market at European level, retailers have merged very fast and the concentration at this step of the supply chain is strong. Second, the competition of substitute products from large multinational companies has been increasing constantly.

Despite this trend in concentration and rationalization, most PDO products remain high-cost products with mainly artisanal production structures. We show in a European research program (Barjolle & Sylvander, 1999) that two of the key success factors for PDO products are (1) being different from the cheaper substitutes and (2) how consumers perceive this difference. The production mode (*artisanal*) and the reputation of the product (traditional and regional) are marketing advantages. These factors permit the acceptance of higher prices by the final consumer on the premium market as well as a good bargaining position in negotiations with the retailers (better margins are obtained by all the operators).

This is a paradox as many PDO supply chains are located in less-favored areas with high cost of production due to poor natural conditions. Production of mass products is not possible at competitive prices. The right strategy consists in strengthening the specificity of the product even if it leads to a cost increase (Barjolle, Chappuis, 2000a). It is a typical differentiation strategy⁵, well described by several authors on management (Porter, 1985; Kotler, 1994). These strategic choices certainly explain why a high number of small enterprises continue to exist in difficult production areas but it is not a sufficient factor to explain how they meet the

⁵ As in other sectors, differentiation strategies in food products started to appear in the European Union in the 1970's in parallel to the saturation of agricultural markets. The food market was segmented in various sub-markets. The demand for specific products has increased quickly on environmental, health, quality or origin issues (especially for wine, cheese and poultry).

high competition on final markets (retailers). Political or organizational aspects also play an important role.

- **Political and juridical issues**

In most developed countries, agricultural laws support the production of agricultural products and the market of agricultural foodstuffs. It is therefore very difficult to determine if the political and juridical contexts have an influence on the governance structures. Generally, it should not be a key dimension of our analysis, as we usually compare different alternatives within the same political and juridical framework. However, this point has to be analyzed case by case in relation to certain particularities of the product or to a particular country or region.

The European law on the protection of the geographical designation of traditional products⁶(PDOs) has an influence on our topic. It is clearly an instrument comparable to the trademark registration and was adopted because the protection of geographical names is not covered by the section on geographical indications in the European trademark law (Dutoit, 1993; Audier, 1993). The protection is given to geographical names of certain products under strict conditions. First of all, the enterprises producing the good have to be organized in a representative association (a single firm cannot reserve the designation for its own purpose). Second, proof has to be given that the specificity of the product is due to the location (both natural and human factors must be considered). Third, the product specifications must be detailed in a code of practice and highlight the link between the specificity of the product and its region. Fourth, the geographical area of production has to be clearly delimited.

Politically, this law was promoted by the countries of the southern part of the European Union, where such laws existed at national level before 1992, in some cases for over 50 years. Northern countries of the European Union were more skeptical because of free-trade issues (to protect geographical names was considered as protectionism) but also because of the larger production structures of the agro-food firms (Barjolle & Sylvander, 2000).

- **Organizational issues**

The common strategy to position a product on the premium market leads to a collective regulation of quality and supply, which has direct implications on the organization of the transactions. We must try to explain the existence of the observed hybrid forms using the key dimensions of frequency of the transactions, uncertainty and asset specificity, as we do for the other governance structures (Williamson, 1985).

The main characteristics of the transactions along the production process (in the sense of Moati & Mouhoud, 1997⁷) of a foodstuff such as cheese are as follows:

- Frequent transactions due to the perishable nature of intermediary and final products (short usage and shelf life).
- High uncertainty due to the asymmetry of information related to the quality, in particular the hygienic characteristics of the product (health aspects). (Uncertainty is defined as a factor of risk, which is not measurable in terms of probability due to its radical nature (Simon, 1951)).

Both frequency and uncertainty seem to plead in favor of a hierarchical form of governance structure. However, it is very difficult to integrate milk production with cheese production because of the difficulties for farmers to obtain sufficient economies of scales at the

⁶ Regulation EC 2081/92, see footnote 2.

⁷ “This term must be taken in its broader meaning as designating all the transformation operations that are necessary to obtain the final product (roughly from the raw material to the final product) as well as the associated support activities (R&D, commercial and financial functions)”.

agricultural production level (Mazoyer & Roudart, 1997, pp. 422-425). We have also highlighted in a previous study that the dominant market power of retailers could be a sufficient reason for them not to integrate the production level (Barjolle & Chappuis, 2000b), even though some retailers have developed this type of strategy.

At the intermediary levels of production, small enterprises remain independent and do not merge in a hierarchy. That is probably explained by a very low asset specificity, in particular that of the **physical assets**. The enterprises are small: their physical assets are not very expensive and can be amortized in a short period.

The specificity of the human assets directly linked to each transaction is not very high. On the other hand, as already mentioned by several researchers, the local social network, as a frame of competencies, plays an important role. The importance of the human competencies was underlined by Williamson (1979): “Idiosyncratic investments in human capital are in many ways more interesting and less obvious than are those in physical capital (...)”. The evolutionists Nelson & Winter (1982) as well as Dosi, Teece and Winter (1990) pointed out the role of competencies in the evolutionary process of the firm’s organizational changes. Following this approach, Moati and Mouhoud (1992, 1994, 1997) explained how the **cognitive division of labor** more and more determines the location of industrial activities, especially the R&D department of multinational companies. The dimension of **core competencies** appears as a crucial dimension of the firm management (Prahalad & Hamel, 1990). Several authors go further in explaining that a **common frame of competencies among a group of firms** also plays an important role in the economic success of these firms. This has been well described in the industrial districts theory (Beccatini, 1990).

