

Final article:

Sodano, V., Hingley, M.K., and Lindgreen, A. (2008), “The usefulness of social capital in assessing the welfare effects of private and third-party certification food safety policy standards: trust and networks”, *British Food Journal*, Vol. 110, No. 4/5, pp. 493-513. (ISSN 0007-070X)

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**The Usefulness of Social Capital in Assessing the
Welfare Effects of Private and Third-Party Certification Food Safety Policy Standards:
Trust and Networks**

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Research paper

Purpose – The aim is to assess the welfare effects of the newest trends in food safety policies characterized by the shift from public to private intervention.

Design/methodology/approach – food safety policies are analysed through concepts of new economic sociology, with a critical review of the literature on social capital.

Findings – The article shows that as food safety and quality attributes responsible for the exchange complexity are simply codified and enforced through standards and third-party certification, the global value chain governance shifts from a relational type to a power-based type, with possible negative welfare effects.

Research limitations – Further research would be required to verify the welfare effects suggested on the theoretical ground.

Practical implications – The article makes a useful updating of food safety policies and organizational innovation in the food system.

Originality/value of the paper – The paper introduces to some new (with respect to the marketing literature related to the food system) concepts and theories of economic sociology.

Keywords – food safety; networks; policy; social capital; standards; trust; welfare effects.

Introduction

This article contends that the current shift from public to private food safety standards and third party certification calls for a different approach to the analysis of food safety policies, on both descriptive and normative grounds. Stemming from two different concepts of social capital, one of trust and the other of networks, the article demonstrates how both are useful in assessing the welfare effects of the newest trends in food safety policies. The attention given to the dimension of social capital is but the starting point from which to apply methods and concepts of the new economic sociology to the study of global agri-food systems, in order to overcome the many shortcomings of the standard economic model.

The remaining parts of the article are organized as follows. Drawing on the theoretical and empirical literature, first described is the ongoing shift from public to private food safety standards and third party certification. Subsequently, two different concepts of social capital are introduced: trust and networks. These notions of social capital are then applied to the analysis of the welfare effects of private food safety standards and third party certification. The article concludes with thoughts and suggestions concerning some approaches of economic sociology that could be integrated in the research agenda of scholars engaged in the study of global agri-food systems.

From Public to Private Food Safety Standards

Recent trends in food safety policies

In Western developed countries the issue of food safety has traditionally been addressed by national health bodies and laws (Henson, Caswell, 1999; Henson, 2001). The tools widely used to protect citizens from eating unsafe foods have included the following three: first, the circulation of guidelines and information to improve the hygiene during the process of production, distribution, and home handling of food; second, the setting of standards limiting the content of chemical, biological, and physical contamination of food; and, third, a tort liability legislation and other laws to enforce food standards. With the emergence of wealthier and more conscious consumers, however, private firms have improved their involvement in food safety activities as well by using different tools such as certification and quality assurance programs, quality disclosures, and investments in reputation (Holleran et al., 1999). At the beginning of the 1990s, two forces promoted contradictory changes in the system. First, the creation of the World Trade Organization as a multinational body entrusted with the task of trade liberalization raised a request for non-tariff trade barrier reductions and standard harmonization in order to facilitate trade (Caswell, 2003). Second, with outbreaks of food diseases, such as BSE, SARS, and avian influenza, new safety concerns were raised by the public, and a request was made for more state control and assurance. The result has been, on one hand, a higher effort of nation states in promoting and coordinating food safety at a national and international level, and, on the other hand, research into new tools of intervention (e.g., hazard analysis and critical control point- HACCP, traceability, and certification) that are less rigid than the classical mandatory minimum standards; in order to achieve the double goals of reducing the disclaims of trade partners with lower levels of standards and of better dealing with new health threats associated with the growing dimension and complexity of global agri-food systems.

Food safety policy in the European Union is supported by the following three pillars. First, the General Food Safety Law (see note 1) lays down the general principles and requirements of food law and procedures in matters of food safety, establishes the European Food Safety Authority, and instigates mandatory food traceability. Second, the directives and their following updating provisions set standards for dangerous contents (e.g., additives, residues, and chemicals), labeling, and hygiene practices (HACCP). Third, the different laws that give the private certification system the ultimate state guarantee through public institutions' certification bodies' accreditation.

Along with this food safety policy framework are the national food safety systems and the international regulatory guidelines set forth by the World Trade Organization and other bodies. These systems and guidelines are discussed next.

National food safety systems differ from one another because of differences in the national laws implementing the EU directives or because of the different enforcement tools offered by the individual nation legal systems (see note 2). Furthermore, even inside a single member state there can be differences among regions due to the ongoing processes of devolution partially related to budgetary state constraints.

The World Trade Organization addresses the food safety issue mainly with the sanitary and phytosanitary agreement and the technical barriers to trade agreement. The former agreement, while stating the rights of individual states to carry out any measure deemed necessary to achieve health and food safety goals, spells out the condition under which sanitary and phytosanitary issues could be used to limit trade in a given food product. Notable is the appeal to science in making such determinations and the stress on international standards

setting bodies, including the Codex Alimentarius, thereby giving such previously voluntary organizations *de facto* mandatory status. The latter agreement limits food safety interventions to those that are deemed not to be used for blocking trade. In order to assess the necessity (instead of a technical barrier use) of an intervention, much attention is given to processes of risk analysis (based on strict science-based procedures) aimed at defining the appropriate level of protection consistent with a fair trade practice.

