

Social Capital as a specific common good: Application to PDO Comté economic performance

Philippe Jeanneaux^{1*} and Alain Mélo²

¹ Economist, corresponding author
VetAgro Sup/UMR Territoires, 89, avenue de l'Europe – 63370 Lempdes
Philippe.janneaux@vetagro-sup.fr

² Historian,
AXALP, - 1, Place du 18 juin 1940 - 74940 Annecy le Vieux
alain.melo@axalp.fr



Abstract:

The dairy sector in the French mountain areas has turned strongly to a strategy of cheese production under a Protected Designation of Origin (PDO) label. Some cheeses, like PDO Comté, are a success story. We suggest that this performance is due to farmers' collective action which helps them to promote their market power. The question is: Can sociological factors explain the economic performance of PDO cheese?

Our framework introduces sociological factors to explain the effectiveness of the collective action, and we mobilize the Social Capital theory based on three mechanisms: Bonding, Linking, and Bridging capital.

We have used historical and statistical sources to analyse the dynamics and the economic performance of the PDO Comté supply chain.

The factors influencing its competitiveness are: Bonding is very strong due to small cooperatives based on confidence, solidarity, and donation. Linking is important because of the strong trust-based relationship between cooperatives and ripeners. Bridging introduces fundamental innovations.

JEL: B30, D23, L22, L25, Q13

Keywords: Localized Agro-food system, differentiation, PDO Comté, Competitiveness, Social capital

Copyright 2017 by [Jeanneaux Philippe and Mélo Alain]. All rights reserved. Readers may make verbatim copies of this document for non-commercial purposes by any means, provided that this copyright notice appears on all such copies.

1. Introduction

As for many other economic sectors, the French milk and dairy sector is marked by the rising power of big industrial groups which create a situation of quasi-oligopoly. Their position is mostly based on large economies of scale. Big industrial dairy groups mostly set up their processing plants in the major milk producing regions, such as Brittany. Some companies remotely guide their whole supply chain while seeking a competitive advantage through a cost leadership strategy. They define the production's location, the processing and the product (type, volume) in order to optimize the value chain. Vertical integration of suppliers (and horizontal integration of competitors) is the result of large groups' strategies for reducing production costs. Dairy Farmers engaged in this kind of dairy supply chain have also developed a strategy based on cost leadership through rationalization of the production process, production volume expansion, and modernization (Latruffe, 2010). But, at the same time, cheese-makers and farmers within the mountain areas have turned strongly to a strategy of differentiation based on the product's name, geographical origin, and intrinsic quality (based on the conditions of production and processing laid out in a code of practice), with branding as Protected Designation of Origin (PDO). 26 out of 46 PDO cheese are produced in mountain areas. The dairy production and the cheese-making processes are important activities for the economic development of these kinds of areas in France. 20% of dairy farmers are located in mountain areas, and produce 14% of the national milk volume (3.6 billion litres) (Ballot et al, 2007).

Even if they have adopted a strategy of differentiation, over a long time, on average, the economic performance of the dairy sector in mountain areas is worse than in lowland areas (Agricultural Income per dairy farmer is approx. 24,900€ in mountain areas, and 32,600€ in lowland areas (Réseau d'élevage pour le conseil et la prospective, 2012). Despite this strategy of differentiation, a big difference between the agricultural income per dairy farmer, of about 14,000€, has existed in the dairy farms in French mountain areas for a long time. The agricultural income per dairy farmer located in Franche-Comté is 30,400€, dairy farmers from Auvergne have an agricultural income per dairy farmer close to 16,200€ even though these two regions both have PDO cheeses (Réseau D'élevage Pour Le Conseil Et La Prospective, 2012).

A major factor could explain this difference; this is the specific local supply chain in Franche-Comté based on small co-operatives called *Fruitières*. Thus, the relevant questions we discuss in this paper are: How do we explain this difference in income levels? Could the concept of social capital be relevant to explain dairy farm competitiveness?

We propose firstly in Section 2 to present the issue in its context. Secondly in Section 3 we develop the theoretical framework and the methods. Next, we describe the methodology and the data. The results are presented and discussed in Section 4, which is followed by a short conclusion, Section 5.

