To use or not to use protected geographical indications? An analysis of firms' strategic behavior in Tuscany

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Paper prepared for presentation at the 3rd AIEAA Conference
"Feeding the Planet and Greening Agriculture: Challenges and opportunities for the bio-economy"

25-27 June, 2014
Alghero, Italy

Summary

Geographical Indications (GIs) are important quality signs adopted by firms to underline that reputation, qualities and characteristics of a product are strictly linked to its geographical origin. The protection granted to GIs by the law may exert strong effects on firms' profitability. The extent by which firms use the protected GI for marketing their products depends on many factors, among which the cost-benefit analysis, the marketing strategy pursued by firms, and the characteristics of the Product specifications. But, notwithstanding the great emphasis often put on the positive effects of the GI protection, the use firms make of the protected GI is in many cases far away from its potentiality. So far, academic literature has not handled this topic in a systematic perspective.
The aim the paper is to show the effects of the GI protection by means of the analysis of one case-study the "Pecorino Toscano DOP" (Tuscan Sheep-milk cheese Protected Designation of Origin). In particular, the attention has been focused on the strategic decisions that lead processing firms to decide whether and to what extent to use the protected GI for marketing of their products, and on the effects of the GI protection on firms and local agri-food systems.
Results show that firms, although not well conscious about their costs and benefits, use the protected GI to attain a wide spectrum of results that are often far away from the expected ones. Besides, the way Product Specifications have been drawn greatly affects the effects generated by the GI protection. Much of the real use of protected GIs by firms relies on the coherence between firms' characteristics and strategies, and Product Specifications, while the different use of the protected GI by firms seems not to depend by entry-barriers linked to costs needed to implement the Product Specifications.

Keywords: firms' strategy, Local production systems, PDO and PGI, evaluation
JEL Classification codes: L1 Q13 Q18

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1. INTRODUCTION

The protection of Geographical Indications (GIs) has been receiving a grower attention over the world (Arfini, Albisu, and Giacomini, 2011). Following the TRIPS agreement (1994), all WTO member States are obliged to provide for some regulatory scheme to allow interested parties to apply for a protection of GIs. From an economic and social standpoint, interest is growing because of increasing international competition on quality differentiation, where quality means all attributes, including emotional ones, which help products to stand out and avoid pure price competition. As a consequence, many public and private stakeholders at both local and global level have fostered this new turn to quality. GIs appear to be one of the more interesting and "locally manageable" tools for attaining this aim.

The protection of GIs is advocated to offer opportunities to support local agri-food systems and sustainable rural development (Belletti and Marescotti, 2011b; Frayssignes, 2005). Firms using protected GIs are expected to observe a reduction of unfair competition due to abuses or misuses of the GI, and have the opportunity to differentiate their production on the market, thus gaining higher prices, higher sales volumes, and/or access to new marketing channels.

GI protection, by modifying the local production system and the behaviour of involved firms, can exert many effects on other economic activities outside the local production system, and on local territorial capitals (social, economic, cultural, environmental …). Indeed, GI protection is often linked to the production of public goods, such as biodiversity preservation, cultural heritage protection, sociocultural development and rural poverty reduction (Vandecandealere et al., 2010).

Notwithstanding this growing "enthusiasm" about GIs, to date there is still a lack of systematic research on the effects of GI protection on firms profitability, on local agri-food systems, and on environmental and social aspects. Although there is some academic research that has recently revised potential methods to evaluate GI protection effects (Réviron and Paus, 2006; Barjolle, Paus, and Perret, 2009) and proposed methodological tools to capture all the possible effects of the protection of a GI (Belletti and Marescotti, 2011.a), so far evidence on GI protection effects are mostly related to single aspects and/or single case-studies. Most important, the outcomes of this line of research often highlight out more problems than opportunities (Mancini, 2013). For example, the most comprehensive study on the implementation of GI protection in the EU (London Economics, 2008) showed how firms along the supply-chains of the products observed only an increase of firm's reputation rather than value added or prices, this also due to poor knowledge and understanding by consumers. Generally speaking, there is no direct evidence that the use of protected GIs (such as Protected Designation of Origin PDO and Protected Geographical Indications PGI according to EU Regulation No 1151/2012) can lead to higher added value to firms, as a recent study underlines (Areté, 2013), rather showing the presence of uneven and contradictory patterns.

Moreover, the use firms make of the protected GI is in many cases far away from its potentiality, and this clearly affects the effects GI protection can exert. The protected GI level of use by firms depends on many factors, including the cost-benefit analysis, the general strategy pursued by firms, and the characteristics of the Product Specifications (PS), with particular reference to constraints established in the PS, and degree of internal quality standardization achieved (Barjolle and Sylvander, 2002).