The way to build up contractual arrangements (hybrid forms) in the case of *artisanal* agro-food products produced in a delimited area has already been analyzed. Several researchers have described the qualification of common products as a specific process, characterized by a territorial dynamic and a social framework for common market strategies.

Pecqueur (1997) gives an interesting review of research made on this topic. The social dimension of the elaboration of product specifications is a fundamental element. The agreement between different agents on the minimal requirements to obtain a quality product is a long and complicated process, where the territory is considered as a **cognitive frame**. In the particular case of PDO products, Letablier & Delfosse (1994) have already analyzed “the located and self-organized process between the producers and other agents in order to constitute and to defend a common good”. Eymard-Duvernay (1994) has shown that for this type of “common goods”, there is no central agent able to build up rules for the supply chain and to implement them. Many operators are concerned by the protected designation. Defining the product quality is a negotiation process between the various agents.

Linked to the self-interest and to the opportunistic behavior of the agents (Williamson, 1975, 1981), the degree of uncertainty is lower in a social network of mutual trust (Brousseau, Geoffroy & Weinstein, 1997). In such a framework, the expression of self-interest is compatible with other behaviors of the agents, such as the co-ordination between different enterprises. These behaviors can be considered as sub-goals (Simon, 1979). The behavior of an agent cannot be interpreted only by the motivation of profit maximization (final goal) but also by common sub-goals. A crucial point in the construction of the relationship between the agents is precisely the construction of common, or at least strongly interdependent, sub-goals.

To conclude on the organizational form of the transactions, we can consider that the hybrid form leads to consistent transaction cost savings while no decisive argument exist for the

enterprises to merge in a hierarchy. The factors in favor of integration are the high frequency of the transactions and the uncertainty. Collective agreements on quality between the enterprises are made in order to avoid asymmetric information problems between the operators and thus, to reduce the uncertainty. Frequency alone cannot be the sole determining factor. The specificity of the assets is not very high, especially the physical ones.

This conjunction of factors pleads in favor of the hybrid form. It is a necessary condition, but not a sufficient one. The determining factor is the transaction cost savings resulting from the collective agreements on product quality. A stronger human asset specificity emerges in the negotiation process. It can be seen as the result of the social construction of quality requirements for the “common good”. This framework of mutual trust contributes to the implementation and respect of the quality agreement by the enterprises.

1.4 Hypotheses to discuss in the empirical research

In the second part of the paper we would like to verify the following hypotheses on the basis of our empirical case study:

1. For historical reasons, *artisanal* foodstuff supply chains are constituted by a high number of small enterprises.
2. The economic context and especially that of globalization of foodstuff markets led to a change in the governance structure of food supply chains, from an hybrid form to a hierarchical form, but not in the supply chains of *artisanal* foodstuffs where the hybrid form remains the most observed governance structure.
3. The political and juridical contexts give *a priori* no advantages to a particular form of governance.
4. The organizational analysis of the transactions in *artisanal* foodstuff supply chains gives an advantage to the hybrid form despite the high frequency of transactions and a strong uncertainty on quality. First because the incentive to have a hierarchy is not sufficient due to weak physical asset specificity and second because the reduction of uncertainty through the social construction of the quality specifications of the product leads to a climate of trust among the enterprises.

2. The collective management of an *artisanal* food product: the case of “Gruyère” cheese in Switzerland

Our empirical research is related to a specific PDO-product⁸: The “Gruyère” cheese in Switzerland.

Our analysis is based on statistical data-collection, desk-research and on face-to-face interviews with more than 15% of Gruyère’s cheese-makers, half of the Gruyère’s ripeners and 20 milk producers. We also interviewed over 20 representatives of institutions associated with the political and administrative network of the “Gruyère” supply chain. Our interview

⁸ The product is defined collectively in a code of practice and the area of production is clearly delimited. All the enterprises must be located in the delimited area and respect the product specifications if they intend to use the designation.

guidelines were semi-structured and followed an analysis by sector (Barjolle, Sylvander, 1997). The strategic views of the managers were especially taken into account, according to their role in the evolution of the sector (Moati, 1999). We have also analyzed the economic results of the enterprises (Ramuz, 1997).

In part 2.1 we will identify the reasons whereby the hybrid form and small structures of production remain dominant in the supply chain of “Gruyère” cheese. In part 2.2, we will examine how the enterprises are organized in order to reduce production and transaction cost and to face the competition on the markets.

2.1 Results and discussion of the hypotheses

Historical background

In 1999, the production of “Gruyère” cheese was 26'000 tons. About one third of the volume is exported and “Gruyère” is the most consumed cheese in Switzerland. The supply chain counts 3200 milk producers, 226 cheese dairies, 58 alpine cheese producers and 15 trading houses (or ripeners) who mature the cheese for 5 to 12 months before selling it.

To explain why so many enterprises are involved in the production process, we have to consider the historical development of the supply chain. “Gruyère” cheese has been produced in Switzerland for centuries, mainly in the French-speaking part of the country, around the little town of Gruyère. In the summer time, farmers moved their cow herds from the plain to the alpine pastures where they would stay from Mai to October under the supervision of a cheese maker. The road network was very poor and it was impossible to carry the milk every day to the villages. The only way to valorize milk was to produce cheese. Due to the concentration of several herds on the same alpine pasture, the quantities of milk were important; the cheese maker produced a large round cheese. As the forests grew up to 1800 meters, the cheese maker had access to sufficient amounts of wood to cook the milk to a temperature of 55°C. The result was a pressed cooked cheese of 30 to 40 kilos. The trade of “Gruyère” expanded during the 18th century, when some families were relatively rich and had too much cheese for their own consumption. They had to look for sales outlets outside the production area and find buyers who would take their surplus. The cheese was famous in Lyon, France, a long way from its mountains of origin.