2. Context and issue

When analysing the efficiency of the dairy farms involved in PDO Comté in the Franche-Comté region, it appears that they succeed in adding value by implementing a strategy of differentiation. This strategic choice demands more expensive inputs. Special inputs may be needed to differentiate the final product and to encourage the consumer to be more willing to pay extra for a PDO cheese. We do not ignore that the difference in efficiency can be explained by internal determinants, such as the individual strategies of the farmers, however, we assume that the strategy of differentiation results from the ability of the dairy farmers to keep more value at the farm level. The difference in efficiency may be explained by external determinants that is the collective strategies, and the forms of coordination, between the stakeholders of the cheese making industry and the dairy farmers. The Raising Rivals' Costs theory (Scheffman et al, 2003) helps to answer the question of whether the PDO cheese production costs are actually imposed on competitors by the promoters of the local PDO production system. Associations of farmers can have an impact on the price of milk and on the distribution of the profits between farmers (Jeanneaux and Perrier-Cornet, 2011; Barjolle and Jeanneaux, 2012).

We assume that the strategy of differentiation is a social issue dependent on the nature of social capital (bonding and bridging) in an area (Aldrich, 2012). It is an important factor in explaining economic development disparities (Callois et al, 2007). To better understand the relation between social capital, collective action, and the economic and social performance of dairy farms, we carried out research from this angle on the PDO Comté supply chain.

In this context, from a historical perspective, the PDO Comté was the most important vector in the organisational development of the cheese production system in the Jura, based on specific technical and social division of labour (Perrier-Cornet, 1986). The dairy farmers, are organised into collective cheese-making units (140 cheese-making cooperatives in 2010), and have controlled the processing from milk to fresh cheese (not ripened) for a long time, but do not have market access. The cheese-ripeners (around 10 units in 2010), have the quasi-exclusive access to market without being involved in the processing stage. This division of labour is still present, and generates a long-lasting collective value that is safeguarded by the success of the Protected Denomination of Origin Comté. The surplus value¹ resulting from the organization comes from the PDO code of practice (Barjolle *et al.*, 2000). The Comté supply chain is often considered as a model of collective action. It is a powerful organization, which has extensive authority for bargaining and implementing Comté supply control measures, as well as promoting the differentiation strategy, which protects the interests of the Jura dairy farmers, small-scale cheese-makers, and ripening facilities. The Comté supply chain has shaped the agro-food sector in this mountain region and has supported the selling price of Comté cheese. In 2007, the average price was 10.20 €/kg compared to 7.10 €/kg for French Emmental,² that is to say a positive price difference of 47% in favour of Comté³.

¹ Some researchers consider this surplus value is an unfair rent.

²Source : Syndicat français de pâtes pressées cuites 2007

³Source CIGC : <http://www.comte.com/le-marche-du-comte,4,0,8,1,1.html>

The milk price also depends on the bargaining skills of the dairy farmers (they also control most of cheese-making cooperatives) when they discuss within the collective organization the calculation ratio for the fresh cheeses they sell to the ripeners. Up to now, the supply chain has organized the surplus value distribution between « production » and « market ». The system's efficiency has been based on the regulated distribution of the collective surplus value which allowed dairy farmers, over the last 15 years (except in 2007) to have a 25% higher price for milk than the national average (Jeanneaux et al, 2011). This is why the differentiation we analyse above appears to be a relevant strategy to improve the overall efficiency of dairy farmers in the Franche-Comté area.

We consider that sociological factors can explain the PDO Comté economic success story. This issue can be broken down into 2 dimensions:

- The historical business relationship between farmers gathered in their cooperatives and ripeners produces a sustainable economic advantage;
- The success story is based on the production of a common good: a mature cheese which is the material form of the local cheese system;

We propose an original framework to analyse this issue.

3. An original Framework based on social capital theory

3.1. The social capital theory

We consider that institutions determine the rules of the economy (North, 1990). Institutions have an impact on individual and/or collective incentives. They can change the distribution of added-value and the economic performance. Institutions are:

- Formal and Legal - law, decrees, contracts, power organization
- Informal and Sociological - Social Capital (Granoveter, 1973; Bourdieu, 1985; Putnam, 1995).

Three mechanisms of social capital are presented in the literature (Aldrich, 2012) (cf. table 1):

Firstly, Bonding social capital which is the ties between people in similar situations. It corresponds to the links with immediate family and friends, and refers to relationships (confidence, loyalty, reciprocity, cooperation) amongst members (Putnam, 2000);

Secondly, Linking social capital, is the bonding social capital derivation. Linking social capital is the extent to which individuals build relationships with the institutions and the individuals who have relative power over them (hierarchy or complementarity). (Woolcock, 2001; Szreter and Woolcock, 2004).

