

CHAPTER 6

RETAILERS' SUPPLY CHAIN, PRODUCT DIFFERENTIATION AND QUALITY STANDARDS

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Abstract. The growth of Private Label brands in the sector of fresh agricultural products is a recent occurrence closely related to the food and food-safety crises of recent years. While the public authorities were creating new control and health-monitoring procedures, tightening regulatory production standards and enhancing regulations related to official marks of quality, some retailers were adopting new segmentation strategies for demand. How have these strategies changed the demand for food? To what extent have they altered retailer–producer relationships and under what conditions would it be beneficial for the involved parties to make a commitment? How do these strategies interact with those of the public authorities?

Keywords: food safety; quality; food-processing chains; brands; retailers

INTRODUCTION

The food-processing industry has been faced for several years with increasingly strong consumer demands in relation to product quality and safety. Recent food safety crises, especially the one of the mad-cow disease, have resulted in a loss of consumer confidence. The most notable manifestation of this phenomenon has been a 25 % drop in the consumption of beef in the European Union at the end of the year 2000. These events clearly demonstrated the weakness of the existing mechanisms designed to guarantee food quality and safety. In addition, the public authorities and private operators were prompted to take action in order to (i) define production processes to reduce health risks as much as possible and (ii) set up a system to control and certify the implementation of these processes by the firms throughout the entire production, transformation and commercialization chains. The action taken by the French public authorities was two-fold:

- Firstly, the creation of public agencies entrusted with the task of monitoring public health (the AFSSA – French Food Safety Agency – was founded in 1999 and a European Food Agency in 2001), and the founding of certification and

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control agencies responsible for ensuring compliance with standards and product quality specifications.

- Secondly, the defining of minimum quality and food safety standards whose application is mandatory for all relevant parties. The best-known example is certainly the ban on bone meal for cattle feed. Many other initiatives were taken, especially in application of EU Directive 89/397, which requires that national law ensure a regular control over production, the standards recognized by all Member states and the annual submission to the European Commission of national legislation regarding the food sector (Fearne 1998).

Concurrently with these events, private initiatives have been taken in order to stem the sharp drop in consumption. The brand image of major retail firms suffered greatly as a result of the mad-cow crisis, and retailers have sought to respond to consumer expectations, not only in terms of product safety but also sensory and environmental quality¹. In the United Kingdom a number of different approaches have been adopted by the country's largest retailers; for example, a 'Traditional Beef' approach developed by Sainsbury or 'Select Beef' developed by Marks & Spencer. In France direct agreements have been concluded between retailers and producers under the banner of collective bodies whose purpose is to concentrate demand and guarantee the application of specific product quality specifications. This has been the case with Carrefour, which in recent years has concluded supply contracts with producer organizations under the name of 'Filière qualité Carrefour' (Carrefour Private Certification Chain Brand). More than 60 fresh food products have been included in these agreements, and ultimately this figure should rise to some 200 products. Likewise, Auchan and its policy of 'Responsible Agriculture' serve as an illustration of this approach. Agreements have been made in 30 food chains in recent years and now 100 products have been included. The declared objective is to have 80 % of the fruit and vegetable supply and 25 % of fresh food products in compliance with this system². Fundamentally, these approaches reflect the desire of the retailers to provide consumers with a guarantee as to the safety and quality of products, in a sector which traditionally has had very little, if any, segmentation, and in which uncertainty about product characteristics on the market has been amplified by recent crises (Sans and De Fontguyon 1999).

An important aspect of these new forms of production and commercialization of food products is that they tend to be based on what shall be referred to as 'chain brands' in this paper. The aim of these chain brands, or private certification labels, is to associate, at least partially, upstream agricultural players with the certification of the products supplied to consumers. Chain-brand products are directly related to the more traditional 'private label' products. However, in the case of private labels, product labelling is solely linked to the retail firm that distributes the product. The aim of this article therefore is to present the new key economic issues related to chain brands.

This article will examine several crucial points relative to this subject: (1) Retailers are implementing these systems to a greater proportion of food supply for consumers wishing to have a higher degree of food quality and safety. What is the benefit of such actions? (2) How has the producer-retailer relationship changed and

what are the necessary conditions for the parties involved to adhere to this system?
 (3) How do these initiatives interact with the measures taken by the public authorities, in particular the raising of Minimum Quality Standards?

In Section 2 we describe the new strategies relative to product supply that have been adopted by the retailers, and the key principles on which they are based. We focus a great part of our attention on a case studied in the beef sector, which was gravely impacted by the recent food safety crises. We show that this relationship is grounded on a more 'cooperative' relationship than in previous food supply-system models, in particular because the retailer accepts to forfeit a part of the flexibility afforded by the use of spot markets. However, in exchange, retailers are able to communicate to consumers about the production conditions of the products sold in their retail outlets. In Section 3 we analyse the contractual risks related to these new strategies and the proposed solutions put forward by the producers and retailers. In Section 4 we examine the underlying foundation of the commitment in this type of contractual relationship from the standpoint of both the retailers and suppliers. This point will especially be discussed in relation to the creation and sharing of value. Finally, in Section 5 we examine the usefulness of these private initiatives designed to strengthen the Minimum Quality Standards defined by the public authorities. Section 6 presents and discusses the conclusions of this paper.