The aim of our work is to show the effects of the GI protection through the analysis of a case-study related to a PDO product in Tuscany. In particular, the attention has been focused on the strategic decisions that lead firms to decide whether and to what extent to use the protected GI for producing and marketing their products.

The paper proceeds as follows. First, we provide a short analysis of the importance of PS in firms' decisions whether to use or not to use the protected GI. Second, we detail the objectives of the study and the methodological framework. Third, we put in evidence and discuss the most significant results of the case-study analyzed. The paper ends with some concluding remarks.

2. TO USE OR NOT TU USE THE PROTECTED GI: THE IMPORTANCE OF PRODUCT SPECIFICATIONS

Provided that GI protection schemes are but one of the many tools in the typical products valorization, firms which are able to comply with the PS choose whether to or not to use the protected GI when they find it profitable according to their global strategy, depending on the marketing channels and customers preferences and knowledge.

Therefore, much of the "success", or put in other terms, much of the extent to which firms will use the protected GI to market their produce depends on the relationship between the contents of PS and firms' characteristics (economic dimension, market positioning, assortment, internal resources availability, etc.).

The PS is a set of rules, which defines the characteristics of the protected GI product and its production process. Due to its structure, this document is a fully-fledged standard. Indeed, firms which want to use the protected GI have to comply with every norm established in the PS.

The PS is the result of a complex process of negotiation, which involves a great number of stakeholders, from the firms of the different stages of the supply chain to public authorities; therefore, it reflects different point of views and heterogeneous interests (Dentoni, Menozzi, and Capelli, 2012).Usually, the debate is based on the definition of the characteristics of three main elements: product, production process, and production area. This decision-making process influences the PS structure and its rules, as the effects on rural development trajectories (Tregear et al, 2007).

Stricter requirements guarantee high level of product reputation and recognizability among consumers, but small or poorly-equipped producers may be excluded, because unable to bear the implementation costs and comply with these rules (Galtier, Belletti, and Marescotti, 2013). Moreover, even big firms oriented to mass markets may find not interesting, or too much costly, to insert a so-specialized and different production line. Consequently, the total amount of production may not reach significant levels, relegating the protected GI product to niche markets and/or impeding appropriate collective action, which is identified by some studies as one of the key success factors of PDO/PGIs (Barjolle and Sylvander, 2002).

On the contrary, looser rules simplify the implementation process and increase firms' possibility to use the protected GI. This situation strengthens both the number of firms using the protected GI and total amount of certified product quantity, increasing the opportunity of reaching supermarket and international channels. At the same time, looser PS reduces product standardization and preserves variations of the OP (under the same protected GI many different kinds of product may co-exist), but menacing product identity and reputation and the confidence among buyers and final consumers.

For example, Barjolle and Philippe (2012) showed that firms may utilize collective rules, such as those written in the PS, to set entry barriers to competitors (raising rival's costs theory, according to Salop and Scheffman, 1983, and Scheffman and Higgins, 2003). Indeed, in the case of Cantal cheese PDO, "The implementation of the code of practices (…) impacts the production costs and excludes from the production system the milk producers adopting intensive agricultural practices" (Barjolle and Philippe, 2012, p.15), while in the case of Gruyère cheese looser rules make it possible for any new entrant to "develop a strategy based on cost leadership through rationalization of the production process, production volume expansion, shortening of the ripening duration, production facilities' expansion, or relocation of the activities" (Barjolle and Philippe, 2012, p.17). On the same aspect Bouamra-Mechemache and Chaaban (2010) also evidenced that in the case of Brie cheese PDO big firms are not interested in using the PDO as they cannot exploit scale economies, as the PS imposes restrictive rules (non-pasteurized milk, high labour-intensity in the production process, etc.).

Therefore, big firms are normally much more interested in having looser rules for their production, as to capture the benefits from scale economies, Dentoni, Menozzi and Capelli (2012) recently explored the impact of individual group members' heterogeneous characteristics, resources and strategies on their level of cooperation on defining the future regulation of Geographical Indications. Higher heterogeneity negatively affects members' agreement on the future level of restrictiveness of "Prosciutto di Parma" PDO as GI and therefore the effectiveness of the collective action.