Thirdly, Bridging social capital is the relationship between friends of friends, making its strength secondary to bonding capital (Szreter and Woolcock, 2004). It corresponds to the *Strength of Weak Ties* (Granovetter, 1973). Unlike bonding, bridging social capital is the

vector of development of new ideas, values, and perspectives (Woolcock, 2001; Szreter and Woolcock, 2004).

Table 1. Social capital components

Dimension	Definition - Aldrich, (2012).	Features	Example
Bonding: Closed social capital	Bonding capital are the relationships a person has with friends and family, making it also the strongest form of social capital	Confidence Reciprocity Strong social network Horizontal links	Family, group, band, peers
Linking Closed social capital	Bonding derivation : Linking social capital is the extent to which individuals build relationships with institutions and individuals who have relative power over them (hierarchy or complementarity)	Confidence Loyalty Strong social network Vertical and horizontal links	Infantry regiment Firms in a cluster
Bridging Open social capital	Bridging capital is the relationship between friends of friends, making its strength secondary to bonding capital The Strength of Weak Ties (Granovetter,1973)	Convention, contract & no reciprocity Vertical links	Alumni Association

Social capital is a resource to produce goods and services for the common good and not only for profit (Sander, 2015). Social capital can also improve the performance and the resilience of supply chains, firms and projects;

As a postulate in our approach, common resources correspond to social practices which implement a governance to assure access to specific local resources, and to guarantee a fair regulation for stakeholders from market or public policy (Coriat, 2015).

3.2. Data and methodology

We carried out our research on the basis of a “meta-analysis” of the work realized over a "long duration" in various disciplinary frameworks: history and economics (Boichard, 1977; Guigon, 1996; Getur, 1979; Jeanneaux, 1998; Jeanneaux, 2012; Jeanneaux and Perrier-Cornet, 2011; Jeanneaux et al. 2009; Mélo, 2012; Perrier-Cornet, 1986; Ricard, 1994; Tissot and Gauthier, 1908; Truchis de Varenne, 1900; Vernus, 1988). We analysed the archives of the cheese cooperatives of the Jura mountain area, conducted interviews with large and small experts on quality cheeses (PDO), analysed the successive

specifications of the PDO within the code of practice and the various instruments of governance (Contracts, Regulation plans) since 1952.

4. Results

4.1. The PDO Comté organization and the success story

The permanent power of social and economic innovation developed by the cheese production system in the Jura Mountain corresponds to a self-promoted and a self-regulated socio-economic association. Cooperation is a win-win collective act. Farmers have built a localized and prosperous "social and solidarity" economy over time. They have set up a collective governance that allows allocation of resources and distribution of wealth in an equitable manner.

Agriculture in the Jura mountains is mainly dedicated to milk production that feeds into cheese supply chains which benefit from a legal recognition through an official quality label (several PDOs exist : Comté, Morbier, Mont d'Or, Bleu de Gex). These products originate from the Doubs and Jura Departments, grouping, in 2015, 3,000 dairy farmers producing more than 800 million litres of milk. Among them, 2,700 farmers produced 60,000 tons of Comté. Since 1990, the production of Comté has significantly increased (by more than 25,000 tons). From a historical perspective, the PDO Comté has been the most important vector in the organisational development of the cheese production system in the Jura, based on a specific technical and social division of labour (Perrier-Cornet, 2006). The dairy farmers, on the one hand, organised in collective cheese-making units (130 cheese-making cooperatives in 2015), control the processing from milk to fresh cheese (not ripened), but do not have market access. The cheese-ripeners (around 10 units in 2015), on the other hand, have the quasi-exclusive access to market without being involved in the first processing stage. This division of labour is still very present, and generates a long-lasting collective value which is safeguarded by the success of the Protected Denomination of Origin Comté. The success of the organization of dairy production and processing in the Jura mountains can be illustrated on the basis of 3 indicators of economic performance: (1) production of the AOC Comté increased from 35,000 tons to 55,000 tons between 1990 and 2010; (2) at the same time the tax-free Comté price to retailers increased from €4,500 / tonne to €7,500 / tonne; (3) the price of Comté milk paid to producers in 2014 averaged €480/ tonne compared with €330 / tonne for standard milk (CIGC and FDCL 25-39).