PRIVATE-LABEL BRANDS AND CHAIN BRANDS

Article L. 112-5 of the French Consumption Code of Law defines Private Labels in the following manner: "A product may be considered a Private Label if its characteristics have been defined by the firm or group of firms which organize its retail sale, and which own the brand under which the product is sold". The retailer defines the product quality specifications, indicating both the product characteristics and the production techniques. Private Labels were created some 20 years ago and for quite a long time were used solely for products transformed by the food-processing industry. Private Labels were positioned in price segments equivalent to or below A-brands of those food processors. The creation of Private Labels resulted in a change in the balance of power in the supply chain, in favour of the retail industry.

Private Labels were developed for processed products, but until recently had been absent from the fresh-agricultural-product sectors. In these sectors the system operated as described below:

- Little differentiation existed on the fresh-agricultural-products market, e.g. meat, fruits and vegetables. Private Labels were virtually inexistent and retailers launched products without any particular identifier regarding product origin or quality. Product heterogeneity was at times quite high on the generic product market. However, the performance of this market was such that there was no resulting price differentiation, either at an intermediary level (producer–wholesaler–retailer relationship) or consumer level.
- These products were purchased by the retailers' central purchasing units from a range of intermediaries (e.g. slaughterhouse operators, wholesalers) on specific

spot markets on which the supply and demand relationship was determined on a daily basis. No commitments were made in relation to purchasing or selling between the customers and suppliers.

This total absence of product differentiation and identification suddenly posed a serious problem with the appearance of the mad-cow crisis. The lack of safety guarantees for commercialized products as well as uncertainty about product characteristics prompted consumers to demand greater transparency about the production process. In order to meet consumer expectations in terms of information and commitment by the relevant operators relative to supply and product characteristics, retailers from the outset of the crisis decided to change their purchasing practices and reorganized their supply chains as follows:

- Retailers urged producers to collaborate collectively in the form of associations or collective bodies, and concluded supply contracts with these newly formed organizations. The purpose of these direct agreements is to create 'safe' production groups, thereby providing consumers with products having a higher level of guarantees in terms of quality and food safety.
- Producers apply product quality specifications (imposed by the retailer or defined in common) for the part of the production delivered to the retailer. These product quality specifications may be submitted to the Ministry of Agriculture for official state approval in order to receive certification known as 'Product Conformity Certification'. The granting of this certification denotes an official label of quality and requires the implementation of an outside audit process via an independent certification organization. Upon application the certification enables the retailer to communicate information about production process characteristics to consumers.

For 'sensitive' products, retailers then segment the supply of products present on their shelf space. Supply is frequently composed of two products: (i) one sold at a low price and presented to consumers as a bottom of the range product; this type of product is not subject to any special agreement with the upstream agricultural parties, and (ii) a differentiated product that is positioned at a higher price and subject to long-term agreements with producers committed to the application of product quality specifications designed to provide consumers with a guarantee of food safety³. The retailer develops its communication policy on the basis of this product type, and in this way may reassure consumers about the various safety controls performed throughout the supply chain. This communication policy may involve the group of producers or the production area that supplies the products for the brand. It is for this reason that we use the term 'chain brand', or private certification brand, to designate these new types of relationships between producers and retailers.

In order to illustrate this point, one of the first chain brands to be implemented in the fresh-beef sector will be briefly presented. This chain brand was set up by the retailer Carrefour in conjunction with an association of producers called 'Normandy Cattle Quality Chain Brand', and enables the retailer to supply two products: (i) one that is purchased from intermediaries on traditional markets, and (ii) a differentiated

product ('Carrefour Chain Brand') that is supplied according to the terms of the agreement with the group of producers.

The principal aim of the product quality specifications is to guarantee (i) compliance with legal standards, (ii) complete traceability, (iii) food safety for the products, and (iv) the organoleptic quality of the beef. In addition to the regulatory aspects, compliance with the product quality specifications certifies that: the meat comes from a specific breed; specific breeding practices and forms are used; animal feed composed of fodder produced on a farm from approved ingredients was used, devoid of growth hormones (antibiotics); and compliance with stringent food safety standards. Moreover, the product quality specifications guarantee a very stringent selection of carcasses following the slaughtering of the animals, and comply with very precise criteria regarding conformation, fattening, age, weight and a minimum meat maturation period, which is higher than for generic products. The product quality specifications are subject to regular controls performed by a third-party certification body. They generate additional costs for both the producers (upgrade of production unit to regulatory standard, additional production costs) and retailers that pay for the certification of the production units.