Generally speaking, firms' heterogeneity increases the possibility to have conflicts and different levels of use of the protected GI (Kanbur, 1992). Reputed producer will normally try to get stricter regulations, or internal differentiation in the PS as in the case of Parmigiano di Montagna PDO cheese quoted in Sidali and Scaramuzzi (2014), otherwise he will tend to exit from using the protected GI (Segre, 2003).

3. AIMS AND METHODOLOGY

The main purpose of the study is to understand the effects generated by the GI legal protection of the European Union on firms and local agro-food production systems, and to capture the strategic decision by firms on whether and to what extent to use the protected GI according to their characteristics.

Two sets of motivations can lead firms to decide whether to use or not to use the protected GI. First, there might be entry barriers for using the protected GI, in the form of higher costs firms must bear for accessing the system (Belletti and Marescotti, 2011a). Second, firms may take their decisions on the basis of the production and marketing strategy they intend to follow, therefore on marketing channels used, on portfolio decisions, on target characteristics, on customers' needs

In order to accomplish the research objectives, and to check the importance of these motivations, an analysis of the "Pecorino Toscano DOP" (Tuscan Pecorino-cheese PDO) has been made. Tuscan Pecorino-cheese is a processed product, which obtained the PDO protection in 1996. Before the introduction of the EU protection system (EU Regulation No 2081/1992), a national law guaranteed the protection of the name "Pecorino Toscano" against frauds and misuses.

The research methodology consisted in a first step in an analysis of the "logic" followed by local stakeholders during the process that led to the application for the PDO recognition, by means of an exam of PS contents (also compared to "conventional practices") and other documents.

In a second step, some semi-structured interviews with a representative group of Tuscan Pecorino-cheese PDO dairies (12 out of the 17 registered cheese factories), and to the director of the Consortium were conducted. The aim of these interviews was to understand the motivations underpinning the choice of firms of using the PDO in marketing their products. The topics investigated during the interviews were the following:

- Firm's characteristics (history, number and type of products, turnover, presence of other certification schemes, etc.);
- Implementation of PDO standard (PDO and non PDO Pecorino cheese production and its typology, distribution channels, geographical markets);
- Identification of the main relevant differences between the PDO product and a close substitute;
- Costs for using the PDO quality sign (implementation costs, raw material costs, production costs, certification costs, consortium costs, etc.);
- Prices and incomes;
- Other benefits related to PDO use.

4. RESULTS

4.1. Pecorino Toscano PDO: production system and Product specifications

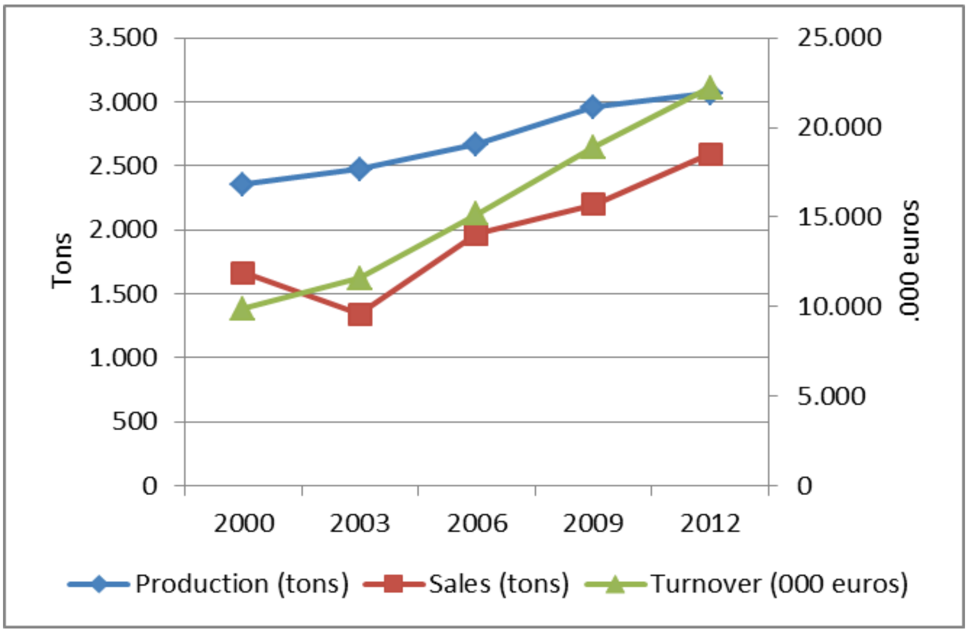
Due to the ancient origins which link the production of Pecorino cheese with such an extended area as Tuscany, a wide range of different cheese typologies were sold as Tuscan Pecorino-cheese, these reflecting some specificities in production methods in different areas of Tuscany, although sharing some characteristics, such as a milder taste as compared to other reputed Italian Pecorino-cheeses (i.e. Pecorino Romano, Pecorino Sardo).

