The role of geographical indication in supporting food safety: a not taken for granted nexus

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Abstract

The paper focuses on the role of geographical indication in supporting strategies of food safety. Starting from the distinction between generic and specific quality, the article analyses the main factors influencing food safety in cases of geographical indication products, by stressing the importance of traceability systems and biodiversity in securing generic and specific quality. In the second part, the paper investigates the coordination problems behind a designation of origin and conditions to foster an effective collective action, a prerequisite to grant food safety through geographical indications.

Introduction

The aim of the paper is to analyze the contribution of geographical indications (GIs) to food safety. This is a first step, based on a theoretical analysis of possible connections between origin of products and food safety. In order to excavate possible links between GI and food safety, in the first part, the article analyses the influence of GI on generic and specific quality. In the second part, the paper puts forward an analysis of collective action, in order to specify the conditions under which a GI can effectively support food safety strategies.

Food safety and geographical indications

The raise of consumers' awareness on food safety and, in general, on food quality has induced many scholars to deepen the multidimensional aspects related to quality (Ilberry and Kneafsey, 2000). Following this demand-pull trend, a quality turn has been characterizing the agro-food systems of developed countries since the 90s (Allaire, 2002, 2003). An even stricter system of rules has been carried out, in order to preserve the population from the risks associated to food consumption. In this context, inward approaches have been replaced by the Europeanization of risk and by global approaches to food safety (Alemanno, 2006). By establishing a comprehensive and integrated approach to food safety, the white paper of the European Commission (2000) sets up the basic rules concerning the whole agro-food system aiming *to ensure a high level of human health and consumer protection*.

The growing concern about food quality and safety has encouraged a lot of research on the topic; with reference to both demand and supply side, three different strands of researches can be classified: consumer demand for quality and safety, provision of quality and safety and consumer perception of quality and safety. As far as provision of quality and safety are concerned, a relatively new field of research relates to the capability to add quality and safety to place-based food production. From a demand side, consumers demanding more food safety ascribe a growing importance to the origin of food products. This is particularly true in cases of high risk perception, which boosts the demand of origin products (Lim *et al*., 2014). On the whole, country of origin label (COOL) aims to preserve identity on country of origin and convey this information to consumers using different public and private standards not only P.D.I. and P.D.O. As a matter of fact, several studies have analyzed country of origin effect on the consumers' perception of food safety and quality (Hoffmann, 2000), even though they are not unanimous due to the necessity to support COOL with other variables of food safety (Dickinson and Bailey, 2002; Liefeld, 2004; Awada and Yannaka, 2012). Therefore, integrated models of analysis, dealing with all relevant aspects of consumer behavior should be taken into account (Wedel *et al*., 2000).

According to some empirical evidence, they perceive positively GI due to its quality, control and safety (Fragata *et al*., 2007); thus, consumers' awareness on food safety has called for institutional effort with the objective to stimulate the adoption of quality labels. Among various tools implemented along the food chain, GIs have a relevant role. In the 34th FAO regional conference for Europe (FAO, 2004), special attention has been devoted to quality parameters linked to specific production areas. More precisely, the influence of *terroir* on food safety and better nutritional balance has been pointed out. Nonetheless, Larson (2007) guess that many consumers do not know what a GI exactly means: therefore, they buy GI because of their quality and perceived food safety (strictly linked to traceability).

Against this framework, GIs can be considered, either directly or indirectly, as driving forces of food safety. As a matter of fact, in countries with no tradition on geographical indications, the attempt to introduce protected designation of origin (PDO)/protected geographical designation (PGI) labels is carried out with the specific aim to foster and grant food safety (Wehn Hegnes, 2012). Moreover, as underlined by Albisu and Corcoran (2001): *Food safety concerns among consumers, either rationally or emotionally driven, have contributed to the desire for established and traditional processes and origins*.

The huge diffusion of GIs across Europe, especially in the Mediterranean area, has stimulated the debate on the possibility to apply it as tool to qualify traditional products all over the world. Therefore, geographical indications are no more a question of Eurocentrism, but a global concern (Sautier *et al*., 2011).