The Food and Agriculture Organization and the World Health Organization are mainly concerned with the difficulties that less developed countries face when trying either to lower the domestic food risk or to update their goods to the safety standards of importer countries. The Food and Agriculture Organization is currently engaged in projects aimed at improving agricultural extension and training in order to help farmers cope with the changing contractual arrangements set out by importers (Food and Agriculture Organization, 2005a, 2005b). The World Health Organization has recently recognized food safety as a public health problem and has designed its role in food safety as "to reduce the burden of food borne illness by advising and assisting Member States how to reduce exposure to unacceptable levels of chemicals or micro organisms in food" (World Health Organization, 2002: p. 10). According to this mandate, seven approaches are referred to within the World Health Organization (2002) global strategy for food safety. These approaches are: strengthening surveillance systems of food borne disease; improving risk assessment; developing methods for assessing the safety of new technologies; enhancing the scientific and public health role of WHO in Codex Commission; enhancing risk communication and advocacy; improving international and national cooperation; and strengthening capacity building in developing countries. Table 1 summarizes the different levels of food safety regulation in the European Union and the role of international bodies and agencies.

Insert Table 1 about Here

Private food safety standards and third-party certification

Food safety tools can be divided broadly into two groups (Sodano, Verneau, 2004): first, public and mandatory, legally enforced (see note 3) and, second, private and voluntary, either legally or informally enforced (Table 2). The most widely used tools in the first group include minimum standards, such as those referring to pesticide residues, additives, chemical, and microbiological contaminants; mandatory hazard and critical control point; tort liability; mandatory traceability; and labeling (Caswell, Padberg, 1992). Tools in the second group include voluntary certification with a third-party certification, using legally enforced formal contracts; voluntary certification without a third-party certification, using quasi-formal and informal contracts; voluntary hazard and critical control point, traceability and standard, using formal and informal contracts; and reputation, using informal implicit contracts (Furubotn , Richter, 2000; Shapiro, 1983).

Insert Table 2 about Here

The use of these different tools has dramatically changed in strength and scope over the past decade. The World Trade Organization's growing power and the ongoing process of deregulation and devolution of the state has pushed towards the withdrawal of the state from standard setting and auditing intervention. Meanwhile, the higher environmental, health, and social risks associated with the geographic spread of food markets and new technologies have

caused an increase of new social movements asking for greater food-chain control and guarantee (USAID, 2005).

As a result of the above changes there has been a shift from public to private food safety standards, and among these from first-party certification to third-party certification. The ultimate leading part of this process has been the retail sector. The construction of private standard (built on state standard, defined by a single firm, by an industry group, or by a third-party) offers supermarkets at least the following three opportunities. First, to achieve competitive advantages through a non-price competition based on product differentiation and reputation enhancement; second, to reduce transaction costs by facilitating procurement activities, especially when carried out in a context of global sourcing; and third, to pre-empt state and other actor interventions that might be dysfunctional to their own internal resources and organization. Substituting for missing public institutions also offers an opportunity for food retailers (Henson and Reardon, 2005). Examining the main economic and institutional incentives, which have driven major food retailers in their use of private voluntary standards, a primary driver has been reputation (Fulponi, 2006: p 6): "Providing consumers with products that meet consistent quality and safety standards that go beyond the minimum requirement is seen as essential to building reputation, the key asset for current and earnings flows".

Currently, a vast array of certifications operates in global food systems around the world, covering just about every aspect of food production, processing, transportation, and retailing. A recent USAID report (2005) identifies the following types of certifications, including some quasi-mandatory certification where the state acts as third-party certifier: strict food safety certifications (HACCP, ISO 9000, and ISO 14000; traceability; region-of-origin labeling;

organic certification; export certifications; fair trade; labour certifications; ethical trade initiative; EUREP; environmental certifications; phytosanitary certifications; corporate social responsibility; animal welfare; and non-genetically modified certification.

As already mentioned, not only has there been a shift from public to private food safety standards, but among these private ones there has been a shift from first (i.e., audited by suppliers) and second (i.e., audited by retailers' paid technicians) parties to third-party certification (i.e., audited by a third party independent from other actors in the food system). With respect to first and second parties, third-party certification has two important advantages for retailers (Hatanaka *et al.*, 2005). First, retailer organizational responsibility and liability is transferred to third-party certifiers, with third-party certification strengthening a possible 'due diligence' defence. For example, in the United Kingdom the due diligence defense introduced by the Food Safety Act 1990 in lieu of the so-called 'warranty defence' (see note 4) has been quoted as an important driver in the wide use of third-party certification by retailers (Hobbs *et al.*, 2002). Second, the cost of monitoring and assuring food safety and quality is passed to suppliers, while benefits to reputation remaining mainly with retailers.

Currently, major retailers in developed countries have their own agrifood standards. As processes of globalization and concentration at retail level accelerate, inter-retailer collaboration grows, with different chains establishing common standards (e.g., EUREPGAP, CIES's Global Food Safety Initiative, and British Retail Consortium) and using third-party certification firms that operate globally (e.g., Primus Lab, Cert ID, and Davis Fresh Technologies). Moreover, retailers are increasing their collaboration with a wide range of public and private initiatives and with non-governmental organizations involved in food programs (Bush, Thiagarajan, Bain, 2005). The result is a new food-safety network with

central nodes being made of huge retailers and third-party certification companies; secondary nodes made of non-governmental organizations, civil consortium, extension agencies, and local governmental agencies, and with suppliers around the world insulated in peripheral positions.