When local stakeholders decided to apply for the EU protection of the GI "Pecorino Toscano" (Tuscan Pecorino-cheese), and had to file the Product Specifications, the main concern was that of including all these production areas and product diversity, also due to the high value of the brand "Tuscany" on the market.

The result was that both milk production and cheese processing should take place in Tuscany (and some bordering municipalities of Umbria and Lazio regions), but the rules regulating Pecorino-cheese production methods were not highly detailed. For instance, the final product characteristics were defined in a very flexible way indeed: shape diameter should be between 15 and 22 cm, overall height between 7 and 11 cm and weight between 1 and 3,5 kg. Moreover, the colour of the rind could vary in shades of yellow, but it might even be black or reddish. Two typologies were allowed: the fresh and the mature one. Despite that, two elements distinguished this product: the provenance of the sheep-milk (Tuscan Pecorino-cheese PDO could be produced only with milk coming from sheep breeding in the allowed production geographical area) and the use of only native lactic ferments approved by the Consortium.

After a significant production drop at the end of the Nineties (from 4.696 tons produced in 1997 to 2.356 tons in 2000), Tuscan Pecorino-cheese PDO production has gradually recovered, attaining 3.067tons in 2012 (figure 1). The same trend involves cheese factories' turnover linked to Tuscan Pecorino-cheese, from 5 million euros in 1997 to 22 million in 2012. In 2012, the 17 registered cheese factories produced on average 162 tons each (92 tons of mature pecorino-cheese and 70 tons of fresh pecorino-cheese), ranging from a maximum of 857 tons to a minimum of 0,77 tons (2012), thus signalling the high heterogeneity of processing firms and especially a diversity in the importance of PDO production for each dairy.

Figure 1: Tuscan Pecorino-cheese PDO - evolution of production, sales and turnover



Source: Authors' elaboration on data by Consorzio Pecorino Toscano DOP

Moreover, in 2011-2013 Tuscan Pecorino-cheese exports increased by 37% (Table 1), thanks to the consolidation of traditional markets (EU, United States, Australia and Japan) and the entry into new markets, such as East European countries. The low interest of medium and small cheese factories and the lack of a common export strategy, with the exception of the promotion work by the Consortium, reduce the overall capability to attain higher exports.

Table 1: Tuscan Pecorino-cheese PDO export (.000 euro)

	2011	2012	2013	2013 in %	2013 su 2011
Europe	1.563	1.386	2.261	65,1%	45%
America	822	882	964	27,8%	17%
Asia	9	10	20	0,6%	122%
Oceania	0	41	47	1,4%	117400%
Italian exporters	147	128	180	5,2%	22%
Totale	2.541	2.447	3.472	100,0%	37%

Source: Authors' elaboration on data by Consorzio Pecorino Toscano DOP

All cheese factories producing Tuscan Pecorino-cheese PDO are associated to the Consortium, that numbers among its member also 245 breeders, one cheese maturing firm and one packer. Main Consortium's activities concern the protection of the PDO, the control of the supply-chain, technical assistance provision to members, and promotion through press releases, events and advertising campaigns. Diaries are concentrated in Maremma (south of Tuscany), because of the highest sheep farming concentration.

4.2. Costs barriers for using the PDO

Costs for using the protected GI may discourage most firms to using a protected GI, and can thus explain why firms do not use, or use less than expected, the protected GI for marketing their product. These sort of *entry barriers* may show up in the form of control and certification costs paid to the Certification Body, but the compliance with the rules of the PS may generate additional costs, too: adaptation of the production process (e.g. new equipment required by the PS, implementation of the certification system (new competencies and skills to be acquired, modification in administrative routines), administrative burdens (time to fill forms), fees for participating to compulsory promotion organisations. Some increases in cost of (variable or fixed) inputs could happen, because the PS could ask for higher quality raw material and other inputs and/or create monopolistic market conditions on fixed production factors.

In order to analyse these cost barriers, we compared Tuscan Pecorino-cheese PDO to a similar Pecorino-cheese, named as "benchmark". Notwithstanding the variability among Tuscan Pecorino-cheese PDO produced by each registered dairy, we selected a traditional Pecorino-cheese as benchmark, produced only with sheep milk coming from any origin, ripened 6 months in case of matured Pecorino-cheese and 45/60 days in case of fresh Pecorino-cheese. Moreover, the production process of the benchmark cheese has not to comply with the PS, and it is not subject to control and certification systems.