Nowadays, “Gruyère” cheese is still partly made in the alpine chalets in the summer but the production has also spread to the plains where the cheese is produced all year. The process has remained traditional⁹: the cheese dairies are small and the making is *artisanal*.

This confirms our first hypothesis under which PDO supply chains are made up of a high number of small firms mainly for historical reasons. This fact is verified as well in several other case studies (Barjolle, Bussy, Mesplou, 1994), (Ricard, 1994), (Sylvander & al, 1997).

The traditional production process, codified nowadays in a code of practice, prevents a strong and rapid evolution of the production structures.

Political and juridical framework

History alone does not explain the current structure of the “Gruyère” supply chain. In Switzerland, agricultural policy plays a central role in the agricultural and food sector. It has contributed to the maintenance of so many small farms and cheese dairies. In effect, between

⁹ Pasteurization and other standardization techniques are forbidden in order to keep the specific characteristics of the raw material and of the final product.

the beginning of the 1950s and the beginning of the 1990s, the Swiss agricultural policy was very protectionist: guaranteed prices and marketing support for some products, protection against foreign trade, high customs duties, subsidies for cheese exports all prevented a strong evolution of the structures¹⁰.

In 1992, a number of policy reforms were introduced resulting in a fundamental reorientation of the Swiss agriculture from a narrow focus on food self-sufficiency to a much wider multipurpose function. Today, the new orientation ensures that Swiss agriculture produces adequate food supply, as well as protects sustainable natural resources, maintains landscapes, contributes to the economic, social and cultural life of rural areas and improves the competitiveness of the entire agro-food sector.

Under the new system, the government intervenes on the butter and milk powder markets only when the milk price falls 10% below the target price. Moreover, milk producers whose milk is processed into cheese receive a subsidy per kilo. This helps support the income of the milk producers while at the same time making the raw material cheaper for cheese makers.

As a second hypothesis, we have set that the political and juridical contexts give *a priori* no advantages to a particular form of governance. This is partly false in the case of “Gruyère” cheese. In effect, the complete public regulation of the cheese market until recently had imposed a public structure of governance on the transactions (bureaucracy). This strongly limited uncertainty and the risk of opportunistic behavior by the agents. After the liberalization of the cheese sector, state intervention has become very low and no longer imposes a governance structure on the transactions. The incentives to choose a specific form of governance are no longer given by the State but by the forces of internal and external competition (in and out a PDO-supply chain). Moreover, there are no more subsidies related directly to the sales of cheese: the structures of the cheese factories and of the ripening companies are now in a free-trade context that leads them to evolve, grow or merge as in other sectors of the economy.

Economic context and strategy issues

The effects of the liberalization in the milk and cheese sectors are twofold. First, milk-processing enterprises are merging rapidly (one firm is now buying more than half of the total milk quantity produced in Switzerland). Second, almost all the supply chains producing artisanal cheeses are organizing themselves in inter-professional bodies with the view to manage the quality of cheese and, to the extent possible, set the volumes of production.

In June 1997, the inter-profession of “Gruyère” cheese was formally founded. It is an association gathering milk producers, cheese makers and cheese ripeners of the “Gruyère” supply chain. The inter-profession of “Gruyère” cheese is a not-for-profit organization, managed according to democratic principles¹¹.

¹⁰ A complete ban on imports of milk and fresh dairy products and a strict control on cheese imports maintained a State control on milk and dairy products. A State-associated organization (Swiss Union of Cheese Trade) managed, on behalf of the Confederation, the marketing of the main Swiss cheeses (Emmental, Gruyère and Sbrinz). Another institution, the Central Union of Milk Producers, was mandated by public law to periodically establish a program for the production of commercial milk. It fixed the quantities to be sold as fresh milk, used for fresh dairy products and processed into cheese. Prices at each level of the supply chain were set by law. The State guaranteed dairy prices and profit margins: public subsidies compensated the difference between the market price (Swiss and export) and the fixed price paid to the enterprises.

¹¹ The committee is composed of four representatives of the milk producers, four representatives of the cheese makers, four representatives of the ripeners and of a president.

Regarding *quality management*, the inter-profession supervises the controls of both the enterprises and the products according to the product specifications. The grading and tasting of the cheese allows rating of the production in several classes of quality. The inter-profession rewards or penalizes the cheese makers according to the quality of their production. The work of the inter-profession related to quality (conformity to the code of practice) is audited regularly by an accredited independent certification body¹².

Regarding *supply management*, the inter-profession has fixed production quotas to the cheese dairies in order to avoid a strong increase in production. Difficulties encountered in other cheese productions could also lead other cheese makers in the delimited area to switch to “Gruyère”. The inter-profession wants to keep the positioning of the cheese on the high-quality segment.

Our hypothesis is that the economic context, in particular the globalization of the foodstuff markets has led to a change in the governance structure of transactions in the product processing steps, from a hybrid form to a hierarchical form. In the milk and cheese sector in general, the processing enterprises have been merging rapidly in the last three years of increasing liberalization.

But in the case of “Gruyère” cheese, this trend was not followed by the enterprises. Almost all of them became members of the inter-profession. This strategic choice fits well with their specific situation. The current context is characterized by a high competition on prices in the market segment of low and middle-quality products. To retain the willingness to pay of the consumers, the common interest of the “Gruyère” enterprises is to maintain an image of traditional and *artisanal* hand-made cheese. The easiest way to achieve this competitive advantage is to maintain small *artisanal* production units. In order to guarantee a constant and high quality product, they have adopted common product specifications and accepted strict quality controls.