While benefits and opportunities of private standard and third-party certification are well expressed by the above mentioned incentives that have moved retailers towards these policies, costs and threats have not been clearly assessed yet. Current literature highlights at least five concerns constituting the down side of third-party certification. These concerns are as follows.

Cost bearing and sharing. With the exception of fair trade certification, which is generally paid by the buyer or exporter, costs of certification are borne by producers. Small farms that cannot afford the costs exit the market (Henson, Masakure, and Boselie, 2005). In developing countries, smallholders without title to land (women are often in that condition) incur difficulties also in carrying out the specific investments needed for certification. Put simply, "standards demanded by supermarkets are a powerful driver of concentration, and the corresponding exclusion of small farmers" (Balsevich *et al.*, 2003). Furthermore, certification and associated costs appear not to be compensated for in price premiums received for the product, through better management of the farm or firm, or through increased sales, with the exclusion of fair trade standard (Giovannucci and Ponte, 2005).

Democratic governance. Private standards and third-party certification might be intrinsically deemed to be non-democratic mainly because of three features. First, the emergence of a standard comes from the decision of a single firm or non-governmental organization, without

any formal statutory consulting with those affected by the decision. Second, the threshold of the standard is an arbitrary choice. While standard-makers justify their choices as science-based, it should be recognized that "science alone is incapable of telling us what risks are worth taking" (Bush *et al.*, 2005: p. 39). Such a decision implies judgement of value and should rely on political debates and accepted wisdom. Third, the use of private standards exacerbates power imbalance within the food system, with retailers gaining more advantages with respect to producers (Hatanaka, Bain, and Bush, 2005).

Less developed countries upgrading. The raising of private standards and third-party certification offers challenges and opportunities for development (Reardon and Berdegue, 2002). While some studies suggest that, in order to comply with standards for export product, less developed countries accelerate processes of agricultural innovation and domestic food safety improvement (Fulponi, 2006), others suggest that the effort to raise performance for export markets negatively affects quality and safety of locally sold products, with low quality-low cost farmers becoming 'segregated' in the domestic market (Hatanaka, Bain, and Bush, 2005).

Efficacy and reliability of certification systems. In third-party certification schemas, agency auditing compliance with standards must be accredited by a third-party certification accreditor that in turn must be 'certified' by a Certification Body. Such certification bodies must themselves undergo audits to ensure that they have the necessary systems and processes. Certification bodies come in many shapes and forms; they may be private or public, a non-governmental organization, or a commercial firm: "CBs and TBC accreditors tend to engage in a complex surveillance system, auditing and accrediting one another in multiple tiers to various standards. ISO/IEC Guides tend to be used as guidelines by CBs and TBC accreditors

in auditing and accrediting themselves" (Bush *et al.*, 2005: p. 8). Each nation has its own ISO accreditation organization. While certification bodies generally claim their independence and that their services are objective, consistent, transparent, and effective, three evidences contrast these claims (Bush *et al.*, 2005). First, the certification bodies are themselves in the marketplace, the certification market. Second, many certifications are likely to remain limited to credence attributes (e.g., pesticide residues, organic production practices, fair trade, social accountability) because for these attributes no failure to perform adequate certification is ever likely to become directly evident to either buyers or consumers. Third, since certification does not necessarily mean that best practices are being followed, rather it means that a paper trail has been produced, which again means that fraud is possible as in any other industry.

Compliance with World Trade Organization agreements. Since they are voluntary, certification schemes are outside the control of the World Trade Organization. Nevertheless, when supported by the leading global actors in the food supply system, they become in effect mandatory and can give rise to litigation with respect to the terms of the technical-barriers-to-trade agreement, by arguing that "at some level all standards are technical barriers to trade" (Bush *et al.*, 2005: p. 35).

Social Capital: Definition, Concepts, and Applications

Definition

Social capital has been defined as "social networks and the associated norms of reciprocity" (Putnam and Gross, 2002: p. 8). The idea underlining this definition, from nearly all the literature on social capital is that "dense networks of social interaction appear to foster sturdy

norms of generalized reciprocity. In other terms social interaction helps to resolve dilemmas of collective action, encouraging people to act in a trustworthy way when they might not otherwise do so" (Putnam and Gross, 2002: p. 7). Although the term 'social capital' is often related to both the concept of trust-based social norms and of networks, a distinction can be made between two strands of literature depending on which concept is considered as prevalent (Figure 1). These strands are considered next.

Insert Figure 1 around Here

Concepts

Trust. The first strand is related to Putnam (1993) and Fukuyama (1995) regarding the role of social capital in improving democracy and economic development. Social capital is viewed as a kind of impersonal and generalized trust. Impersonal is different from interpersonal trust. Impersonal trust is at least an individual's optimistic expectation about the outcome of an event and it explains social structure; it can be considered as "a set of social expectations shared by everyone involved in an economic exchange" (Zucker, 1986). Interpersonal trust occurs in contexts of relationship settings where two actors are involved in an exchange and is defined as "the extent to which a person is confident in, and willing to act on the basis of, the words, actions, and decisions of another" (McAllister, 1995).