It is not easy to estimate the spread between the production costs of these two products, as many different variables may affect the result. Anyway, our research showed that there are no significant cost differences linked to the production process. In particular:

- Initial investments for PDO production: just a few cheesemakers declared they needed to invest to reorganizing the ripening phase and to buy specific refrigerators and equipment;
- Raw material: the price of sheep milk produced in Tuscany is normally close to the price of sheep milk coming from other areas. In particular, the higher transport costs associated to French and Spanish sheep milk are compensated by higher collection costs for milk in Tuscany due to poor conditions of local routes and to the fragmentation of milk production. However, some cheesemakers pointed out that Tuscan sheep milk quality has gradually decreased, strongly affecting cheese yield;
- Milk processing and cheese production: there are not significant differences between the PDO and its benchmark;
- Labeling/marking: this phase represents a critical step for Tuscan Pecorino-cheese PDO, as it requires a relevant amount of work, especially for longer ripening products, due to the need of using fire-heated marks to identify products. This process is the most important difference between Tuscan Pecorino-cheese PDO and the benchmark all along the production process.

On the other side, certification procedures give rise to some differences between the two products (PDO product and its "generic" benchmark). Indeed, certification costs include implementation, maintenance, management of the PDO standard. Moreover, membership fees to the Consortium are another cost, which changes according to the amount of Tuscan Pecorino-cheese PDO produced by each cheesemaker (0,10 €/kg). The impact of labelling and certification process has been estimated in 3-5% of the whole production costs of the Tuscan Pecorino-cheese PDO. Generally speaking, some cheesemakers estimate on average a spread of 1,50 €/kg in case of matured Pecorino-cheese, 0,30 €/kg in case of fresh Pecorino-cheese.

In conclusion, for cheese factories registered to the PDO system, the amount of extra costs to bear for branding their products as PDO seems not able to explain the level of use of the PDO by each firm, due to the close similarity between a PDO Tuscan Pecorino cheese and a "generic" Pecorino cheese they are used to make and sell. For already registered firms, the decision whether and to what extent to use the PDO for marketing their cheeses has to be found in marketing considerations, rather. On the other side, for many smaller cheese factories, and also for dairy farms who also internally manage the processing phase, costs for registering to the PDO system may play a role in their decision to use the PDO.

4.3. The use of PDO by firms

The high variability among different typologies of Tuscan Pecorino-cheese PDO allowed by the PS, which from one side can reduce the possibility to reach a strong characterization of the product to consumers, on the other side allows for a relevant number of Tuscan cheese factories to produce a PDO cheese.

In 2013, the 17 cheese factories registered in the PDO handled 53 million of litres of sheep milk, 60% of which suitable to produce Tuscan Pecorino-cheese PDO[1].Only half of this milk (around 15 million litres) has been processed to obtain a Tuscan Pecorino cheese PDO. Thus, although they have the opportunity to do so, these cheesemakers preferred not to use the PDO over their entire production.

Various motivations can support the choice of using PDO, but the level of use of PDO is not directly linked to the dimension of the cheese factory, as shown in figure 2 where the 17 firms are represented according to two variables: the total volume of sheep milk processed, and the relevance of the PDO (share of collected sheep milk devoted to the PDO production). The correlation between the two variables is very low: 0.0891. This result is in line with the fact that no specific investments are required to entry the PDO production.

The choice to use the PDO is therefore linked mainly to firms' marketing strategies. By splitting the cheese-factories according to the average values of the two variables considered, and considering the quantitative and qualitative results of interviews, four main typologies of firms can be roughly identified, which correspond to strategic orientations.