4.2 The source of the bonding social capital

From the 13th to the 19th century, the *fruitière* was a nomadic and temporary form of association of breeders, who gathered the milk of their cows to process it together and turn it into cheese with a long shelf life. The foundation of the production of a common good for a farmer was to give his own milk to his neighbours every day to recover in the future the common cheese: the system needed confidence, solidarity and donation. Farmers mixed their (small) dairy production together (spring and summer) to produce big, mature, cheeses which could be stored for a long time, and provide food security.

The *fruitières* were first and foremost a mode of social relations and a way of life. The cheese itself was a common good, the “fruit” of the combined milk of several farmers. The factors of production were, among other things, common goods: common grazing land, common land (pasture, pre-wood and timber), and "union" breeder bulls. The modes of regulation could preserve the scarce resources. In this world, the farmers' collective organization that produced the cheese was a way to confront the market collectively. It was a "visible" manual economy that was established by a peasantry over the centuries, which allowed social survival, but also economic, political, and symbolic survival more or less successfully. Farmers, over the centuries, developed common formal rules and also built specific social capital like strong cohesion of the group (Bonding) and openness to the outside (Bridging). Over time, the local productive system was built on 3 strong values: (1) Solidarity, which is the foundation of the *fruitière*. (2) Donation, particularly for the management of the *fruitière* which is not remunerated. (3) Trust that "was and still is" an issue at all levels. Although the methods of building trust have changed, this value was firmly rooted in social practices long before its institutionalization by the inter-professional contract (Melo, 2012).

4.3. The source of the linking social capital

The current localized agro-industrial productive system, has been defined as a sum of organizational innovations. This system was founded in the 1950s (1) on the old relationship between farmers in their own *fruitières*; (2) on a pact between co-operatives and ripeners, (3) on the bedding down of socio-economic solutions throughout the nineteenth and twentieth centuries, both internally and externally. The localized productive system studied is an original form of social organization where farmers and ripeners are bonded together.

Comté production is an original form of economic cooperation, whose current safeguard was established through a 3 step construction process for the protected denomination of origin:

- (i) The initial first phase aimed at obtaining the territorial exclusivity for the product. Comté benefits from the protection of the PDO with a ruling by the Magistrates' Court of Dijon in 1952. Almost 50 years later, the PDO's zone was reduced in size (1998), to match its effective production territory, and to preventing the late and opportunistic development of the production in the Haute-Saône Administrative Region which borders the historical production zone (Doubs and Jura Administrative Regions);
- (ii) The second step consisted of collectively setting the production standards which define the production system. The economic agents together fixed the requirements for the dairy farmers of the land zone who were included in the initial PDO zone. The code of practices evolved towards excluding intensive agriculture practices, such as corn silage feed for the Prim'Holstein breed. A thorough reflection on product quality and its linkage to the *terroir* led next to a precise definition of the best agricultural practices, to be met in order to reach a high taste quality for Comté cheese. Raw milk and feed based on grass and hay are crucial requirements. The code of practice matches with the production conditions prevailing for the Montbéliard cattle breeders located in the mountainous area. The implementation of the code of practices (prohibition of feeding silage to the whole

herd, prohibition of GMOs, mandatory use of local breeds like Montbéliard or Simmental, milking robot banned, land load limitation ratio of one hectare fodder per milking cow, maximum milk/land productivity ratio of 4,600 litre milk per hectare, cow grazing mandatory) exclude the production system of cattle breeders using more intensive agricultural practices. The production zone is now limited to the Jura Mountains, bringing consistency between the final product and the conditions of production. The prohibition of cheese production at dairy farm stage established the role of the cheese-makers and their specific know-how. The code of practices enables the cheese-making cooperatives to highlight their contribution to product quality and protect them from industrial competitors via a series of rulings in 1976, 1979, 1986, 1994, 1998 and 2007. With the exception of the PDO zone's reduction, all the rulings focused on promoting small-scale local dairy units (no heat treatment for the milk, no robot for the processing activities, restriction of the milk collection area, size limitation of the processing unit). Therefore, it forces large industrial groups involved in the supply chain to respect the production requirements at dairy stage and thus to have similar production costs. Farmers within their *fruitières* and ripeners are really bonded together to defend their competitive advantage. There is a strong relationship between farmers, cooperatives and ripeners when you see the long-term contract periods, which are sometime nearly 40 or 50 years. Moreover, each partner respects the informal agreement on task division: Ripeners do not process milk into cheese and cooperatives do not ripen cheeses. Geographical proximity, complementarity, confidence, loyalty, and reciprocity are the major values and constitute the specific linking social capital.