However, the links between geographical indications and food safety have not been enough clarified in literature, under the hypothesis that quality of a GI is essentially due to the multifaceted attributes offered by the place of origin. Besides, the supply food safety in case of GI raises questions concerning the capability of the collectivity of producers to grant it: coordination problems emerge as GI are collective marks engaging numerous single producers. Therefore, an effective collective action is a necessary condition of building food safety. Consequently, how to secure collective action becomes an important field of analysis to investigate the aptitude of GI to promote food safety.

Generic and specific quality in the geographical indications' influence on food safety

A mark of GI certifies that the quality and the reputation of a product depend on its geographical origin (Belletti and Marescotti, 2011b). This definition has been coded by the

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World Trade Organization, within the framework of the Trade-Related Aspects of Intellectual Property Rights Agreement: *Geographical indications [...] identify a good as originating in the territory of a Member, or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin* (art. 22.1). The degree of rootedness to the place of origin differs among various territories, depending either on natural, cultural and historical background, or on the legal framework in which GI develops (O'Connor, 2004). How these aspect influence food safety is a relevant topic not deeply analyzed in literature. Actually, on the one side, links between GI and food security have been recognized in literature, on account of the GIs' role in both supporting a better physical access to food and providing a better income for producers (Eberlin, 2009). On the other side, less attention has been devoted to the analysis of the GIs' influence on food safety. In order to comprehend appropriately the eventual connections, the FAO's distinction between generic and specific quality could be of help (FAO, www.foodquality-origin.org/qspecifique.html): *generic (or basic) quality corresponds to the minimal requirements to be respected in order to market a product, in terms of consumer protection and respect for relevant market regulation. On the other side, specific quality corresponds to the combination of features that – once requirements in terms of generic quality have been met – allow a product to create added value and be differentiated on the market on the basis of a voluntary approach by the economic stakeholders.*

Thus, specific quality schemes are based either on voluntary approach, which sets up specification and standard requirements, or on a rigorous control system and on information transmission through labeling (Barjolle and Vandecandelaere, 2012). Behind both generic and specific quality processes of resources specification emerge in the qualification of agricultural and food products (Pecqueur, 2014). In this context, Storper (1997) identifies two essential dimensions of the product: the first one concerns the supply side and separates standardized (generic resources required) from specialized products (specific resources required). As far as the demand side is concerned the duality regards *the degree of anonymity and uniformity of the client* (Storper, 1997). Accordingly, generic products fulfill the need of an undifferentiated demand, while dedicated products are targeted to specific consumers whose personality and tastes are taken into consideration (Adinolfi *et al*., 2011). Specific resources are required in order to produce specific quality: products specification is complex and may engender difficulties and possible failures of the qualification initiatives. This is particularly true in case of GIs, a collective mark.

Geographical indications and food safety

Literature has underlined the GI's high contribution to sustainable development, due to a set of impacts that influence food safety too (WIPO, 2013): more precisely, as far as environmental impacts are concerned, Vandecandelaere (2013) points out the improvement of natural resources, and contribution to agricultural and wild biodiversity. Moreover, the contribution towards consumers' well-being should not be neglected, due the transparency and traceability of the GI products (Moschini *et al*., 2008). However, connections between all these aspects with food safety need to be clarified. As a consequence, if a geographical indication certifies a specific quality attributable to a determined region or territory, it could be of interest to investigate how both the generic and specific quality due to the origin of a product could give a contribution to food safety. The link between GI and food safety is not immediate and is not always direct. Barjolle *et al*. (2009) emphasize that the expectations around the activation of a GI are diversified (economic, environmental, social) but, according to some key actors, relevant drivers of the GI are food safety and the respect of hygienic rules.

In order to set up the main aspects connecting food safety and GIs, a distinction between physical and human approaches in describing *le lien au terroir* (Barjolle, 1999) and a focus on the physical one are required. More precisely, while human approaches investigate the relevance of *savoir-faire* and tacit knowledge in performing a typical product, physical approaches try to explain the connection to the territory through physical, chemical, biological, agronomical researches. As a matter of fact, quality of soils and water used in crop and animal production has influence on food safety (Antle, 2001).