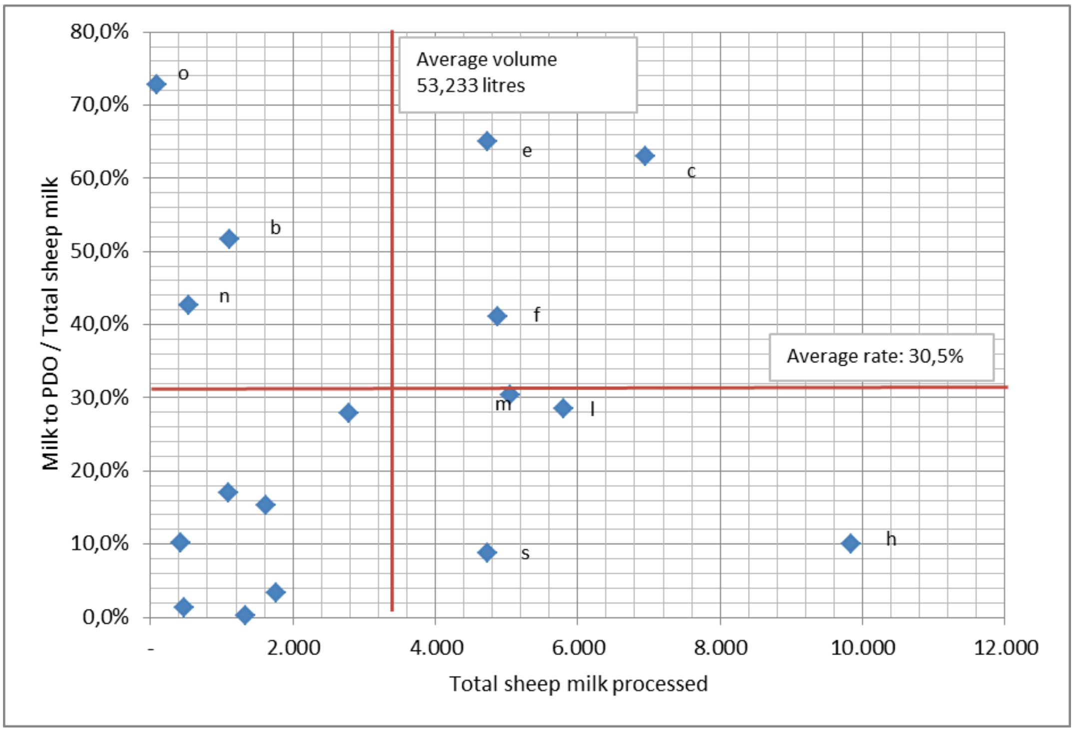
A first typology identifies "*big and strong PDO users*" (upper-right quarter), composed by a few firms with high cheese production volumes and where a big share of the total cheese production is PDO. For these firms the Tuscan Pecorino-cheese PDO is the most important product in the assortment, and it is mainly marketed to Italian bigger mass distribution firms, which buy more than 80% of their cheese sales. The PDO certification represents the key to enter supermarket channels. Supermarkets chains are interested in Tuscan PDO because of the high value acknowledged by consumers to Tuscan cheese, and they search for suppliers able to guarantee large production volumes and in some cases to produce PDO under the brand of the supermarket chain. On the other side these "big users" can take profit by a well-organized structure and high

[1] According to the Product specifications, the sheep milk is suitable to produce Pecorino Toscano PDO when it comes from farms inside the production area defined in the Specification and registered in the PDO system.

production volumes that allow them to gain relevant scale economies, making the supermarket channel interesting despite strong pressure to keep low prices.

A second, opposite typology identifies "*small and low PDO users*" (left-lower quadrant) which encompasses six small cheese factories who use a little share of their whole processed sheep milk to produce Tuscan Pecorino-cheese PDO. They market their sheep cheeses mainly on the internal market, along traditional channels and by direct selling. For these firms PDO production is not important for their business, because they do not succeed in producing Tuscan Pecorino-cheese PDO at low cost, so for them it is not possible to compete with big and medium cheese factories, as they cannot reach equal scale economies, and not profitable to access supermarkets under the same PDO label. These "small and low users" produce small amounts of certified Tuscan Pecorino-cheese PDO both to enhance supply in their own direct sale shops (to have a complete assortment) and to fulfil some buyers specific requests. In these cases, PDO production is used as a sort of "ticket-to-trade", in the sense that the supply of a complete portfolio of cheeses allow them to access some markets that need to deal with limited amounts of suppliers and ask for high-quality and differentiated production. The low users therefore focus their business strategy on high-quality market segments of non-PDO certified cheeses, in some cases differentiating their products on the basis of speficic techniques (as raw-milk production), and using small amounts of PDO products to qualify the assortment and enter some distribution channels.

Figure 3: Distribution of cheese factories according to the size (total sheep milk processed) and level of use of PDO (weight of milk devoted to PDO), year 2013



Source: Authors' elaboration on data by Consorzio Pecorino Toscano DOP

A third typology encompasses "*big but low PDO users*" (right-lower quadrant), that is cheesemakers with a relevant sheep cheese production but with a low use of the PDO. These firms use many different marketing channels, but in general they are less oriented to supermarket chains and more to the export who in some cases is the most important marketing channel (in one case 70% of total PDO sales). In fact the high reputation achieved by this cheese and the name of Tuscany, coupled to the distinction offered by PDO certification, opened the possibility of establishing international trading channels. In particular, USA, UE, United Arabian Emirates and Australia represent the most important international markets for the Tuscan Pecorino-cheese PDO.