(iii) The third step is the distribution of income within the supply chain. Linking capital is the basis of the mechanism for distributing the surplus of the PDO Comté's system. Up to today, the participants in the supply chain have organized the distribution of the surplus between « production » and « market ». The system's efficiency is based on the regulated distribution of the collective surplus that has allowed dairy farmers, over the last 20 years (except 2007), to have a 30% higher price for milk (sometimes 40% higher) than the national average. The resilience of the Comté supply chain organisation has persisted over time as cattle breeders and local small capital-holders have shared common interests. Until recently, the number of units at first processing stage provided the cheese-ripeners with a diversity of cheese tastes that was valued by the local and the specialised buyers. Because they were obtaining comfortable profit margins, the cheese-ripeners accepted to share the added value, following a standard contract, which was enforced by the joint professional organization (named *Comité Interprofessionnel du Gruyère de Comté: CIGC*). Cheese-ripeners may amend the contract, however the specifications should be at least as strict as the standard contract. These practices also show the specificity and the density of the Linking social capital. The cheese-ripeners must declare their sales volumes and selling prices for ripened cheese to the CIGC on a monthly basis. The organization then publishes a weighted average price for the monthly sales: the so-called *MNPC (Moyenne Pondérée Nationale Comté)*. This reference price helps to establish the final cheese price. The price for fresh cheese (not yet ripened) is calculated on the base of the *MNPC*, and published. In addition, the quality grade of the fresh cheese is integrated in the price through the use of specific ratios. These ratios are negotiated by the dairy farmers, who are simultaneously shareholders of the cheese-making

cooperatives, and the cheese-ripeners. This mechanism stands at the core of the value distribution process. The cooperatives can then establish the average milk price.

So, the milk price is set by deducting the processing costs from the monthly turnover of each individual unit (sales of Comté, butter and whey). The result is then divided by the delivered quantities of each farmer participating in the cooperative. The milk price at farm gate undergoes further changes based on chemical composition and bacteriological quality. The milk pricing changes monthly, and primarily depends on the milk quality at producer stage, and the ability of the cheese-maker to maximize the cheese/milk ratio, and minimize the processing costs (the cheese-makers' salary most often depend on the amount of turnover). The milk price depends as well on the negotiation skills of the dairy farmers (they also control most of the cheese-making cooperatives) when the calculation ratio for fresh cheeses is discussed in the collective organization.

4.4. The source of the bridging social capital

The interprofessional Comté Committee which controls today the production through a mechanism of "campaign planning" is a particularity of the Comté system. Its job is to control the cheese supply cooperatives and ripeners, and define the volume of production every year to avoid cheese shortage/overproduction and price volatility. Every processor has to pay a contribution for each cheese. A portion of the funds collected by the interprofessional Comté Committee is used to support the budget for collective advertising, and to develop a worldwide network to find innovations. The weak links from this local cheese system to external partners are strongly developed.

The barriers to entry raised by the code of practice for milk and cheese processing are necessary to protect the specificity and link to the *terroir*, which is the fundamental competitive advantage of the product. The surplus value created by this special organisation of production results in higher production costs due to the restrictive conditions which make up the specific quality and image of the product. The creation of values is effective if the cheese-makers together with the cheese-ripeners agree on the crucial elements which determine quality differentiation, identity, image and long-term reputation at the consumer level. This value constitutes a surplus value as the selling price paid for the end product by buyers external to the supply chain is higher than that which the agents would have obtained without collaborating. The surplus value resulting from the organisation originates from the PDO code of practice. The PDO Comté supply chain is often considered a model of collective action. It enables the setting up of a powerful organization, and the giving of extended authority for negotiating and implementing Comté supply control measures, as well as promoting the differentiation strategy which protects the interests of the Jura dairy farmers, small-scale cheese-makers and ripening facilities. Bridging capital is the relationship between friends of friends, and corresponds to the PDO Comté weak ties to numerous partners (government, journalists, chefs of famous restaurants, research institutes, schools, gastronomic consumers associations, etc). The relationships are diverse, and are essential to maintain the reputation and to import innovation. The Comté supply chain has shaped the agro-food sector in this mountainous region, and supported the selling price of Comté cheese. In

2007, the average price was 10.20€/kg compared to 7.10€/kg for French Emmental⁴, that is to say a positive price difference of 47% in favour of the Comté⁵.