Apart from these qualitative criteria, the agreement does not explicitly bind the retailer to purchasing specific quantities each year. Therefore, the group of producers itself defines the quantities to be produced, based on an estimation, which itself depends on the number of outlets included in the agreement and the retailer's commitment to allocate a specific percentage of its shelf space to the sale of the products. In addition, the group of producers retains sufficient flexibility in order to ensure that it is always capable of meeting retail orders.

The animals produced by the cattle breeders and 'theoretically' compliant with the product quality specifications, are not always commercialized under the retailer's brand. The quantities purchased and sold by the producers usually account for 60% of animal production on average. The gap between the quantities produced and sold (in compliance with the product quality specifications) is due to two factors: (i) non-compliance of products, which represents approximately 20% of all the animals raised in accordance with the criteria of the product quality specifications; on average approximately 20% do not meet the quality objectives for technical reasons, and (ii) intentional overproduction aimed at absorbing the fluctuations in retailer orders. The volume of overproduction accepted by the producers, and which ends up being commercialized only at a generic market price, depends on the variability of the retailer's orders. Due to uncertainties in demand on the final market (related to fluctuations in consumption or the behaviour of the competitors), the retailer attempts to maintain a degree of flexibility in relation to the product quantities that are ordered, in order to adapt itself as efficiently as possible to the variations in sales without having to bear the consequences of product shortages or costly overstock.

The retailer's commitment in fact is essentially based on a price indexed on reference prices. Producers are paid on the basis of the average weekly regional spot-market price in addition to some bonus payments related to compliance with the product quality specifications. The surplus is calculated on the basis of the number of animals delivered by the association, and then evenly distributed between

all the producers. Nevertheless, penalties may be imposed in accordance with the characteristics of each animal sold.

The resulting price is based on fluctuations in the wholesale-market reference prices. This allows retailers both to avoid the risk of producers withdrawing from the agreement if wholesale prices increase, and to remain in alignment with the supply costs of their competitors if prices decrease. The final price of the products specified in the agreement and displayed on the retailer's shelf space is approximately 10 % higher than a generic product.

CONTRACTUAL RISKS

The contractual mechanism described in Section 2 seeks to reconcile a certain degree of commitment, and therefore continuity, in the producer–retailer relationship, while also maintaining a degree of flexibility in order to deal with variations in demand. Nevertheless, this entails some risks for the signatories, which are essentially related to a loss of flexibility resulting from the fact that purchases are no longer made exclusively on the spot market.

A supply contract may prove to be attractive in terms of the creation and sharing of value for the two contracting parties, but may not be possible to implement due to the potential contractual risks. The contracting parties may be forced to renegotiate the initial contract following the appearance of unforeseen factors. In the absence of a third party capable of verifying the effective application of the initial contract (and imposing its application, if necessary), one of the two players may find it beneficial to renegotiate the contract and capture a larger share of the created value, if its power of negotiation increased following the appearance of unforeseen factors. This hold-up mechanism was initially studied by Oliver E. Williamson (Williamson 1975) and results in an unnecessary expense related to specific investments on which no returns are received *ex post*. Oliver Hart and John Moore (Hart and Moore 1988) formally demonstrated that both a buyer and seller are led to under-invest due to the risk of a hold-up in an 'efficient' situation of an integrated food chain. A paper by Gaucher et al. (2002) provides a concrete application of this contractual issue for food-processing food chains. In a study focusing on the wine-producing industry, these authors showed that one of the possible consequences was a drop in product quality, which could be harmful to consumer interests. This difficulty becomes greater in the following cases:

- the fraction of the investment that may be recovered or redeployed is low;
- the investments made by the supplier have an impact on the valorization of the client, or the investments made by the client have an impact on the supplier's production costs, i.e. the problem of externalities;
- the balance of power may be altered following the appearance of these unforeseen factors, as it will be to the benefit of one of the players to propose a new basis for an agreement, while the other player has lost all its negotiating power.

Within the scope of the producer–retailer relationships studied in the present paper, it is important to examine several points: (i) the possible existence of

exclusive contracts; (ii) the type of 'property' related to the product quality specifications, i.e. whether the product quality specifications were registered only by the retailer or jointly held by the retailer and producers; and (iii) the degree of specificity of the investments related to the agreement. The risk of a hold-up exists for both the producers and the retailers.

Another risk of this type is known as 'image capture'. This refers to a producer–retailer agreement concluded within the scope of an official quality label owned by the producers (e.g. an AOC label) and based on the product quality specifications registered by the retailer (possibly more stringent than the AOC requirements). This could enable the retailer to communicate about the product and in doing so only associate the retailer's name and image with the quality label. The producers can therefore find themselves to be 'expropriated' and lose the value associated with the quality label that they themselves initially created. Likewise, a retailer that makes a major investment in promotional campaigns to communicate about specific product quality specifications, may also face a hold-up risk, if after having invested the producers choose to channel their production to another client.