For many of these cheese factories belonging to both second and third typologies the low use of the PDO can be explained also by the relevance they give to the reference to other specific territories with an high renown at least in Tuscany and in Italy (such as Pienza, Val D'Orcia, Pratomagno, Crete Senesi). These firms produce some (non-PDO) Pecorino-cheeses signalling in the label to consumers a specific link with these origins. The real content of this link (in terms of provenance of the milk and of the use of specific techniques) varies case by case: in some cases there is a real connection, and well documented to the consumer (eg by traceability of milk, or use of specific rennet), while in other cases the reference to the territory is purely evocative and without any guarantee for the consumer.

The forth typology encompasses the "*small but high PDO users*" (left-upper quadrant). For these firms the use of PDO is more linked to tradition. Due to small quantity these firms do not access regularly the supermarket chains but in some cases they sell the product to local supermarkets, declaring that the use of the PDO helped in opening this new channel and in access non-Tuscan markets.

5. DISCUSSION

The flexible Product Specifications allow producing Tuscan Pecorino-cheese PDO for a relevant number of Tuscan cheesemakers, but the product quality across different cheese factories is not homogeneous. Cheese factories take advantage of the PDO in different ways, according to their own business strategies. Indeed, "the big users", exploiting the opportunity of reaching scale economies, target the supermarket channels, offering a medium quality Pecorino-cheese. The decision of producing a medium quality product is due to supermarkets' price policies. Indeed, Tuscan Pecorino-cheese PDO is often sold by supermarkets at promotional prices, trying to capture consumers in the store (the same strategy is adopted for other PDO/PGI cheeses in Italy, such as Parmigiano Reggiano PDO and Grana Padano PDO). The most relevant share of product is sold during discounts and promotions and sale price is often lower than production costs.

On the contrary, "the small users" produce only a small quantity of Tuscan Pecorino-cheese PDO, mainly to complete their assortment both to satisfy consumers' demand and to enter particular markets, especially extra-EU countries[2]. The smallest ones are more oriented to competing on high-quality market segments and niche markets, counting on local consumers or tourists. These cheesemakers are not able to neither compete on the cost-side, nor sufficiently differentiate their PDO Tuscan Pecorino-cheese from the big users' ones. Because of that, they usually prefer to use Tuscan sheep milk to produce own brand Pecorinos, first to differentiate their product, second to obtain high prices, third to reduce certification and administration costs. On the other side, the biggest ones rely on other quality signs to sell their product and differentiate on the market, both counting on other territorial qualifications (other reputed areas of Tuscany, natural parks, etc.) and production process qualifications (raw-milk sheep-cheese, long ripening periods, etc.).

[2] PDO certification facilitates the access to both supermarket channels and to export, especially due to the high reputation of "Tuscany". Because of that, the whole registered cheese factories try to increase exportations, in particular medium and small diaries. Often Tuscan Pecorino-cheese PDO plays a crucial role to export other firms' products.

In short, a few big cheesemakers supply the bulk of Tuscan Pecorino-cheese PDO, and their cheese production is concentrated on PDO production (roughly 60-70%), while the others cheesemakers use the PDO only to a very limited extent, preferring to focus on high-quality non-PDO productions and complete their assortment with some quantities of PDO production. The result is that average quality level of PDO production is lower than potential, and overall the use of the PDO by firms is quite low as compared to its potential, too. The paradox is that in many cases low users' pecorino cheese production, even in the case of close similarity to PDO one, do not label it as PDO although potentially they could.

Notwithstanding the rather low specificity of PS and a rather low spread between PDO and non-PDO production costs, extra price gained on the market seems not sufficient to cover the extra costs PDO requires, but for big cheese factories selling average quality cheeses to supermarkets. It is also possible that even for big dairies the difference between the extra price gained on PDO production (estimated in 0,20-0,30 euros/kg) and the extra costs needed to comply with the PS is often negative, but the PDO is used as a key to sell all the other firm's products. In other words, when evaluating the convenience to produce PDO products, the evaluation of the cost-benefit balance for each cheese factory has to be done on the whole assortment of the cheese factory and not only on the PDO production.