So, in summary, the 3 social capital components are shown in Table 2.

Table 2. Collective organization and Social capital: Tasks division to produce the common good

Dimensions	Social Capital Indicators within PDO Comté LAFS
Bonding: Closed social capital	The “fruitière” : dairy farmer members of the cooperative (10 to 30), supply milk and process milk into fresh cheese / Strong history / Long-term commitment / local community = common cultural knowledge / attachment to local resources / confidence / strong social control = impact on milk quality
Linking Closed social capital	Strong Relationship between farmers, cooperatives and ripeners / Long-term contract (40 to 50 years) / Ripeners do not process milk into cheese / Cooperatives do not ripen cheeses / geographical proximity, complementarity / Confidence, loyalty, reciprocity / Enforcement of the unique contract to share the value-added / transparency
Bridging Open social capital	Weak links from LAFS to external partners = way to introduce innovations External partners: Retailers, small dairy stores (commercial innovations) <ul style="list-style-type: none"> - Professional institutions (contractual innovations) - National Finance Department (contractual innovations) - Gastronomy : Restaurant Chef (culinary innovations) - International dairy processors (technological innovations) - Regional authorities (funding innovations)

5. Conclusion

In conclusion, some original findings can be presented. Our framework seems to be relevant to analyse the factors of the success story of a PDO cheese system and the performance of the farms.

The factors which explain the success story of the PDO Comté supply chain can be found in its social capital specificity. The bonding social capital is very strong. Bonding is the result of the historical cheese production in this mountainous region. The cooperative is the key element of the bonding. The *fruitière* is the foundation of the system. The second key element is the linking and its specificity. There is a strong trust-based relationship between farmers, cooperatives, and ripeners. Large dairy companies which have agreed to the social and the technical division within the supply chain are involved in this supply chain. They have given up cheese production to remain ripeners. They have also

⁴Source : syndicat français de pâtes pressées cuites 2007

⁵Source CIGC : <http://www.comte.com/le-marche-du-comte,4,0,8,1,1.html>

introduced technological and commercial innovations. Bridging is the third key element. Bridging introduces technical, institutional, commercial, and culinary innovations.

Despite this economic success, the present collective system is perhaps more fragile than it seems. Of course, the PDO Comté system is resilient because it is built on the capacity given to producers (farmers, cooperative, ripeners) to regularly participate in defining and modifying institutions that protect them from external "aggressions". The fragility is firstly internal and linked to the weakening of the territorial anchoring of the cheese, due to new animal breeding practices. The link to common resources is also blurring, responsibility for the territorial resource is diminishing and weakening the whole system. (Michaud and Jeanneaux, 2014). What will come from these upheavals: a new social contract shared by all, whose bases are constantly being redefined, or like everywhere else a fragmentation of this traditional sector?

References

- Aldrich, D. P. (2012). Social, not physical, infrastructure: The critical role of civil society in disaster recovery. *Disasters*, 36, 398-419.
- Ballot, N., Richard, A. et Perrot, C. (2007). En montagne, une filière laitière essentielle pour le développement économique. Paris, CNIEL et Institut de l'élevage, p. 4.
- Barjolle, D. and Jeanneaux, P. (2012). Raising Rivals' Costs Strategy and Localised Agro-Food Systems in Europe. *International Journal on Food System Dynamics* 3: 11-21.
- Barjolle, D., Sylvander, B. (2000). Some factors of success for origin labelled products in agri-food supply chains in Europe: market, internal resources and institutions *In* Sylvander, B., Barjolle, D., Arfini, F. (éd.). "The socio-economics of origin labelled products in agri-food supply chains: spatial, institutional and co-ordination aspects", Paris, INRA-Editions, p. 45-71.
- Boichard J., (1977) - « L'élevage bovin, ses structures et ses produits en Franche-Comté », *Annales littéraires de l'Université de Franche-Comté*, Paris, Les belles lettres, 110 p.
- Bourdieu, P. (1985). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241-258). New York, NY: Greenwood.
- Coriat B., (2015), *Le retour des communs. La crise de l'idéologie propriétaire*, Les liens qui libèrent.
- Callois, J.-M., Aubert, F. (2007). Towards indicators of social capital for regional development issues. *Regional Studies*, n° 41, p. 809-821.
- GETUR, (1979), *Urbaines Industrie laitière en zone de montagne : le maintien des fruitières traditionnelles et l'agriculture de montagne dans l'Est central*, Grenoble, Groupe d'Etudes, CTGREF, 99p. + annexes
- Granovetter, M. S. (1973). "The Strength of Weak Ties," *American Journal of Sociology* 78 (6), pp 1360 - 1380.
- Guigon S., (1996), *Les fruitières à comté : fromager au village, l'art de composer*, Besançon, Cêtre, Patrimoine ethnologique, 1996, p.111
- Jeanneaux, P. (1998). Enjeux et dynamique du secteur fromager du massif jurassien, *Mémoire de fin d'études ITA*. Dijon, ENESAD, p. 112 p.
- Jeanneaux, P. (2012). La restructuration contemporaine des fruitières du massif jurassien : renforcement ou fragilisation d'un système original de production ? *Fruitières*