It is not certain that this form of organization will remain effective in the future. Indeed, the management of the total volume of production and the price policy are very difficult to regulate within an inter-professional body. We will discuss these issues in part 2.2.

We conclude that the incentive to integrate all activities (cheese making and ripening) in a few large firms seems to be low at present. This conclusion is also true for other already studied products and supply chains (see references above). We will better understand why in examining if their organizational forms help save on transaction costs.

Organizational Forms

We choose to present the observed governance structures in an analytical way. We will point out the reasons of their existence at each level of the supply chain.

- ***Transactions between milk producers and cheese makers***

Multilateral contracts (hybrid forms) characterize the transactions between the milk producers and the cheese makers. For this transaction, integration is not observed, mainly because the optimal size of the farm (100'000 to 150'000 kg milk per year) differs from the optimal size of the cheese factory (1 to 1,5 billion kg milk per year).

Bilateral contracts regulate the transactions for the following reasons:

- The daily **frequency** of the transactions and the weak individual negotiation power of the milk producers have led them historically to gather at local level to negotiate the sale of their milk to the cheese maker. The collective organization in one or

¹² National authorities in the respect of the European norm EN 45'011 accredit the certification bodies of products.

several neighboring villages is associated to a larger federation that negotiates certain basic elements of the contracts (standard quality of the milk for example).

- The milk producers cannot easily re-deploy their **physical assets**. Many farms are located in mountainous areas where no alternative to grazing and few alternatives to milk production exist. They need to have a contract signed with the cheese-makers for the daily supply of their milk. On the other hand, the cheese-makers must assure a regular cheese production to cover the fixed costs of their equipment.
- **Uncertainty** is high because the hygienic quality of the milk has a direct effect on the quality of the cheese. To reduce the risk of opportunistic behavior from the milk producers, the cheese-maker often pay the milk according to its protein and fat contents. These conditions are part of the contract and help reduce uncertainty.

Both parties have sufficient incentives to fix conditions on milk quality and price. This explains the existence of the hybrid form between milk producers and cheese-makers. The spot market does not exist because of the uncertainty on milk quality and because of the daily frequency of the transactions.

The representatives of the milk producers and the cheese makers negotiate sample contracts within the inter-profession. They have a direct effect on the transaction costs linked to the exchange of goods between the private operators. The sample contracts save time in discussions, negotiations and arbitration between a milk producer and a cheese maker. For small production units, often a family, to acquire marketing competencies is difficult. The time spent on the marketing would be disproportionate in relation to the human resources of the enterprises.

Furthermore, the enterprises use the contracts negotiated by their representatives for two additional reasons: (1) they avoid the need to prepare a particular contract (the contract type can be adapted according to the circumstances) and (2) they benefit from a guarantee through the external institution that formalized them. Buyers and sellers negotiate around a primary negotiation table and they refer in their transactions to elements already negotiated, around a secondary negotiation table. This secondary negotiation table is within an institution external to their specific transaction (Réviron, 2000).

This is the current situation. We may imagine that in the future, with an increase in size of the milk farms, some farmers will start to produce their own Gruyère, with the specific competencies of the cheese maker integrated in the farm.

Transaction between cheese makers and ripeners

Bilateral contracts (hybrid form) prevail between the cheese makers and the ripeners.

Complete vertical integration does not appear for two main reasons:

- (1) The ripeners do not invest in the cheese production because their size would imply the creation of industrial cheese-factories. They approve the strategic differentiation of the product on the premium market and therefore prefer to maintain the *artisanal* character of the cheese-factory.
- (2) The cheese dairies have no interest in ripening the cheese because they cannot get facilities to sell all their production when it is ready to consume. A small cheese dairy faces important obstacles to develop market channels, in particular because they cannot invest sufficient resources in the marketing activities: the human assets are devoted fully to the cheese-production.

Similar to milk delivery, the uncertainty on quality (for the ripeners) explains why the spot market does not exist between cheese makers and ripeners. An annual contract between the

cheese maker and the ripener and regular deliveries of the product seems to be the best solution.

We can discuss further the reasons why the inter-profession plays a central role in the negotiation of a contract-type and in the arbitration of conflicts from (1) the cheese-maker's and (2) the ripener's points of views.

- (1) The 210 cheese makers have a common interest in a negotiation process within the inter-profession because they appear as one block in front of the ripeners (a small number of buyers) and negotiate in a better position than on the market.
- (2) The executive managers of the ripening companies have two incentives to negotiate under the umbrella of the inter-profession: they save time in the negotiation and in the product quality evaluation. This aspect of quality is central. To avoid an asymmetry of information related to quality, the control through a third party is essential. The costs of the certification are charged to both parties but the possible damages are charged only to the cheese makers.

Transactions between ripeners and wholesalers/retailers

The spot market prevails in the transactions between the ripeners and the retailers. At this stage, the production process can be considered as finished and the sale to the wholesalers or retailers happens on the phone according to need of the buyers. There is no written contract.

The asset specificity is very strong for the ripeners: specificity of the physical assets for the cheese ripening and specificity of the human assets for the quality of the product.

Retailers and wholesalers do not have specific assets linked to the sale of Gruyère¹³. The product is not strategic for their enterprise: it is one product among others in their supply.

For the ripeners, uncertainty is linked to the opportunistic behavior of the buyers who can refuse to keep their commitment to take the product. According to the commercial usage, the ripener takes the poor quality cheese back and the risk is then limited for the buyer.