Impersonal trust is social and normative, while interpersonal trust is essentially individual and calculative. Following Gintis (2000), impersonal trust is consistent with a definition of social actor as *homo reiprocans* and/or *homo equalis*, while interpersonal trust fits the classic definition of *homo economicus*. Impersonal trust does not exist without the existence of prior

social relationships, which are able to drive social actors towards cooperative behavioural patterns. Impersonal trust reinforces social relationships, building up, along with other kinds of social norms, those social networks constituting the structure of civil society. As impersonal trust, social capital fosters democracy and economic development by facilitating social and economic exchanges (reducing monitoring and sanctioning cost) and allowing dilemmas of collective action to be resolved (limiting free-riding and offering cooperative-based solutions to collective action problems). According to this definition, social capital is measured mainly through the dimensions of associability, trust, and attention (Offe and Fuchs, 2002). Indirectly related to this strand of literature are economic theories (Bowles, 2004; Fher and Gachter, 2000; Fher and Schmidt, 2001) that stress the role of reciprocal behaviour, social preferences, and social norms in resolving organizational problems associated with contract incompleteness and in explaining experimental results of bargaining games.

Networks. The second strand is related to works by Burt (1992, 2005) and Lin (2001) on social structure. Here social capital is defined as "resources embedded in a social structure that are accessed and/or mobilized in purposive actions" (Lin, 2001: p. 29), where the social structure refers to relationships (that are the frame of a network) among social actors. Accordingly, networks are themselves considered as a form of social capital. Linkages with other actors constitute the network of an actor, which is his social capital, whose value depends on the structure of the networks, the resources contacts hold, and the nature of relationships (Burt, 1992).

Following the above definition, social capital is not necessarily associated with cooperative behaviour and high level of trust, but rather it nourishes competitive behaviour based on the

exploitation of information and control opportunities offered to an actor by his endowment of social capital. Related to this strand of literature is the theory of social exchange and mainly the power-dependence theory in both its strictly structural (Cook and Emerson, 1978) and structural strategic (Molm, 1997) version.

Applications

Neo-institutional theories. The trust perspective has been used in neo-institutional theories when studying trust and social norms as alternative exchange organizational forms with respect to markets, contracts, and hierarchies. Trust, in a sense, completes the theory of transaction cost, allowing for another aspect of human behaviour (attitude toward cooperation or trusting behavior) that gives rise to control structures (informal relationships, such as 'handshakes') that are alternatives to the contractual line, which defines the continuum between markets and hierarchies (Williamson, 1985; Furubton, Richter, 2000). From this point of view, social capital (as trust) is deemed to be welfare enhancing, by lowering transaction costs and correcting market failures due to asymmetric information, uncertainty, and public goods.

Development theories. Both the trust and the network feature of social capital have been considered by development economists who have found sound evidence that a positive relation exists between social capital endowment (measured through associability and attitudes towards trust and reciprocity; see Grootaeri *et al.*, 2004) and the level of social and economic development. Nevertheless, the related literature also distinguishes between forms of social capital enhancing welfare and equity and forms that are detrimental to democracy and development. As an example, a distinction is made between inward-looking *versus*

outward-looking social capital and between bridging *versus* bonding social capital (Putnam and Gross, 2002). Inward-looking forms of social capital (e.g., a gentlemen's club or chambers of commerce) tend to promote the material, social, and political interests of their own members, even at the expense of outsiders, while outward-looking forms (e.g., civil rights movements) are concerned mainly with the public interest and provide clear public as well as personal benefits. Bonding social capital, on the one hand, brings together people who are like one another in important respect (social class, gender, and race) and can be conducive of conflicts and inequalities. Bridging social capital, on the other hand, brings together people who are unlike one another and is more likely to promote cooperation and equality.

Management and industrial organization theories. Looking mainly at the network perspective, management and industrial organization scholars have considered social capital as a source of competitive advantage (see note 5). These scholars are generally enthusiastic about the benefits of networks, including facilitating communication and allowing for flexible organizational arrangements, fostering the ability to seize new market opportunities, and creating a more innovation-oriented business atmosphere. Despite these claims, it would be hazardous to consider networks as always enhancing economic welfare. In fact, it is not the total amount of connections that matters, but the kind of connection and the particular shape of the network structure that it generates. There really exists a flip side of the coin, a kind of 'dark side' of social capital that can hamper – instead of improve – economic welfare in respect of both efficiency and equity concerns.

The relation between social capital in the form of network and firm strategies in the competitive arena has been addressed by Burt (1992, 2005) by means of the structural holes theory. The following section considers this theory.

The structural holes theory

At the core of Burt's theory is the claim that "competition works when players have established relations with others" (Burt, 1992: p. 1), that is when the competitive arena is investigated as a network whose nodes are the players in the competition game. Network structure is responsible for differences in competitive advantage among the players, with structural holes, defined as disconnections or nonequivalencies between players, being the core structural element, "Variable exposure to structural holes is the foundation for network models of social capital and a fulcrum for comparing models" (Burt, 2005: p. 16). Asymmetry in the social capital endowment by actors and the structurally induced consequences of this asymmetry on their market opportunities (also in the form of exercising market and bargaining power) is the very cause of high performance associated with structural holes.