et filières fromagères comtoises : histoire et perspectives d'un modèle socio-économique régional. Saint-Claude, 29.

Jeanneaux, P., Callois, J.-m., Wouts, C. (2009). Durabilité d'un compromis territorial dans un contexte de pression compétitive accrue : le cas de la filière AOC Comté. *Revue d'économie régionale et urbaine* 1: 179-201

Jeanneaux P., Perrier-Cornet P., (2011), "Stratégie d'élévation des coûts des concurrents pour préserver un système productif agroalimentaire : le cas d'une filière fromagère d'appellation d'origine", *Revue d'Economie Industrielle*, n° 138, pp. 115-138.

Latruffe, L. (2010). *Competitiveness, Productivity and Efficiency in the Agricultural and Agri-Food Sectors* doi: 10.1787/5km91nkdt6d6-en, OECD Food, Agriculture and Fisheries Working Papers, p. 68.

Mélo, A., (2012), *Fruitières comtoises – De l'association villageoise au système productif localisé*, Poligny/Morre, FDCL.

Michaud, D., Jeanneaux, P., (2014), « Éleveurs et coopératives-fruitières de la filière comté face au changement technologique et économique », dans Jeanneaux, P. et Perrier-Cornet, P. (éds.), *Repenser l'économie rurale*, Versailles, Editions Quae, p. 80-93.

North, D.C., (1990), *Institutions, institutional change and economic performance*, Cambridge University Press.

Perrier-Cornet, P. (1986), « Le massif jurassien. Les paradoxes de la croissance en montagne. Eleveurs et marchands solidaires dans un système de rente », dans *Cahiers d'Economie et de Sociologie Rurales*, n°2, p. 62-121.

Putnam, R. D. (1995). Bowling alone: America's declining social capital. *Journal of Democracy*, 6(1), 65-78.

Réseau d'élevage pour le conseil et la prospective (2012). *Résultats 2010 et estimations 2011 pour les exploitations bovins lait*. Paris, Institut de l'élevage, p. 52.

Ricard D., (1994), Les montagnes fromagères, terroirs, agriculture de qualité, et appellation d'origine - Clermont-Ferrand, CERAMAC, 496 p.

Sander, T., (2015), "About Social Capital". Saguaro Seminar: Civic Engagement in America. John F. Kennedy School of Government at Harvard University. Retrieved December 2,

Scheffman, D. T., Higgins, R. S. (2003). 20 Years of Raising Rivals' Costs: History, Assessment, and Future. *George Mason Law Review*, vol. 12, n° 2, p. 371-387.

Szreter, S., Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, 33(4), 650-667.

Tissot, V., Gauthier, L., (1908), *Les fruitières des Monts Jura. Crises et remèdes*, Besançon, Lanquetin.

Truchis de Varenne, A., (1900), « Le coutumier du val de Saugeois », dans *Mémoire et Documents inédits pour servir à l'histoire de la Franche-Comté*, Paris, Girard.

Vernus M., (1988), *Le comté, une saveur venue des siècles*, Lyon, Textel, 300 p.

Woolcock, M. (2001). The place of social capital in understanding social and economic outcomes. *Canadian journal of policy research*, 2(1), 11-17.