For this transaction, the main constraint is not the same for both partners. The wholesaler wants to minimize the acquisition cost of the product. The risk on quality is limited by the commercial practice. The assets of the ripeners are specific and the transactions are regular which should lead to a hybrid form. But contracts between the ripeners and the wholesalers/retailers do not exist. The retailer is powerful enough to impose on the ripener the governance structure that he prefers. The ripeners assume all the risks of the ripening and of the sales of the product.

We can conclude that the governance structure that minimizes transaction costs for one of the operators does not minimize them automatically for the other when the interests of the parties are asymmetric from the point of view of asset specificity. The choice of the final structure of governance also depends on market power relations between the agents.

As **concluding remarks to the organizational analysis**, we want to discuss our fourth hypothesis, under which many advantages of the hybrid form explain why it continues to exist in the current context of globalization. We will focus only on the transactions at the two levels of milk producers-cheese makers and cheese makers-ripening centers.

We can confirm that the frequency of the transactions is high, especially for milk delivery. The incentives to have a hierarchy are not sufficient not only because the physical asset specificity is weak but also because the interests of the two parties are in favor of signed

¹³ The vertical integration exists in one case for historical reasons (one retailer also owns a ripening and packing plant but he also buys Gruyère on the spot market). Another retailer has sold recently his ripening plant to concentrate on his core competencies, food distribution, and this is probably the trend for the future in a context of increasing competition in the distribution sector.

contracts. A complete integration of the milk production, cheese making and cheese ripening in a single firm is not possible because of the marketing strategy selected by the operators¹⁴. This collective strategy is the production of a traditional, artisanal and typical cheese positioned on the high quality segment.

We saw in the literature survey that the reduction of uncertainty was possible through a social construction process of the quality of the product, which leads to a confidence climate. This is verified in the case of “Gruyère” cheese. The main point of uncertainty is related to quality. The existence of an impartial, neutral body is central to avoid asymmetry of information in the case of a high number of small enterprises. Their commitment to accept penalties when the quality is insufficient is strengthened by a strong cultural identity, which minimizes the risk of opportunistic behaviors.

2.2 Strategic behavior of the inter-profession and its antitrust implications

When “Gruyère” cheese was produced and sold in its region of origin, it was normal from an anti-trust point of view to consider the market for “Gruyère” cheese as the relevant market. The spot market prevailed at this time. The opening of distant market channels and the increase in competition by industrial products led the “Gruyère” producing enterprises to adopt an original institutional way to organize the transactions. The creation of an inter-profession was a good way to adapt to the new competitive environment. Nowadays, the relevant market for “Gruyère” cheese can no longer be considered the “Gruyère” cheese market but the European cheese market as a whole. The enterprises of the supply chain should be considered, from a marketing point of view, as a single firm. The collective agreement on quality made by the “Gruyère” enterprises must be seen as a reaction to a new competitive situation on the relevant market. The collective strategy must also be considered in relation to the alternatives that the enterprises really have. If the individual strategies would prevail, the production of Gruyère cheese would certainly drop because no real alternative exists to the differentiation strategy. It is not possible for the *artisanal* enterprises to be competitive with industrial substitute products because most of them are located in difficult production areas and face high production costs due to local natural conditions. The collective agreement on quality is an obligation if the enterprises want to survive in their new environment.

To face the increasing competition of industrial products produced by very large firms (some of them manage to produce yearly more cheese than the whole “Gruyère” production), small *artisanal* enterprises have an interest in developing these kinds of agreements. The cooperation among enterprises can yield various results and we have listed below the strategic and collective issues faced by the operators in the definition, the production and the commercialization of the product.

- ***The management of the product quality: specifications and controls***

The definition of the PDO product is the basic agreement between all the actors of the supply chain of the given product¹⁵. The product specification will have a strong influence not only on the quality of the product but also on its image.

¹⁴ Large industrial plants are able to produce 26'000 tons of cheese every year but such a rationalization is linked to a strong standardization of the process: the milk must be cooled to be transported on a long distance. It must be homogenized and pasteurized in the beginning of the process otherwise the raw material is different every day and cannot be used in an automated chain of production.

¹⁵ According to Regulation EEC 2081/92 only a group is entitled to apply for a PDO. A group means “any association, irrespective of its legal form or composition, of producers and/or processors working with the same

The strict control of the common rules establishes a mutual trust framework for the enterprises. It helps the smallest enterprises to sell their products to large retailers because the latter trust the control system as a whole. The product certification by an independent third body reduces the transaction costs related to asymmetric information and to uncertainty on quality (Foray, 1995). In limiting the quantity of information needed to evaluate the characteristics of the product, the definition of the product specifications has positive effects on the reduction of the transaction costs (Ravix, 1997).

- ***Contractual agreement and resolution of bilateral conflicts***

Sample contracts can be discussed and formalized within the inter-profession by the representatives of the enterprises and can be used later by the operators in their private negotiations. Conflicts between two or more enterprises can be solved within the private structure of the inter-profession (arbitration). The objective is to avoid trials in civil courts and to save time and money for the operators. Both the formalization of sample contracts and the internal resolution of conflicts can lead to important savings on transaction costs.

- ***Research and development***

Quality improvement and cost savings at a technical level are favored by common research actions. The relatively small financial contributions of each firm, put together, allow the producers to have access to interesting results. Some inter-professional bodies have been able to set up services that compile and synthesize the information related to the technical process of the product¹⁶. They may also have extension services that give advice to the farmers and to the cheese makers, obviously improving the competitive position of the enterprises from a technical point of view.

- ***Promotion of the product***

Fees collected by the inter-professional body from all the member enterprises, allow important means to be invested in common promotion, including national television campaigns.