6. CONCLUDING REMARKS

Capturing higher added value in PDO/PGI products is not an easy task for firms, as recently highlighted by a EU commissioned study (Areté, 2013), which identified the "intrinsic product differentiation (i.e. presence of significant differences in the intrinsic features – quality parameters, organoleptic characters, etc. – of a GI product versus the corresponding standard product)" as key factor for obtaining a positive differential margin in GI production. As this study pointed out, "in general, GI products with only slight differences in intrinsic features from the corresponding standard products achieve relatively limited advantages in gross margins, or even no advantage at all, whereas GI products which are significantly different from the corresponding standard products tend to achieve more important advantages; only few exceptions to these trends emerged from case-study work" (Areté, 2013: 10).

Although often advocated to exert positive effects on firms' profitability, distribution of value added, collective action enhancement, social and environmental benefits, so far not many study deal with how firms decide whether to use or not to use protected geographical indications.

This paper attempted to highlight some reasons why firms decide if and to what extent to use PDO/PGI in EU, and why in many cases PDO/PGI are under-utilized as compared to their potential. Apart from the trivial consideration that the use of a PDO or a PGI depends on the reputation of the geographical indication associated to the product and therefore to market and consumers' recognition - many newly established PDO/PGI, in wine too, register a very low degree of use by firms (Carbone, 2003.a) -, that can only be built in time and/or with important communication actions, much of the real use of PDO/PGI by firms relies on the coherence between firms' characteristics and strategies, and Product Specifications (Carbone, 2003.b; Arfini et al., 2010).

The looser PS of the Tuscan Pecorino-cheese PDO can be explained by the need to protect the name/brand "Tuscany" against usurpations; this has led to a set of specifications based on the identification of a few simple elements common to different cheesemaking traditions in the different areas of Tuscany. This choice, characterized by its own rationality, generated a double sub-system where big cheese factories (similarly to what happens in some PDOs characterized by sectoral governance models, like Cantal – see Barjolle and Philippe, 2012) are able to capture product reputation but menacing long-term average quality of the product (Belletti, 2000), while high-quality productions, mainly produced by small-medium cheesemakers, do not use the PDO as it is not able to effectively signal differentiated quality, or use it as a guarantee about the origin and authenticity of the raw material. Consequently, the potential of the PDO is under-utilized on niche channels and used mainly on the mass distribution ones. As a result, the average quality of the PDO production risks to lower (Akerlof, 1970) and other collective quality signs (collective trademarks, PDOs, or other) have been (or are on the way to be) created. The "generic" identity of Tuscan Pecorino-cheese PDO explains some recent attempts to differentiate and qualify other Pecorino-cheeses made in Tuscany with more territorial-specific quality hallmarks[3].

On the other side the looser PS contributed not only to support the regional dairy sector, but allowed to the survival of sheep husbandry in Tuscany too, menaced by the strong competition of sheep milk from neighbouring regions (Lazio, Sardinia), and increasingly by milk production from abroad (France, Eastern Europe). Indeed, on the one hand the flexibility of final product characteristics allowed to include the whole Pecorino-cheese production of Tuscany and, therefore, guaranteed high volumes; on the other hand, the rule which states that Tuscan Pecorino-cheese PDO can be produced only with milk coming from sheep breeding located in Tuscany has protected to some extent[4] Tuscan sheep farming and, through it, given the characteristics of Tuscany sheep breeding, the preservation of the environment and rural culture and traditions.

In order to build effective PDO/PGIs, the ex-ante phase, where the contents of the Product Specifications are discussed and written, is therefore of paramount importance. The rules should be decided within participatory processes, as to allow all potentially interested stakeholders to express their opinions and concerns, and evaluate all the possible effects of the rules on firms' activity.

AKNOWLEDGMENTS

This paper presents the first results of the research "Evaluating the effects of geographical indications protection", responsibles G.Belletti and A.Marescotti, and funded by the Tuscan Regional Administration (Regione Toscana). The Authors want to thank all interviewed cheese factories and the Consorzio del Pecorino Toscano DOP for the information given and the comments received.

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[3] On the one hand, there have been some applications for a PDO related to pecorino cheeses produced in smaller areas of Tuscany ("Pecorino delle Balze Volterrane PDO" and "Pecorino a Latte Crudo della Montagna Pistoiese PDO"). On the other hand, some reputed pecorino-cheese productions of Tuscany decided not to apply for a PDO because of the many limits they might face with a certified production (Pecorino di Pienza).

[4] Despite that, Tuscan sheep husbandry is in a state of crisis. The number of breeders has quickly dropped, on one hand due to the raise of costs and the reduction of prices, on the other due to the scarce competence of firms, which reduces the introduction rate of innovations.

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