Against this background, it is possible to start from taking into account the aforementioned difference between generic and specific quality. The first establishes a direct link with food safety; the second sets an indirect connection. If the generic quality describes a minimum quality requirement a product must accomplish, therefore every GI product has to ensure safety and health requirements (Barjolle and Vandecandelaere, 2012). A typical example of this kind of ties between food safety and GI emerged with the regulation 2081 and 2082/92, which has promoted PDO and PGI: as a matter of fact, to get these marks, producers have to satisfy a minimum of compulsory standards of food safety. In Italy, the necessity to accomplish these regulations posed a threat to a huge amount of traditional, locally processed products, which run the risk of disappearing. As a consequence, the Italian government declared a law to permit these products to disregards these norms for a certain numbers of years. In this context, a relevant factor linking GI and food safety is underlined in the White paper on food safety and is related to food traceability. According to the International Organization for Standardization (ISO) traceability is *the ability to trace the history, application or location of that which is under consideration.*

Therefore, product specification includes tools to ensure traceability. In the case of GI products, traceability is an intrinsic value (Sciarra and Gellman, 2012). Among various benefits of GIs, they essentially contribute to product safety as producers can be identified and held responsible for their products (Addor *et al*., 2003). Therefore, thanks to the efforts carried out by the territorial food systems based on GI, methods are refined through experience and often implement appropriate processing technology that consistently delivers a measure of quality and adequate food safety. Consequently, GIs align with these trends and seem to convey similar attributes of reliability, quality and food safety to the consumer.

However, an effective traceability regime shows different degrees of complexity and depends on the correct application of the code of practices by the collectivity of producers.

As far as specific quality is concerned, indirect correlations can be found between food safety and biodiversity. If literature stresses the impact of biodiversity on food security essentially attributable to the combination of *unique climatic conditions, soil characteristics, local plant varieties or breeds, local know-how, historical or cultural practices, and traditional knowledge concerning the production and processing of certain products* (Vandecandelaere *et al*., 2010), on the other side, biodiversity can influence food safety too. This is clearly stated in the core of programs carried out by the FAO, in order to grant *food security and better nutrition, improved quality and safety of food* (FAO, 2011). According to the position of the FAO, the place of origin gives strong impulse on biodiversity and, as a consequence, biodiversity gives a strong contribution to food safety. Moreover, *nutritional quality and safety are essential elements in dealing with those foods* (Azzini *et al*., 2010).

In questioning *Why engage an origin-based collective process?* Vandecandelaere *et al*. (2010) sustain that the second pillar to justify this is the environmental pillar. The promotion of GI schemes supports, on the one hand, the sustainable use of resources; on the other one it contributes to biodiversity: *origin-linked products often use traditional, endemic or specific*

locally-adapted species, varieties, breeds and micro-organisms. The promotion of such products can help resist pressure towards increased specialization and standardization, thus preventing the disappearance of habitat, typical landscapes and genetic resources. Many GI products stand on biodiversity resources: in Argentina, the local breed *Neuquen Criollo Goat* is part of the FAO inventory on biological diversity (Pérez Centeno, 2007). Similarly, Marescotti (2003) show how the presence of *13 native cherry-tree varieties, coupled with the peculiarity of the soils and the climate, form the basis of the specificity and reputation of the cherries of Lari*.

If biodiversity contributes in a determinant way to food safety creation, therefore, GIs have a role to play in this building process. As a matter of fact, the possibility to preserve and maintain biodiversity goes through a GI application: as underlined by Garcia *et al*. (2007), *the specifications for the GI application are environmentally friendly and compatible with the maintenance of the landscape mosaic*. Moreover, Larson (2007, 2010) puts forward a strict relationship between biodiversity conservation and development of GIs: in his paper he underlines the opportunity to proceed with a GI recognition in cases where food production contributes to the *in situ* conservation of genetic resources for food and agriculture.

From above, two important consequences originate: firstly, in the monitoring the various territorial impacts of GI (Belletti and Marescotti, 2011a), it is necessary to focus on the environmental aspect which include biodiversity preservation and, indirectly, food safety. The second consequence involves the definition of the product specification, a strategic step which involves an effective collective action.