- ***Political lobbying***

The inter-professional bodies of supply chains, which present themselves to the political authorities, as the carrier of a project of general public interest should get access to political support¹⁷.

- ***Management of production volumes***

This issue is much debated because it often conflicts with antitrust policies. These policies forbid agreements on volumes and prices between independent enterprises within the frame of a common relevant market. Several studies have highlighted the difficulty for PDO supply chains to exercise a minimum of control on production volumes (Esposito, 1997; Raynaud & Valceschini, 1997). The objective of volume management is not to limit supply in order to get a higher price, which is seldom possible because of the strong inter-brand competition on the relevant market, but to stabilize the market thus avoiding large fluctuations of supply and to guarantee the positioning of the product on the high quality segment. Strong variations in supply generally lead to price crises that penalize all the enterprises. Moreover serious drops in prices puts pressure on some enterprises to exploit, for short term gain, the reputation of the

agricultural product or foodstuff" (art. 5). To apply for a PDO the group must first agree on the product specification and on the production area.

¹⁶ Other information could be given on prices, market opportunities, consumption trends, etc.

¹⁷ This is particularly true in the regions where unemployment is a major problem.

product by producing below the quality normally expected by consumers (Shapiro, 1982 and 1983; Klein and Leffler, 1981).

The strategic management of production volumes: a key issue for artisanal food products and for inter-professions as organizations

Several authors have repeatedly highlighted the difficulties encountered by the hybrid forms in the economic assessment by antitrust authorities (Coase, 1972; Williamson, 1975, 1985, 1996; Joskow, 1991; Ménard, 1996, 1998). The “nonstandard” alternatives to the spot market and to the integrated firm remain suspect to many economists. Several inter-professions of PDO products were condemned in France and in Italy in the 1990s for anti-competitive practices. The regulation of production volumes was at the center of the dispute. The inter-professions had all set up a system to regulate the marketed quantities and implemented it by fixing production quotas for the enterprises of the supply chain. These quotas were adapted regularly to the demand and to sales expectations.

It seems much easier for an integrated firm to control the volumes at its various production units than for the independent enterprises of a PDO supply chain to be allowed to do so. However, both the integrated firm and the PDO processing enterprises face the same problems of marketing which is primarily to define their product and to position it on the targeted market. The firm relies on the single decision of the management, whereas the inter-profession relies on a collective decision. The quality-price ratio of the product appears as a fundamental element of the strategy. But if the antitrust authorities do not challenge the quality-price positioning of the integrated firm they seem to have much more difficulty accepting the same practices from independent enterprises producing the same good. A regulation of the production is the only way for PDO supply chains to maintain the position of their product on the premium market. A strong overproduction would certainly lead to a price crisis. The enterprises would quickly reconsider their strategy and, constrained by the situation, would engage in a price competition that clearly conflicts with the former differentiation strategy. To save on costs, the enterprises would start to modify the production process and to produce a quality below the level defined in the product specification of the PDO product. Confidence would be quickly lost within the supply chain as well as with the consumers due to irregular and lower quality.

The inter-profession is not an authoritative decision power that has control on all the production units of the supply chain, it is a democratic association and the system relies essentially on the cooperation of the enterprises. Suspicion among them would cause the end of the system.

In the case of PDO products, the organizational alternative to the hybrid form is vertical integration: spot market cannot be considered as an alternative because of the perishable aspect of the products and the strong uncertainty on quality. It would be somehow paradoxical that, by challenging the control of marketed quantities in PDO supply chains, antitrust authorities could in fact force the actors to abandon the hybrid form for the integrated mode of organization, thus reducing the number of enterprises competing on a given market¹⁸.

The future of *artisanal* products is linked to the organizational mode selected by the enterprises. If the inter-professions encounter too many difficulties in managing the supply of the product, because of the present interpretation of antitrust laws, the persistency of *artisanal*

¹⁸ Although producing the same foodstuff and using the same designation, the enterprises are in competition to gain market shares. They differentiate their private brands on a higher quality than the standard, price and services.

production would be at serious risk. A disappearing of the inter-professions would certainly result in a drastic reduction in the number of enterprises, to a concentration of the production in larger units and to a change in quality. The code of practice would be re-negotiated by the remaining enterprises in order to process a more standardized and industrialized product.

Conclusion

We have highlighted in this article the particular form of organization of *artisanal* food product supply chains. In the present context of globalization and standardization, the food processing enterprises must face the increasing market power of the retailers and the competition of large multinational companies. This leads to a concentration of the enterprises and to a merging of the various processing activities in a hierarchy.

The enterprises in the *artisanal* food product supply chains have no alternative as they are often located in regions with poor natural and geographical conditions for production. They must cover their high production costs with high prices on the markets. This is only possible through a differentiation strategy driven at a collective level. This permits a maintenance of the *artisanal* and traditional character of the product and to position it on the premium market. The hybrid form fits the differentiation strategy of the agents. It permits a reduction of uncertainty on quality thanks to written contracts thereby maintaining small *artisanal* production units. The constitution of a particular institution (the inter-profession) organized in a democratic way permits to make the strategic decisions for the product and to save on transaction costs.

In effect, the collective agreements on quality, sample contracts and supply management have direct impacts on the transaction costs of the enterprises. They allow a large number of small enterprises to last in the present context of increased competition. If the enterprises alone are not competitive, it appears that the system as a whole is. In effect, the collective arrangements negotiated among the representatives of the enterprises from all the levels of the supply chain contribute to the reduction of the global or aggregated transaction cost of the whole supply chain. The success of *artisanal* food products relies then on two fundamental elements: (1) a differentiation strategy to position the product on the premium market in order to get a price high enough to cover the production costs and (2) savings on transaction costs thanks to collective agreements.