One possible solution put forward in the theoretical literature to resolve hold-up-related issues is the sequentiality of investments. De Fraja (1999) studied the following contract in which the client made its investments prior to the conclusion of the contract. The supplier is therefore in a position to observe these investments, and realizing that the risk of a hold-up for itself has diminished, also makes the necessary investments for the purposes of the contract. In order for the client to be able to make the investments prior to the conclusion of the contract and to avoid being exposed to the risk of a hold-up, the investments must not be very specific to the relationship with the supplier. The working relationships implemented by the retailers clearly reflect this contractual method. Indeed, retailers invest in the promotion of their firm through general communication policies that refer very little to specific products, except for the promotion of a few showcase products designed to lend credibility to safety and quality requirements in the eyes of the consumer. This means that as in the case examined above, marketing investments are made before contracting and are generally not specific to agreements with particular groups of producers. Having taken notice of these commercial investments, the producers accept to commit themselves and to make their own investments since they anticipate future growth, or at least the preservation of business opportunities created by these major marketing investments.

In fact, producers are often dispersed and do not have equivalent resources for communication. For this reason they depend on the retailers' communication policies to preserve their business activity. In order to avoid too great a dependency, a key issue for these producers is to develop concurrently quality labels capable of showing consumers their own efforts in this area. This is one reason that explains the very rapid growth of common producer brands based on the origin of the products (e.g. AOC wines) or on more stringent product quality specifications (quality labels). Producers then accept to make a commitment to this type of relationship with retailers, since in this way they attempt to receive a commercial guarantee that will publicize and increase awareness of the product in question. This is done even if it means keeping prices at the same level for a certain length of time,

and even though these prices may soon seem low given the required production efforts. The purpose of this type of commitment is to be in a position – at a later stage – to renegotiate the agreements when the quality has been recognized by consumers.

From the examination of these points it is apparent that what is fundamentally at stake in the present case of food-processing chains is the capacity to inform consumers about efforts made at each stage of the chain in order to guarantee product safety and quality. One of the main points of contention is related to product labelling. In some cases, only a reference to the retailer is made, while in other cases the relationship is more ‘cooperative’ and the product label includes both the private label and a reference to the group of producers. The greater the vertically cooperative nature of the supply relationship between producers and retailers (until attaining a situation in which both stakeholders are listed on the label), the more the retailer’s flexibility diminishes. In situations where products are above all ‘trusted products’ (i.e. it is difficult for consumers to judge certain product characteristics by themselves, such as the long-term effects on health), the loss of flexibility related to these new types of supply is the compensation (for the retailers) for having the opportunity to develop communication policies that stress production conditions, a task normally associated with the supplier and not the retailer.

CREATION AND SHARING OF VALUE

The economic literature dealing with private label products has grown significantly as over the last 20 years private label brands have come to establish themselves firmly on the market in most developed countries (e.g. Hoch 1996). The aim of these studies is generally to examine to what extent this has contributed to value creation, and how the created value is shared by the different stakeholders. For example, Mills (1995) proposes a model of the producer–retailer relationship in which the producer’s brand, or ‘national brand’, and the retailer’s brand are placed in competition with one another on the final market. The author shows how private labels increase retail performance by (i) shifting away sales previously made under national brands to private labels supplied at a lower wholesale price, and (ii) increasing profit margins on national brands. Other studies have pursued this work and have focused on the strategic choice of differentiation (Caprice 2000; Bontems et al. 1999) and legal restrictions related to product supply (Allain and Flochel 2001). Nevertheless, it is important to note that in all these studies, private labels have been positioned in a segment in which the final prices and quality levels are lower than that of the national brand.

The focus of the present paper is on chain brands, or private certification brands, which operate according to a different rationale. Having emerged in a sector in which there are no national brands, the chain brands are less dedicated to altering the balance of power with suppliers than providing support to the segmentation of supply for consumers by developing product chains that are positioned at a higher quality and price level than that of the average quality and price of undifferentiated

products. Several important points should thus be considered in order to evaluate the impact of these new strategies in terms of value creation and sharing:

- *The degree of differentiation of the product in comparison with the product available on the spot market.* This degree of differentiation is determined by the product quality specifications imposed by the retailer, and which may vary in stringency, and also generate production costs significantly higher than those of the generic product. Additional costs are also generated by the increased number of controls at all stages of the chain, both for chain operators and outside audit and certification bodies.
- *The price of the final product and the consumer reservation price.* These factors depend on the degree of differentiation in relation to the generic product but also on the communication policy, and therefore marketing investments made to increase the awareness of the product and reassure consumers about its characteristics.
- *The alternative means of selling and purchasing for suppliers and retailers.* Depending on the degree of exclusivity of the relationship, each party may or may not have some alternatives to sell or order the differentiated product via other circuits. These possible alternatives have a twofold impact: from the producer's standpoint, the threat of imposing rationing on the retailer may improve its negotiating power and enable it to capture a greater share of the created value; from the retailer's standpoint, the threat of placing several potential suppliers of the different differentiated products in competition against one another, heightens the retailer's negotiating power.
- *The method for defining prices and the volume of quantities exchanged.* In practice, there is a wide diversity of negotiation methods employed between the producers and retailers with respect to these new supply schemes. These agreements are based on cooperative approaches that are relatively strong. In some cases, the prices and quantities are defined by the retailer; in other cases the price is negotiated by both parties and the quantities are imposed by the retailer; and yet in other cases the prices and quantities are negotiated by the producers and the retailer.