Besides being provided with a network rich in structural holes, an actor (an individual or organization) can strengthen his social capital by brokerage, for example by bridging the holes (Burt, 2005). When an actor (a broker) provides bridges across structural holes (e.g., a manager who creates interdivisional links in a large organization), combining information from disparate groups that would not otherwise communicate, he relocates himself in a better position. Returns to brokerage are constrained by the maintenance of a certain degree of network closure, which is the strength and exclusivity of relationships within groups. Brokerage, together with closure, makes the network assume the typical small world structure, that is a bundle of dense clusters (characterized by closure, for example by strong ties among actors, generally supported by self-enforcing relationships including trust,

reputation, and social norms) separated by structural holes, and weak ties (the bridges provided by brokers) linking structural holes. In such a small world structure brokers are the more powerful actors, with more chances to seize opportunities and a higher bargaining power to spend within relationships with other actors. Information advantages and the various exchange opportunities (and consequently the low exchange dependence) are the main sources of gains from brokerage.

While the positive effects on firm profits of such an endowment of social capital (depicted as a network rich with structural holes and brokerage opportunities) are highlighted in Burt (1992, 2005), different benefits assessments can be made when looking at the issue from the point of view of total welfare effects. Because a firm's competitive advantages stem from market imperfection due to incomplete and asymmetric information, and because some form of market power is exercised, conditions of Pareto optimality are not fulfilled and efficiency is not guaranteed. Moreover, because some form of bargaining power is exercised, there are equity concerns as well. In other words, the 'dark side' of social capital is associated here with market failures and inequalities stemming from market imperfection, information asymmetry and incompleteness, opportunistic behaviours, and imbalance of power.

Assessment of the Welfare Effects of Non-Public Standards

Private standards and third-party certification augment the total amount of social capital in the food system, considering both trust and network dimensions. First, trust increases either because of the higher transparency associated with standards, or because of consumers' greater confidence in third instead of first and second party certification. Second, networks grow due to the new procurement systems, and to the civil society involvement associated

with the process of standard setting. The new procurement system is characterized by a centralized supply system that relies on specialized/dedicated wholesalers and preferred suppliers operating under *de facto* contracts. Such a system substitutes the previous decentralized one, relying on traditional wholesalers and spot markets (Henson and Reardon, 2005), and making use of short-period weak contracts. The result is a higher degree of connection with more formal relationships among actors in the food supply system. The civil society involvement is explained by the fact that social movements (in the forms of non-governmental organizations and consumer activists) have played an important role in influencing both the adoption and the content of third-party certification, and have been, as already mentioned, one of the driving forces in the new food safety policy trends.

Taking for granted that the total amount of social capital is positively related to economic and social development, private standards and third-party certification seem able to foster a safer and more efficient global food system. Nevertheless, using more carefully the different categories of social capital introduced in the previous section, their welfare effects are more dubious and contradictory.

How Much Trust?

Regarding trust, at least two contradictory effects of third-party certification can be accounted for. First, the erosion of trust as an effective corrective tool of contract incompleteness. Second, the excess of consumer trust and the social misunderstanding of actual health risk, especially with regard to processes of risk assessment of new technologies. Each of these two contradictory effects is considered next.

Contract incompleteness and trust. Many food quality and safety attributes are experience and credence attributes, for which some form of guarantee is required by the buyer (Sodano, 2001). When monitoring costs are low and the external legal system is effective, formal guarantee contracts are viable. When monitoring costs are excessive and/or the external legal system is ineffective, informal contract based on reputation or trust is needed (Sodano, 2002). The role of trust as a corrective tool of contract incompleteness has been widely described in the organizational literature, mainly from an institutional perspective. In a wide sense, trust shifts the organizational analysis from contracts (as elementary analysis units) to a multidimensional spectrum of possible quasi-formal trading relationships of the kind of obligation-contractual relations. Such relationships are strongly embedded in social relations between trading partners, and are characterized by a sense of mutual trust (Schary and Skjott-Larsen, 2001). These kinds of relations, and the related relational marketing strategies, are the ones that assured retailers' quality and safety standards before the spreading of third-party certification.

During the 1990s, in order to face consumers' concerns about food quality and safety, manufacturers and retailers have engaged in quality programs based on private standards with first- and second-party certification and on internal quality systems. The effectiveness of such a policy relied strongly on the edification of local networks of suppliers linked to the buyer through direct contacts and acquaintance, with buyer-seller relationships built around a high level of impersonal trust, in the form of value sharing and attitudes towards reciprocity. The high level of commitment stemmed from 'ethical' more than legal constraints. Typically, this kind of relationship was able to assure the compliance with standards also in situations of contract incompleteness associated with credence attributes and low formal enforcement mechanisms.

Since then, however, private safety and quality policies have change as the result of the new established procurement system organization, linked to the process of consolidation of retailers and the entailed enlargement of their market geographical scope. This new system shows two main features. First, the geographical spread of suppliers. Second, the shift from fragmented, decentralized procurement to centralized supply systems, and from reliance on traditional wholesalers to specialized/dedicated wholesalers and preferred suppliers operating under *de facto* contracts. Along with this new procurement system, third-party certification has emerged as the most preferred means to support food quality and safety standards.