Securing food safety through the code of practice: a problem of collective action

In his economic analysis of food safety, Antle (2001) points out differences in firm size, organization and behaviour may influence the analysis of food safety. In our opinion, this is particularly true when speaking of GIs.

The capability to promote sustainable rural development through GIs is not an easy process, depending on actors involved in product qualification, on their qualification and on how code of practice in the qualification scheme is determined (Tregear *et al*., 2007). The perspective offered by the proximity approach (Torre and Beuret, 2012; Rallet and Torre, 2004), clarifies the complexity of the question: a real territorial proximity is verified when localization in GI areas brings about a process of organizational proximity, strictly attached to geographical proximity. Organizational proximity assumes interdependencies among local actors, which are translated in the two logics of belonging and similarity.

As Filippi *et al*. (2011) stated, *belonging occurs when two members from a given organization are close to one another in the sense that they interact and because these interactions are facilitated by the rules or behavioral routines that they follow. Similarity implies that two individuals are close to one another because they share one and the same systems of representations or even identical objectives.*

In the case of GI products, belonging logic is put into effect through the collective action aimed at defining shared rules of production (Bramley *et al*., 2010). On the other side, similarity logic implies sharing same systems of representations and similar objectives. Therefore, due to the collective nature of a GI, coordination problems emerge. In this context specification of the products within the code of practice (CoP) should be determined.

Food safety in the code of practice

In specifying the key conditions for spreading the European approaches to quality policy, Sylvander *et al*. (2007) underline the credibility of the i) rules of production, ii) control procedures and iii) cueing quality with respect to consumers. Therefore, the code of practices sets up the way a GI influences food safety. The product specification through the CoP is a social process (Bérard and Marchenay, 1995): local community must decide the strategies (sectorial, territorial, both) to follow when the mark is adopted (Sylvander and Marty, 1998). To this end, it involves both the producers adhering to the collective mark and other local stakeholders (local institutions, association, experts, *etc*.).

The CoP aims at specifying the rules of production for the collectivity of local producers adhering to the GI. It delimits the area of production and describes the production and processing methods (WIPO, 2013). Moreover, CoP may emphasize the specific quality linked to geographical origin, by underlining both physical and human factors influencing either generic or specific quality (Vandecandelaere *et al*., 2010). Consequently, the CoP aims to address the convergence of producers towards shared practices and to communicate to the consumers the specific quality of the GI. As Barjolle and Sylvander (2000) point out, more proficient are the local producers to adapt their individual strategies to the collective strategy, more easily each actor can appropriate the collective process. Therefore, the more heterogeneous is the productive base, the more difficult will be the sharing of the collective rules. The choice between artisanal *vs* industrial processes is a typical example of conflicts arising in a diversified localized food system with GI. Sharing the CoP is required in order to establish consensus and, therefore, to ensure the conformity to the product specification (Bramley *et al*., 2010). The collective behavior behind a GI poses a threat on the real producers' capability to respect the code and, therefore, to grant food safety. The coordination capability is required, in order to foster a solid social construction of the CoP, through the integration of diverse strategies of local producers, by putting concurrence relations in the perspective of the building of common good (Casabianca, 1998).

Against this background, the definition of the CoP becomes relevant in order to grant food safety through GI; more precisely, a rigorous CoP is fundamental to emphasize the key elements of both generic and specific quality that characterizes the GI. Deselnicu *et al*. (2013) draw attention on this: *Stricter regulations may signal increased benefits to consumers in the form of food safety, quality assurance, and stronger cultural or heritage connection, prompting a higher willingness to pay for products that are more closely regulated*.