The organization in inter-profession encounters however difficulties with antitrust authorities who often see in the multilateral contractual arrangements a way for the enterprises to collude. This type of organization may then disappear if it faces repeated problems with antitrust authorities in the management of the marketed quantities. The alternative for the artisanal enterprises would be then to merge into larger firms. The transport and processing of bigger milk quantities would lead to a standardization of the production and the *artisanal* character of the product would probably be lost. The competition on the standardized foodstuff market would lead to lower prices and the production costs in the less-favored regions of the delimited area would not be covered any more, causing the closing down of many small enterprises.

We are convinced that New Institutional Economics theory will play a major role in discussing these issues in the future and we hope that it will lead to a better acceptance of this mode of organization. The maintaining of a large number of small *artisanal* enterprises in less-favored or remote areas has wider implications on rural development and settlement. Though we did not discuss these implications in this article they should nevertheless be

considered when European countries, as part of their regional development policies, grant important amounts of money to maintain an economic activity in these regions.

Bibliography

Audier J., 1993, "The Legal Nature of Appellation of Origin", *Bulletin de l'Office International du Vin*, no 743-744, pp. 21-37.

Barjolle D., Bussy C., Mesplou P., 1994, *Gestion et promotion des signes de reconnaissance dans l'Union européenne: France, Italie, Espagne*, Institut d'économie rurale de l'Ecole polytechnique fédérale de Zurich.

Barjolle D., Mesplou P., 1997, "Coordination au sein des filières AOC", *Revue Suisse d'Agriculture*, n°29 (1): pp. 13-16.

Barjolle D., Sylvander B., 1997, "Guidelines for the Analysis of PDO Supply Chains", European Project FAIR CT 95-306, *PDO-PGI Products : Market, Supply Chain and Institutions*.

Barjolle D., Sylvander B., 1999, *Some Factors of Success for Origin Labelled Products in Agri-Food Supply Chains in Europe: Market, Internal Resources and Institutions*, paper presented at the 67th EAAE Seminar: "The socio-economics of origin labelled products in agrifood supply chains: spatial, institutional and coordination aspects", Le Mans (France), 28-30 October 1999.

Barjolle D., Sylvander B., 2000, "Final Recommendations regarding the PDO-PGI Policy in the EU", European Project FAIR CT 95-306, *PDO-PGI Products : Market, Supply Chain and Institutions*.

Barjolle D., Chappuis J.-M., 2000a, *L'Etivaz (Appellation d'Origine Contrôlée): Atouts et contraintes pour l'exploitation agricole en montagne*, paper presented at the FAO Seminar: Quality and Valorization of Animal Products in Mountain, Luz-St-Sauveur, Pyrenees, France, 13-17 September 2000.

Barjolle D., Chappuis J.-M., 2000b, "Coordination des acteurs dans deux filières AOC: une approche par la théorie des coûts de transaction", à paraître dans *Economie Rurale*, numéro spécial, été 2000.

Beccatini G., 1990, "The Marshallian Industrial District as a Socio-economic Notion", in: Pyke F., Becattini G., Sengenberger W.: *Industrial Districts and Inter-firm Cooperation in Italy*, Genève: Bureau International du Travail, pp. 37-51.

Brousseau E., Geoffron P., Weinstein O., 1997, "Confiance, connaissances et relations inter-firmes", in: Guilhon B., Huard P., Orillard M., Zimmermann J.-B., *Economie de la connaissance et des organisations; entreprises, territoires, réseaux*, L'Harmattan, Paris, pp. 402-431.

Coase R. H., 1937, "The Nature of the Firm", *Economica N. S.*, 4, November, pp. 386-405. Traduction française : « La nature de la firme », *Revue française d'économie*, II, hiver 1987.

Coase R. H., 1972, "Industrial Organization: A proposal for research", in: Fuchs V. R. ed., *Policy Issues and Research Opportunities in Industrial Organization*, New York: National Bureau of Economic Research, pp. 59-73.

Commons J. R., 1931, Institutional Economics, 21, *American Economic Review*, 648, December.

D'Hauteville F., 2000, "La grande distribution alimentaire: la recherche est-elle en phase avec l'histoire?" *Economie rurale*, no 255-256, janvier-avril 2000, pp. 72-85.

Dosi G., Teece D. J., Winter S.G., 1990, "Les frontières de l'entreprise : vers une théorie de la cohérence de la grande entreprise", *Revue d'Economie industrielle*, no 51, 1^{er} trimestre 1990.

Dutoit B., 1993, "Le nouveau droit suisse des indications de provenance et des appellations d'origine: ombres et lumières", *Zeitschrift für schweizerisches Recht*, NF 112, 1. Halbband, S. 271 ff.

Esposito F., 1997, *Antitrust Commission vs. Consorzi di Tutela: an Economic Evaluation*, paper presented at the 52nd EAAE Seminar: Typical and Traditional Products: Rural Effect and Agro-industrial Problems, Parma (Italy), June 19-21, 1997.

Eymard-Duvernay F., 1994, "La qualification des produits", in: Salais R., Thevenot L. édés., *Le travail, marché, règles, conventions*, Paris, INSEE-Economica, pp. 239-247.

Foray D., 1995, "Standard de référence, coûts de transaction et économie de la qualité: un cadre d'analyse", in: Nicolas F., Valceschini E. (eds), *Agro-alimentaire: une économie de la qualité*, Economica, Paris, pp. 139-154.