In order to quantify the economic impact of these different points, we proposed a model for the agreements concluded between the producers and retailers in a book written by Giraud-Héraud et al. (2002). This model uses the vertical structure in Figure 1 by assuming a higher quality of the chain brand compared to that of the generic product (see Box 1).

Regarding the impact of the producer-retailer relationship on the type of food supply provided to the final consumer, it should be noted that the important strategic decision to be studied is that of the positioning of the product originating from these new supply sources. This strategic decision is based on the following observation: when the quality level increases, the cost of reaching this quality level also increases, thereby resulting in an increase in the final price and in a reduction of the share of shelf space allocated to the differentiated product. The chain is therefore faced with the following alternative: (i) either the qualitative differentiation with respect to the generic product is low and the gap between the production cost and

the final price in comparison with the generic product is low, but a major portion of

Box 1. Modelling of the producer–retailer relationship with chain brands

We assume a set R of producers providing a similar product represented by a quality index, denoted k_0 . Parameter k_0 represents the minimum quality standard to which all the producers are subject.

Each producer has an identical production capacity $\alpha = K / R$ (where K denotes the total supply capacity in the upstream part of the market) and supplies an intermediary market from which N retailers supply themselves. Each retailer j then supplies a market of size M_j ($j=1, \dots, N$).

The intermediary market is assumed to be a competitive market in which price ω_0 is formed, thereby equalizing the supply of upstream producers and downstream retailers. This price ω_0 is imposed to each retailer j . Nevertheless, each retailer is free to choose the quantity it desires according to the demand it receives on the final market. On this final market of size M_j , consumers distinguish themselves with a taste parameter θ in terms of the quality offered and it is assumed that parameter θ is distributed over an interval $[0, \bar{\theta}]$, thus making it possible to take into account the heterogeneousness of consumer tastes. A consumer surplus θ purchasing at price p a unit of a product of quality k is expressed as $S(\theta) = \theta k - p$, thereby defining the difference between the willingness to pay and the actual price paid. This model can thus estimate the behaviour of the players in a situation in which only the generic product is offered to the consumers (benchmark situation). We then study the different possibilities for the implementation of a partnership between the group of producers G and one of the retailers in order to shift away a part of the exchanges made on the intermediary market and create a chain brand, or private certification brand. This chain brand corresponds to a partnership between the group of producers G and the retailer N in order to:

- i) offer a product of higher quality k_1 to the consumers ($k_1 > k_0$);
- ii) define the quantities X_N and Y_N commercialized by the retailer with qualities k_0 and k_1 .

In this manner, a group of producers G directly supplies retailer N a part Y_N of its production potential, with a higher quality, and the remaining balance $\alpha G - Y_N$ is allocated to the spot market.

The remuneration price for the upstream producers is calculated on the basis of the Nash solution (assuming that the status quo is the benchmark of the relationship). The model is resolved analytically and is calibrated in accordance with data from surveys conducted in different chains, in particular with data from the ‘Market News Department’ of the Ministry of Agriculture and Fishing. The data used for the simulations presented in the remaining parts of this paper are related to the beef sector. These data are representative of the different stages of the chain: the price in major retail outlets of the generic product and the differentiated products under retailer chain brands; the price paid to producers on the wholesale markets and within the scope of the chain agreements studied in this paper; cost differentials related to production, control and certification between products, with and without retailer product quality specifications; quantities produced within and outside the scope of the producer–retailer agreement. In this type of analysis, quality levels k_0 and k_1 are directly associated with consumer propensity levels and different production cost levels.

In this situation, the raising of the minimum quality standard is assumed to result in an increase in production costs. It is the impact of this increase in costs on the positioning of the chain brand and on the gains of the producers and retailer that is subsequently evaluated (see Figures 1 - 4).