The description of Cop aims to let the specific quality linked to *terroir* to emerge; however, basic quality requirements, that is generic quality, have to be respected, above all traceability systems. Traceability systems permit to *trace* all the steps of the transition of the products from farm to table and, as a consequence, to test if the processes respect the CoP. As far as food safety is concerned, code of practice *establishes traceability, verification and control schemes in order to ensure continued quality and compliance with the code of practice or regulations of use* (WIPO, 2013). Moreover, detailed information influencing food safety may involve: physical attribute, chemical features, microbiological information, biological details and organoleptic characteristics. For example, Serra reports how isotopic parameters have been added to technically specify *Grana Padano* Cheese (Italy). Finally, the use of use of quality insurance schemes and traceability systems along the food chain permits to raise consumers' trust in the GI (Vandecandelaere, 2010), and is a requisite in order to be accepted in the circuits of the modern distributions, Ho.Re.Ca included. McDonald has recently adapted its production to the Standard Qualivita (Fondazione Qualivita, 2014), with the aim of introducing GI products, as ingredients in its menus. This implies the commitment to preserve quality characteristics and food safety of the ingredients. To this end, McDonald has to undergo periodic controls concerning: products traceability, use of Italian GIs, list of the suppliers of

the ingredient, action aiming at improving the hygienic-sanitary conditions in the restaurants.

As far as specific quality is concerned, links between GI and food safety are secured by the valorization of biodiversity. As a consequence, CoP is strategic in grounding GI specifications on the use of native plant varieties and breeds otherwise at risk of extinction. This is particularly true in cases of setting up subcategories, like cheese obtained from alpine pasture (example: *Gruyère* and *Parmigiano Reggiano*).

To ensure the correct implementation of the CoP, a relevant role is played by the consortium through a series of activities of inspection and verification along the food chain which contribute to preserve food safety and the traceability systems (Unido, 2010). To be successful, the quality consortium has to mediate strictness and flexibility, in order to favor the eventual inclusion of new attributes (linked, for example, to food safety), without touching the essential quality of the product (Babcock and Clemens, 2004). A guarantee scheme must be promoted, to monitor the compliance of the CoP with the quality criteria, above all with the respect of the food safety standards.

Against this background, it should be taken into account how the internal action carried out by the consortium is a necessary but not sufficient condition, in order to promote food safety. As a matter of fact, external conditions should be accomplished too.

The first one concerns the harmonization within the World Trade Organization (WTO) of the norms concerning GIs at international level. Setting up shared international standard related to GI is not an easy objective, due to the huge differences in the production processes. Less difficulties can be observed in cases of GI that operates in global markets (*Parmigiano Reggiano, Grana Padano)* or that already adopt international private standard to enter the distribution channels at an international level like, for example GlobalGap (Augustin-Jean, 2012).

A second condition, which can limit the effectiveness of the links between GI and food safety, concerns if the name of the GI and its reputation would be sufficient deterrent to fraudulent practices. Italy is particularly involved in this context: as known, Italian sounding and agropiracy pose a strong threat to the entire strategy based on the GIs, due to a parallel market of similar or false products reporting an Italian origin (Nomisma, 2005). Swinbank (1993) makes reference to the concept of *pervasive externalities*, in order to show the consequences of food insecurity, which causes losses of production and of income and repercussion on the sanitary expenditure. Similarly, a food scandal caused by fraudulent practices engenders a collective loss in the income through a pervasive mechanism of association of the GI mark with the rogue behavior. Stricter traceability regimes reduce risks of piracy, by providing consumers with detailed information about the authenticity of the product (Sciarra and Gellman, 2012). However, it is necessary to highlight that agropiracy and illegal behaviours originate in the same area of production, because of the presence of rogue entrepreneur. Consequently, to reduce further risks, a strong collective action is required: we investigate on this in the next paragraph.