The shift from the previous more socially embedded procurement system and from first- and second-party certification to the new globally dispersed (but more centrally controlled by a sort of 'super-middlemen') system where activities are placed in the hands of outsourced key intermediaries by powerful end-users (Hingley, 2005), as well as the advent of third-party certification has dramatically changed the level and the kind of trust in the process. Perhaps in some ways, total trust diminished because of the less direct and close links in the supply chain. Furthermore, the impersonal trust (and thus the social capital endowment) that nourished transparency and loyalty in local buyer-supplier relationships was substituted by the somehow naïve trust towards privileged actors, including certification bodies as a sort of a new kind of middlemen.

The effect of these changes can be quite negative. First, the erosion of social capital is always detrimental to social and economic development. Second, as a corrective tool of the market failures associated with credence goods, trust as an informal contract of guarantee is more effective than the formal contracts of guarantee on which third-party certification is based.

The point here is that third-party certification does not actually solve the credence goods problems, but simply transforms credence into search goods. Such a 'miracle' is possible due to consumer benevolence and trust towards the certification bodies. As long as this trust is not well placed in, third-party certification is no longer effective in reducing health risks associated with food credence attributes. Since, as previously argued, many doubts can be raised regarding the reliability of certification systems, the erosion of social capital in favor of a this sort of blind trust is all but good news with regard to the effectiveness (and social welfare effects) of the new trends in food safety policy.

The excess of trust and effective risk control. The current oligopolistic structure of the global retail food industry, with progressively fewer international firms dominating the market (for example, Wal-Mart, Carrefour, Royal Ahold, and Tesco), is pushing retailers toward differentiation strategies beyond the crude price competition performed so far (Ellickson, 2004). Concerns for reputation and customer loyalty are today overwhelming the cost-saving obsession of the 1980s and the early 1990s. New strategies include market segmentation, addition of new products and services, private labels, and store format innovation. Private standards and third-party certification are central elements of this investment effort in brand equity and reputation. Standards with social interest, including safety, fair trade, labour, and corporate social responsibility standards, are particularly aimed at this end.

The argument proposed here is that private standards and third-party certification can contribute to build a consumer trust that is excessive with respect to that needed for an optimal social and economic outcome.

The literature on the welfare effect of firms' advertising bill has stressed either positive effects (associated with quality improvement; or negative effects (associated with possible excess of market power and unfair behaviour patterns towards consumers; (Schmalensee, 1973). The same considerations hold in the case of the more general investments in trust and reputation. If trust-building policies are based on effective and loyal behaviour (more accuracy in testing new products; more ethics in management's choices; and more transparency in information diffusion), trust investments are likely to improve welfare. In contrast, if trust-building policies are based on unfair practices, such as hiding firms' private information on the level of risk or not carrying out effective measures of prevention, trust investment can lower social welfare. Thus, when consumer trust is excessive with respect to the actual reliability of the trustee actors (retailers and certification bodies in the case of private standards and third-party certification), a negative welfare outcome is expected.

Trust can also be excessive with respect to the level of alert and involvement that the civil society must keep in order to correct market failures due to asymmetric information and public goods. Private economic incentives are not sufficient to assure the optimal supply of public goods. The intervention of society, through different form of governance or the intervention of the state, are then required. An excessive trust in private sector, and especially that kind of trust that makes consumers (and, more generally, citizens) believe in somehow an altruistic behaviour of firms and in their real interest in public interest (i.e., the trust fostered by social responsibility and sustainable standards), reduces the incentive for such corrective intervention and leads to non-optimal market equilibrium.

Excessive trust can be very dangerous in the case of risk control of new technologies. The withdrawal of state and civil society leaves the entire onerous of risk assessment and

management to the private sector. Since private firms assess risk on the ground of pure private economic goals, they do not take into account more general social goals based on ethical and political besides economic considerations. Moreover, private firms tend to over value reputational and legal risks, and to under evaluate actual health and environmental risks, especially when these latter affect people in future times and/or at a geographical distance (that is the problem of the choice of the discount rate that should reflect preferences of the future generations instead of the present ones, and the problem of the environmental costs paid by poor countries for the high level of consumptions of affluent societies).

Nano-technologies make up the new technological wave (after the much less revolutionary information and genetic engineering technologies) that is going to flood the food sector. Notwithstanding the many possible economic, environmental, health, and socio-political risks of these technologies (ETC group, 2004; Greenpeace, 2002), regulations are non-existent and discussion of the industry's societal impact is barely a whisper. Private and public sectors in developed countries are making huge investments in these technologies (with about \$10 billion spent in 2004 on nano-technology research & development), and nano-technology products are coming to market at a steady pace. An estimated 475 products containing invisible, unregulated, and unlabeled nano-scale particles are already commercially available (including food products, pesticides, cosmetics, sunscreens, and many more), and thousands more are in the pipeline (ETC group, 2005). Here, really, there is a case where the excess of trust in food firms (leading consumers to ingenuously accept any new 'miraculous and exciting' product released by the more known and trustee brands, such as Nestlé, Kraft, and Budweiser; see note 6) along with a lack of social capital (allowing the civil society to consciously chose the level of risk-bearing) can lead to a 'mad' and 'out-of-control' use of new technologies. The recommendations made by the ETC Group to civil society and

governments in order to comply with the risks of these new technologies well reassume this point: "It is urgent that civil society work together to encourage the widest possible public discussion of the new nano-scale technologies..... and national governments should establish a *sui generis* regulatory regime specifically designed to address the unique health and environmental issues associated with nano-scale materials used in food and agriculture" (ETC Group, 2004: p.54).