Figure 1. Shelf space allocation and chain brand quality according to the standard product quality

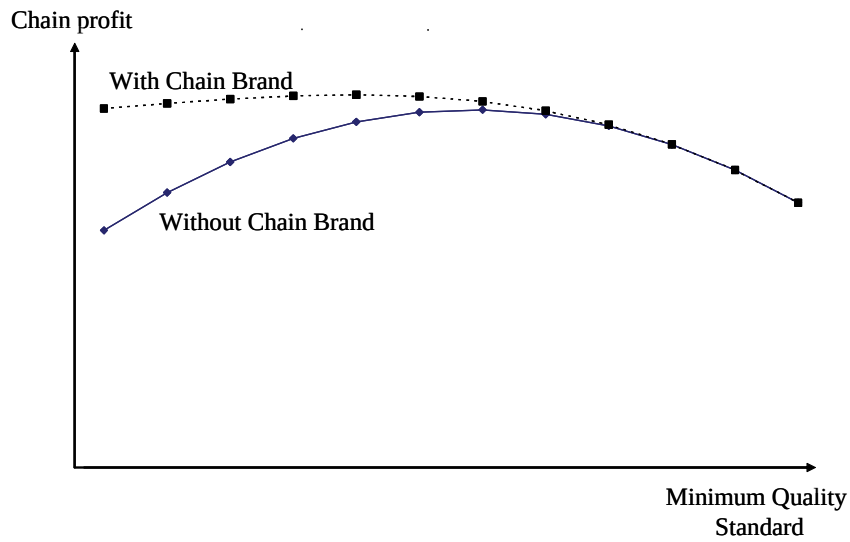


Figure 2. Chain profit (producers + retailer) according to the Minimum Quality Standard

the food supply has a slight added value in terms of qualitative and safety guarantees, or (ii) the qualitative differentiation is high, thereby – on the contrary – generating significant additional costs and a difference in final price that is high. In the latter case, the product is perceived as providing a strong guarantee in terms of quality and food safety, and is allocated a small share of the retailer's shelf space. Simulations were conducted for the type of situation which was described in Section 2. Figures 1 and 2 show the results of these simulations.

- Generally speaking, the implementation of these new supply strategies creates value, especially as the relationship between the producers and the retailer is more 'cooperative'. Nevertheless, the lack of the retailer's commitment to specific quantities hinders the effectiveness of this relationship. Indeed, even though this approach allows the retailer to preserve a degree of flexibility in relation to fluctuations in demand, it generates additional costs for the producers, which in turn reduce the overall gain for the chain.
- From the standpoint of the chain, the strategy that creates the most value is the choice of a private label occupying a large part of the shelf space with a moderate quality and price difference. Indeed, studies conducted at retail outlets support this proposition as chain brands represent from 50 % to 70 % of sales of fresh agricultural products, with a price difference of approximately 10% in relation to generic products. An examination of the product quality specifications reveals that this difference in price is especially due to more stringent controls rather than significantly different production techniques for the generics.

These supply strategies, which to a certain extent reconcile the interests of the producers and retailers, help to upgrade the supply of food provided to consumers in the fresh agricultural products sector through the allocation of significant shelf space to products sold under chain brands, and supplied on the basis of agreements with groups of producers associated with the different retail firms. A more widespread use of this system would result in a profound change in the organization of food-processing chains and in the forms of competition in this sector. It is true that retailers would in fact effectively manage a large part of the production, and would conclude direct partnerships with individual groups of producers. In such a framework, competition would no longer be based on a competitive relationship between retailers, or retailers and producers, but between production-commercialization 'chains'. A retailer and a range of producers would collaborate within each one of these chains.

Can this system be sustained over time? To answer this question, it should be noted that the optimal quality positioning of chain brands naturally depends on the quality level of the generic products. According to our assumptions, the quality level of chain brands increases as the quality level of the generic products rises, but less rapidly. This means that as the quality level of generic products rises, the gap between them and chain brands will diminish. Beyond a certain threshold of quality of the generic product, the chain brand will disappear. In addition, the quality level of the generic product depends on progressive quality improvement related to technical adjustments and also on the Minimum Quality Standards imposed by the public authorities.

MINIMUM QUALITY STANDARDS AND CHAIN BRANDS

In this paper we have seen that the adoption of chain brands, or private certification brands, leads to the selling (on the final market) of a significant number of more tightly controlled products, subject to product quality specifications that are more demanding than those related to less regulated products sold on the spot market, but with a moderate difference in quality. Is this system, based on the initiative of private operators, more efficient in terms of the public's interests? And to what extent does the involvement of the public authorities, in particular with respect to the definition of Minimum Quality Standards (MQS), influence the system?

Numerous theoretical works have studied the issue of MQS and the usefulness of publicly regulating product quality in order to correct certain market imbalances. Indeed, it remains uncertain whether the introduction of MQS could in fact lead to an increase in the average level of quality. In addition, Besanko et al. (1988) demonstrated that the creation of MQS could result in increased prices and less product choice, thereby penalizing a fraction of consumers. The literature has also examined a range of other issues: the decrease in the number of firms, which could be attributed to the creation of MQS (Motta and Thisse 1993), the effects generated by rising costs according to the level of quality produced (Ronneen 1991; Crampes and Hollander 1995) and the strategies adopted by firms in anticipation of a tightening of quality standards (Ecchia and Lambertini 2001; Lutz et al. 2000). However, the theoretical literature remains divided over the usefulness and potential effects of MQS, and the results obtained to date are insufficient to resolve the issue at hand in this paper. In particular, these studies do not consider either the vertical relationship between the firms and their suppliers, or the relative sharing of negotiating power between upstream and downstream firms. Yet it may be assumed that the nature of the vertical relationship influences the sharing of quality costs between suppliers and the retailer, thereby conditioning the quality position of the downstream firm and its response to the introduction of MQS.