A working collective action to grant food safety

The strategy of qualification of agricultural products through a GI is relevant and generates higher consumers' willingness to pay. In order to make this strategy credible, coordination problems emerge (Raynaud and Valceschini, 2005). As a matter of fact, *complying with labeling, safety and traceability regulations implies organizational and technical efforts for small organizations that are challenging by themselves* (Larson, 2007). Due to the collective character of a GI, it is necessary to point out the main aspect related to an effective impact on food safety based on a real collective action. Collective action can be defined as voluntary action taken (directly or indirectly, through an organization) by a group of members to achieve common interests (Marshall, 1998). The collective action enable the local community to gain immaterial resources, like information, trust, networks aimed at innovation, etc. The consequence of the previous definition is that a social analysis is required, in order to test the key factors stimulating local participation in collective action and the ability of the group to organize (Ostrom, 1998; Futemma *et al*., 2002). Moreover, Futemma *et al*. (2002) underline the importance of ecosystem approaches, in order to take into account the influence of types of natural resources on the appropriation system. To this end, Meinzen-Dick *et al*. (2004) refer to the structure-conduct-performance paradigm, in order to underline the need for comprehending the determinants variables influencing the structure of the group and, as a consequence, its conduct and, therefore, the outcomes of the collective action. Ostrom (2003, 2010) clarifies methods for studying collective action, by dividing two categories of structural variables affecting the likelihood of collective action: variables i) not depending and ii) depending on repeated situation.

Variables not depending on repeated situation include what follows. First, number of participant involved; as evidenced in the seminal work of Olson (1965), the raise of the number of participant reduces the odds of cooperation, due to the possibility of free riding. Therefore, *increasing group size decrease prospects for successful collective action* (Poteete and Ostrom, 2004). Second, subtractability of the benefits from collective action. This means that the benefits should be shared among the participants to the group. More cooperation may emerge in cases of public goods. Third, heterogeneity of participants. The more heterogeneous is the basis of the group, the more difficult is to set up a convergent strategy aimed at qualifying a GI. As underlined by Vanni (2014), the appropriateness and homogeneity of the group should foster social relations and, as a consequence, collective action. Fourth, face-to-face communication lets the trust to emerge and foster relational assets (Storper, 1997).

Variables depending on repeated situation include the following. First, information about past actions, that contribute to the individuals' reputation. Second, links among individuals and external actors influence collective action, thanks to the working of bridging, bonding and linking capital. Three types of social capital are mobilized through the action of bonding (strict ties, like family connections), bridging (extra-territorial links) and linking (among different units, like interfirm-interrelationships) ties. Third, voluntary entry/exit; in cases of easier withdrawal higher levels of cooperation may emerge. Ménard (2000) points out how the activation of collective action engenders both benefits (reduction of the information costs, higher capability of risk-bearing, reduction in adverse selection and moral hazard, *etc*.) and limits (free riding strategies, possible collusive behaviors, cost of processing of information, *etc*.). In order to maximize benefits and minimize limits, coordination and cooperation become indispensable aspects to foster the appropriateness of the collective process on behalf of each actors (Barjolle and Sylvander, 2000): this happens when each actor adapts individual strategies to collective action (Bramley *et al*., 2009). This aspect brings the discussion into the analysis of horizontal and vertical coordination mechanisms aiming at securing the credibility of the commitments taken on by the producers through the labelling of a GI. Nevertheless, we will analyze these aspects in future papers.

Conclusions

The present article meant to point out some key aspects concerning the eventual links between food safety and GI. Provided this paper has to be considered as a first step in this direction and that theoretical considerations require to be empirically supported, in our opinion some key points can be underlined. The contribution of geographical indications seems relevant, either directly or indirectly. This is confirmed by looking at the connec-

tions between GI and food safety from both a generic and specific quality perspectives: from a generic quality point of view, traceability systems have to ensure the compulsory quality standards, through a guarantee scheme. From a specific quality point of view, the physical approach to GI enlightens the contribution of biodiversity in specifying GI products and the role of biodiversity in performing food safety. Securing the quality requirements is a complex problem, depending on the aptitude of the producers to take on collective actions. The theoretical perspective of collective action adopted in the paper has clarified necessary condition in order to grant an effective implementation of the CoP. Group size, heterogeneity of participants and other key factors have to be deepened. Coordination problems seem relevant too, above all in cases of GI that involve both agricultural and processing aggregates. The solution of complex aspects represent necessary conditions to make credible the commitments the GI producers have taken on with respect to the consumers, and to create a positive reputation around the typical products. This could enlarge the opportunity of success of a GI product and, as a consequence, should be considered in setting up evaluation criteria about the performance of typical products in modern agrofood systems.

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