Concluding this section, trust seems to be a key factor in the spreading process of new technologies. For potentially risky products, such as GM and nano-tech products, an excess of firm investment in consumer trust can lead to socially negative effects if firms act in a totally selfish way (i.e., when there is a lack of ethics). While trust development seems to be a successful firm's competitive weapon (more trust, more profits), it is not sure that more trust entails higher social welfare. To make trust 'good in any case' two assumptions must hold: firms' trust-building policies must involve ethics besides its profit maximization task; and the society where markets are embedded must be so rich in social capital as to take part in process of risk analysis and regulation setting.

What kind of networks?

As previously noticed, a result of the new procurement system (of which private standards and third-party certification are part) is a network with central nodes being made of huge retailers and third-party certification firms, secondary node made of non-governmental organizations, civil consortium, extension agencies and local governmental agencies, and with suppliers around the world insulated at peripheral positions.

While the higher interconnection among different actors worldwide could be interpreted as a social capital, and thereby a social welfare improvement, this particular network structure suggests less favourable social welfare effects. As a matter of fact, it actually looks like the kind of small network structure identified by Burt as a successful basis for the exploitation of market opportunities by actors located in advantageous positions. In other words, it is a sound source of power asymmetry and market imperfection in the system.

With respect to products sensible to health risk, retailers in the new procurement system are linked to suppliers through the informative and quality control intermediation of third-party certifiers, and are requested no longer to build trustful close relations with loyal suppliers. Nevertheless, they can control more strictly the suppliers by dictating standards and terms of exchange in a situation where the shift of the burden of specific investments and assurance costs to the sole suppliers makes these latter far more locked-in and bargaining powerless in the relationship.

Certifiers on their part are important nodes linking a multitude of suppliers to several buyers. Suppliers are pushed towards disadvantageous peripheral positions, losing their direct links with their final customers and obliged to face horizontal competition with other suppliers dispersed throughout the world, and with a less capability of exercising some form of countervailing power (Dobson, Waterson, 1997). Among the very connected actors are certification bodies at the top of the certification system that are indirectly linked to a huge bundle of suppliers and buyers (and also to non-governmental organizations and other civil networks when these latter are involved in the process of standard setting) through the many certifiers they accredit.

The most connected actors are those large retailers joined in project, will use EUREPGAP, aimed at setting standards shared by a wide group of buyers and suppliers. In this case, the direct links among joined retailers and between these and certification agencies and the 'super middlemen' managing relationships with the individual suppliers make a sort of interlocking directorate, with all the related possible collusive and anticompetitive effects. In other words, third-party certification and the new procurement system give retailers the opportunity to exploit two sources of social capital: the social cohesiveness of these new networks (like EUREPGAP) leading the chain, and the structural holes associated with the insulation of individual suppliers at the periphery of the whole food-supply chain network architecture. These facilitate 'union' (i.e., a strategy that creates value by bringing actors together, closing the holes between them) and 'disunion' (i.e., a strategy that exploits the structural holes between actors by keeping them apart); and will further consolidate the dominant position of big retailers within the food-supply chain (Baker and Obstfeld, 1999; see note 7).

As big retailers become central nodes in the network and the total number of links increases, the network structure shifts from the small world type to the scale free type, that is networks with power-law degree distribution. In contrast to small world networks, the scale-free ones display nodes with significantly more links than average. These nodes with an extraordinarily large number of links are referred to as hubs. Actors in hub position control most opportunities and are the ones able to exploit different sources of power. In economic exchange networks a scale-free structure predicts power (Sodano, 2006a) whether because hub actors (firms) have a negotiating power higher than that of their attached nodes where customers and suppliers are located (according to the prediction of power-dependence theory), or because they have access to more sources of competitive advantages (according to

the prediction of structural holes theory). Moreover, in the measure to which hub actors can forbid the attachment of given nodes, a strategic use of power can also be assumed.

Concluding this section, the new networks shaped up by the new procurement strategies are such as to raise the degree of power imbalance in supplier-retail relationships (and also to waste trust as a consequence of the overcoming of the relational model of supply chain management; see note 8). Notwithstanding the possible benefits stemming from a retailer-controlled supply chain and the 'natural' tendency towards asymmetry in business-to-business relationships (Hingley, 2005), the excess of power in the chain can hamper the efficiency and the stability of the system, besides the generally accounted for negative equity effects. Power can show up as market power, and then all the inefficiencies of market imperfections occur. An excessive imbalance of bargaining power can affect efficiency besides equity when the Nash bargaining solution assumption of maximization of joint profit does not hold. When power is used as corrective of contract incompleteness instead of trust, the total exchange surplus can be lower as well (Sodano, 2006b). When power is fed by information asymmetry, the lack of transparency reduces the total system performance (Hofstede, 2005). Too much inefficiency reduces the total surplus in the system, lowering profitability and hindering investment capacities, with negative effects on innovation and reaction capability to external shocks. The loss of trust and cooperation produced by an excess of power limits the total capability of the system to cope with the complexity of the external economic, technological, institutional and socio-cultural environment. A suboptimal supply of food safety and the inability to face unexpected food outbreaks can also be consequences of power excess.