A careful examination of simulations of the evolution of gains realized by each type of stakeholder in relation to the MQS level yields the following result:

- *The benefit of product differentiation through the implementation of a chain brand is even higher for the retailer when the MQS level is low* (see Figure 3). For the retailer the tightening of MQS reduces the potential benefit of the chain brands in comparison with a spot-market supply devoid of any contractual restrictions. As MQS rises, it is increasingly important to position chain brands in high-quality segments. However, at the same time its price increases and its share of the retail shelf space diminishes correspondingly. In the end, MQS may disappear when differentiation costs become too high. In other words, the more the public authorities raise the level of requirements regarding MQS in order to respond to consumer fears, the more it becomes difficult for retailers to implement a differentiation strategy.

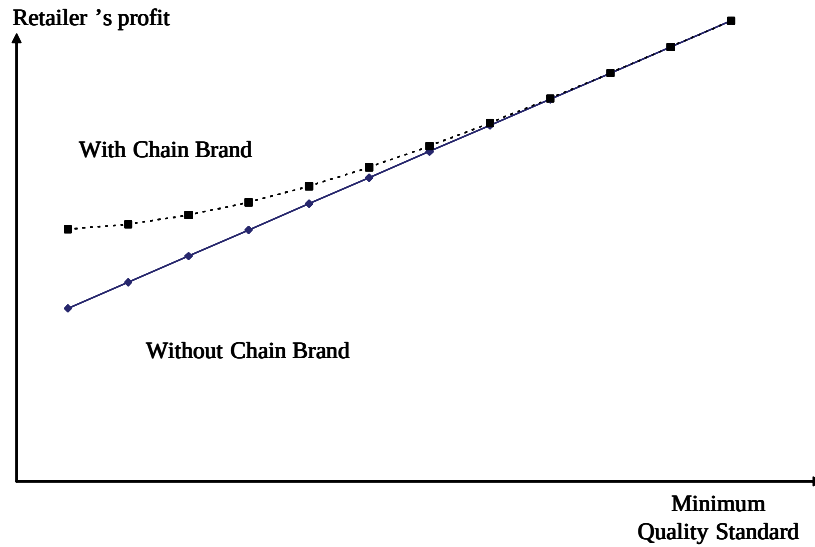


Figure 3. Retailer's profit according to the Minimum Quality Standard

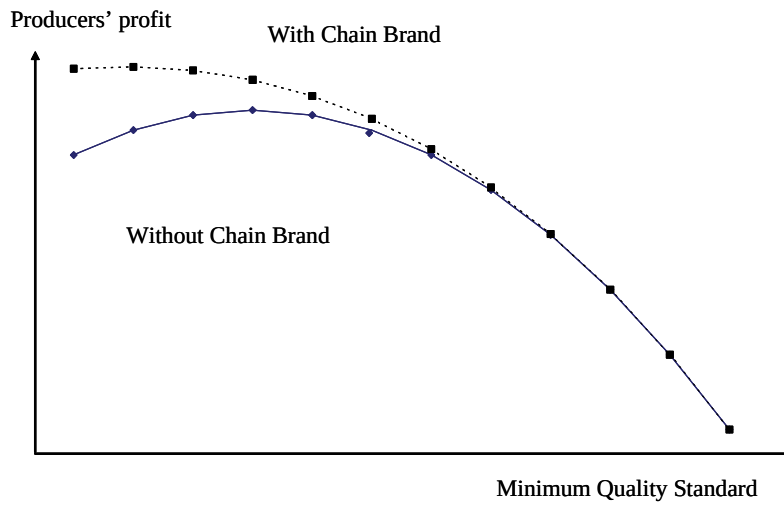


Figure 4. Producers' profits according to the Minimum Quality Standard

- *Retailer gains are higher when MQS are high.* In this case, retailers can do without implementing contracts and acquire safe generic products on the spot market. This may be done by placing those suppliers in competition that solely bear the additional production costs of generic products (whereas for chain

brands the producer bears the higher costs and the retailer a part of the audit costs).

- *For the producer the enhancement of MQS is favourable to its situation, but generates costs which it must bear and reduces its gains beyond a certain threshold* (see Figure 4). Producers are thus able to maximize their profits when the MQS enable the generic and chain-brand products to coexist on the retail shelf space. In addition, the quality level of generic products that maximize their profits is lower with a chain brand than with a spot market only.