Joskow P., 1991, "The Role of Transaction Cost Economics in Antitrust and Public Utility Regulatory Policies", *Journal of Law, Economics and Organization*, 1991, Volume 7, Special issue.

Kinsey J.-D., 1998, "Une revue de la littérature académique anglo-saxonne sur la grande distribution alimentaire", *Economie rurale*, no 245-246, Mai-août 1998, pp. 93-101.

Klein B., Leffler K., 1981, "The Role of Market Forces in Assuring Contractual Performance", *Journal of Political Economy*, 89, pp. 615-641.

Kotler P., 1994, *Marketing Management*, New York: Prentice-Hall Inc.

Letablier M., Delfosse C., 1994, "Qualité des produits et qualification des territoires", *La lettre du Centre d'Etudes de l'Emploi*, no 32, avril.

Mazoyer M., Roudard L., 1997, *Histoire des agricultures du monde*, Seuil, Paris.

Ménard, C., 1996, "On Clusters, Hybrids and Other Strange Forms", *Journal of Institutional and Theoretical Economics*, 1996, 152 (1), pp. 154-183.

Ménard C., 1998, "The Maladaptation of Regulation to Hybrid Organizational Forms", *International Review of Law and Economics*, 1998, 18 (4), pp. 403-417.

Ménard C., 2000, "Une nouvelle approche de l'agro-alimentaire: l'économie néo-institutionnelle", *Economie rurale*, 255-256, janvier-avril 2000, pp. 187-196.

Moati P., Mouhoud E., 1992, *Les transports et les télécommunications dans l'arbitrage entre modes d'organisation de la production*, Rapport CREDOC pour le Prédit, Paris.

Moati P., Mouhoud E., 1994, "Information et organisation de la production. Vers une division cognitive du travail", *Economie Appliquée*, tome XLVI, no 1, pp. 47-73.

Moati P., Mouhoud E., 1997, "Compétences, localisation et spécialisations internationales", in: Guilhon B., Huard P., Orillard M., Zimmermann J.-B., *Economie de la connaissance et des organisations; entreprises, territoires, réseaux*, L'Harmattan, Paris, pp. 262-285.

Moati P., 1999, "Méthodologie d'analyse de secteur", in: Basle M., Delorme R., Lemoigne J.-L., Paulré B., *Approches évolutionnistes de la firme et de l'industrie, Théories et analyses empiriques*, L'Harmattan, Paris, pp. 279-302.

Nelson R., Winter S. G., 1982, *An Evolutionary Theory of Economic Change*, Cambridge, Mass.: Harvard University Press.

Pecqueur B., 1997, "Processus cognitifs et construction des territoires économiques", in: Guilhon B., Huard P., Orillard M., Zimmermann J.-B., *Economie de la connaissance et des organisations; entreprises, territoires, réseaux*, L'Harmattan, Paris, pp. 154-176.

Porter M., 1985, *Competitive advantage*, New York : The Free Press.

Prahalad C., Hammel G., 1990, The Core Competencies of the Corporation, *Harvard Business Review*, May-June, pp. 29-44.

Ramuz G., 1997, *Elaboration d'un système de fixation des marges pour la production du Gruyère*, Travail de diplôme, Institut d'économie rurale, Ecole polytechnique fédérale de Zurich.

Rastoin J.-L., 2000, "Une brève histoire économique de l'industrie alimentaire", *Economie rurale*, no 255-256, janvier-avril 2000, pp. 61-71.

Ravix J. T., 1997, "Connaissance, organisation et coordination industrielle: Application à la certification d'entreprise", in: Guilhon B., Huard P., Orillard M., Zimmermann J.-B., *Economie de la connaissance et des organisations; entreprises, territoires, réseaux*, L'Harmattan, Paris, pp. 434-454.

Raynaud E., Valceschini E., 1997, *Competition regulation against quality policy: the "Label Rouge" in the French poultry industry*, paper presented at the 52nd EAAE Seminar, Typical and Traditional Products: Rural Effect and Agro-industrial Problems, Parma (Italy), June 19-21 1997.

Révillon S., 2000, *La diversité des systèmes de marché*, Thèse de Doctorat, Institut National Agronomique de Paris-Grignon, Paris.

Ricard D., 1994, *Les montagnes fromagères en France*, CERAMAC, Clermont-Ferrand.

Shapiro C., 1982, "Consumer Information, Product Quality and Seller Reputation", *Bell Journal of Economics*, Spring 1982, pp. 20-35.

Shapiro C., 1983, "Premiums for High Quality Products as Returns to Reputation", *The Quarterly Journal of Economics*, 98, pp. 659-680.

Simon H. A., 1951, "A Formal Theory of the Employment Relation", *Econometrica*, 19, July, pp. 293-305.

Simon H. A., 1979, "Rational Decision Making in Business Organizations", *American Economic Review*, 69, no 4.

Sylvander & al., 1997, Projet de recherche européen, European Project FAIR CT 95-306, *PDO-PGI Products : Market, Supply Chain and Institutions*, Rapports intermédiaires.

Williamson, O. E., 1975, *Markets and Hierarchies: Analysis and Antitrust Implications*, New York: The Free Press.

Williamson, O. E., 1979, "Transaction Cost Economics: The Governance of Contractual Relations", *Journal of Law and Economics*, 22 (2), October, 233-66.

Williamson O. E., 1981, "The Economics of Organization : The Transaction Cost Approach", *American Journal of Sociology*, 87, November, pp. 548-577.

Williamson O. E., 1985, *The Economic Institutions of Capitalism*, New York : The Free Press.

Williamson O. E., 1996, *The Mechanisms of Governance*, New York : Oxford University Press.