According to the assumptions made in this paper, and regarding consumer behaviour, it should be noted that the surplus (the difference between the propensity to pay given the available quality levels, and the price actually paid, which depends on the available product quantities and qualities) is higher in two differing situations. Firstly, with a low MQS this result in product supply strongly dominated by a chain brand, and with a marked difference in quality with respect to the generic product. Secondly, with a high MQS, this leads to a product supply of generic products throughout the entire retail shelf space (and therefore with no differentiated chain-brand product). However, the consumer surplus is lower than in intermediate situations. The actual balance is closely linked to the costs required for the selected MQS level and those required for chain-brand differentiation.

The issue facing the public authorities when confronted with the mad-cow crisis was to know to what extent they should tighten the norms and standards related to food product quality and safety. Without attempting to define this level of regulation in this paper – as it would require some more advanced and technical arguments – it is interesting to note that one of the key points in the current debate touches upon the costs generated by MQS and the sharing of these costs between the producers, retailers and consumers. Mandatory standards determine the level of production, certification and control costs, and the regaining of consumer confidence presupposes major investments in communication. The balance to be achieved by the public authorities is conditioned by the manner in which the costs are shared and how the profit for each type of player varies. In this paper we have seen that a tightening of MQS, which is thought to discourage the private initiatives of retailers that sell high-quality products, is not necessarily the best solution for these retailers. The development of chain brands is in fact a response to the uncertainties felt by the consumers in terms of the quality level of the generic products. However, a higher quality level of generic products – as a result of more stringent requirements for the MQS – could allow them to withdraw from a long-term relationship with the upstream agricultural players and to return to a system of competitive relationships between producers (even though these stable relations reduce the transaction costs for the implementation of their supply). Paradoxically, we have shown that producers would tend to benefit more from the development of private initiatives by the retailers, and therefore from a moderate increase in the quality level of generics. Indeed, in this situation, a part of the certification and control costs as well as all the communication costs are borne by the retailers. As concerns the consumers, their final decision depends on specific data for the sector and, in particular, the level of production and certification costs imposed by the products in question.

CONCLUSION

The relationship between producers and retailers has led to recurring conflicts for a great number of years, and has prompted the public authorities to adopt new laws on several occasions, in particular to reduce the negative effects of the domination of retailers over producers, which was judged to be too strong. However, as discussed previously in this paper, cooperative strategies are more frequently advocated and put forward within the scope of these new supply systems. It is true that a wide diversity of situations exists and that the degree of 'cooperation' varies according to the sector and retailer. However, communication strategies do stress 'partnerships' with upstream agricultural players. Through the use of these systems the retailers are seeking to reassure consumers by creating their own quality labels and by communicating about the additional guarantees afforded to consumers by these quality labels. These new approaches are causing very profound shifts in the relationship between retailers and the upstream part of the chains. This change reflects a shift away from a relationship between retailers and suppliers solely based on the purchase of products on the spot market (all decisions relating to creation and production are made at the upstream level of the chain) to a situation in which specific agreements are concluded between retailers and producers. These agreements are based on product quality specifications defined by the retail firms and impose quality objectives on which the credibility of their own brands will be judged. One of the most significant impacts of this new type of relationship is that it has created a segmentation of the product supply in a sector in which segmentation previously did not exist at all.

What are the fundamental principles underlying a commitment to such a 'cooperative' relationship, and how are the different operators affected, whether they be in the food-processing sector or they be consumers? Two issues have been examined in order to provide an answer to this question:

- Firstly, the value creation related to this type of relationship, the sharing of this value among the different players of the chain, as well as the quantities and prices of the safe products which are offered to consumers.
- Secondly, the risks related to possible opportunistic behaviours and, in particular, the risk that the efforts required for a substantial enhancement of product quality and safety will not be made at any one of the different stages of the chain.

Should this new type of relationship be considered a long-term phenomenon or should it be viewed as a temporary measure to assuage the fears of consumers, while waiting for all agricultural products to be subject to more stringent controls due to the tightening of MQS? The very rapid development of agreements between producers and retailers, and the considerable investments made by the retail firms to lend credibility in the consumers' eyes to the guarantees provided by this new system would seem to favour a longer-lasting future for these new types of organization. However, the 're-nationalization' of 'responsible agriculture' by the public authorities, and the tightening of the product quality specifications related to quality labels (e.g. AOC in the wine-producing sector) might reverse these commitments.

NOTES

¹ Throughout this article we use the term 'quality' in its economic sense, i.e. the enhancement of the consumer's willingness to pay. In this case, quality may be perceived from both a sensory and an environmental point of view, if the environmentally friendly production conditions favour a higher sales price on the final market.

² For more ample details on this topic, we refer to the corporate communication on the retailers' web sites: www.carrefour.fr, www.auchan.com.

³ Segmentation may comprise up to three segments. For example, in the case of beef, the third segment could be associated with a quality label or an organic product. In addition, there may also be only one segment, in particular for retailers with smaller store layouts, i.e. supermarkets rather than hypermarkets. For more detailed information on this segmentation, we refer to Giraud-Héraud et al. (2002).

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