Concluding Remarks

The globalization of the agrifood system and the growing variety of food products and technologies have made it increasingly difficult for nation states to regulate food safety and quality practices, giving rise to a shift from public to private governance, essentially in the form of private standards and third-party certification. Standards are a form of regulation. They enable a higher degree of global order and facilitate coordination and cooperation on a global scale, creating similarities and homogeneity even among peoples and organizations that are quite different.

Nevertheless, when the process of standards setting and enforcement is not under the control of public democratic bodies, the enhancing welfare effects of standards cannot be taken any longer for granted. The extant literature agrees on some – at least potentially – negative effects of private standards and third-party certification. These effects include the exclusion of small producers from the global supply chain; the lack of transparency and democracy in food safety goals setting; the possible lack of reliability of certification bodies; the rise of power imbalance in the system; and the negative effects on the upgrading of less developed countries.

The most agreed judgment on private standards is that they are a driver of concentration and that, along with the new global buyer-driven procurement strategies, they are supporting the emergence of transnational supermarkets chains as the most powerful actors in the global agrifood system. The development of private standards for safety, quality, and the environment seems largely to be the outcome of supermarkets profit maximization strategies and concerns over liability, "Consequently, because corporate success is not based on a firm's contribution to the public good, it is just likely that there will be a disjuncture, and not a

congruence, between the public and the private sphere" (Konefal, Mascarenhas, and Hatanaka, 2005: p. 298).

When carrying out the analysis of private regulatory trend through the conceptual category of social capital, the various concerns about its welfare effects are confirmed. First, private standards and third-party certification are weaker tools, with respect to trust, for correcting contract incompleteness stemming by credence-type food safety attributes. Second, the excess of trust of consumers in retailers and certification bodies can bias risk analysis processes, leading to a suboptimal (with respect the actual social preferences) risk assessment and to ineffective risk management policies. Third, the kind of network structure emerging as consequence of the new global food chain organization is such as to support a growing power imbalance in the system, with the associated negative equity and efficiency outcomes. Fourth, social movements and non governmental organization could have an important role in mitigating the social negative effects of food safety private regulations; nevertheless their strength seems to be jeopardized instead of being promoted by the particular kind of social and economic networks produced by the privatization process.

The use of social capital suggests that private standards and third-party certification are not merely an impartial technical tool to foster food markets efficiency and safety. Rather they are the means by which powerful actors in the chain discipline people and things in order to accomplish their own objectives.

Economic sociologists have widely analyzed the meaning of the embeddedness of markets in the social texture, showing how the different forms of regulations that stabilize the exchange game come from the delicate equilibrium between economic, political, and social behavioural

patterns. Safety standards are a kind of rules of exchange. These standards, together with property rights, governance structures, and conceptions of control form, rule make structured exchanges possible (Fligstein, 2001; see note 9). Rules constituting markets architectures emerge from the political game played by the main actors in the systems, as for instance government officials, capitalists, workers, and consumers. Describing the ideal market regulatory process, Fligstein (2001) identifies different ideal types according to which actor dominates the economic-political arena. When capitalists dominate, the state is kept out of markets and its intervention is requested only to face incumbent dominant firms' crises. Shareholders have all property rights, private firms capture the regulatory control, and governance structures give rise to cartel and clear organizations of competitors. Such a description reflects well the ongoing process of reorganization of the food supply chain, with private standards and third-party certification being one of the rules of exchange built up by dominant firms in order to ease their exchange settings, to control suppliers and to thwart competitors through the trade barrier effect of standards.

Capturing regulatory activities is advantageous when it seems better for business to voluntarily take on responsibilities and to be able to exert influence than to risk having public agencies set rules or impose laws that might be stricter and less adapted to business practices. The side effect, of course, is the progressive divergence between standards and the public goals they should help to attain, with unpredictable consequence on the effectiveness of standards in assuring a high level of food safety.

A general conclusion is that private food safety regulation can be very different, in scope and results, from public regulation. The emergence of one or another depends more on political than economic issues and reflects power asymmetries in the society. More research efforts

and a wider use of approaches from economic sociology are requested in order to shed light on the current organizational and regulatory trends in the food system.

Notes

1: According to the European Communities Act 1972, the case law of the European Court of Justice makes clear that it is not open to the member states to retain provisions in national legislation in so far as they duplicate, gloss, or conflict with the directly applicable provisions of EU Regulation.

2: The Commission gives the member states the mandate to implement enforcement powers and penalties in relation to the accomplishment to the EU level-stated food safety obligations.

3: In legally enforced regulations and formal contracts allocation of liability and penalties are defined and enforced through the legal system. Incomplete formal contracts and informal contracts are not legally enforced, instead they use other forms of enforcement, including trust, power, and self-enforcing agreement arrangements.

4: While the warranty defence only requires that buyers prove the food was not compromised while under their control, the due diligence requires that they take all 'reasonable steps' to ensure the food they receive from upstream suppliers is safe.

5: Management and industrial organisation theories have also looked at trust as a lubricant of inter- and intra-firm relationships, but in reality having in mind a form of interpersonal more than impersonal trust. For example, when informal relationships, such as 'handshakes'

emerge, which is the consequence of interpersonal relationship based on collusive behaviour and/or power-dependence constraints.

6: Kraft's nanotech consortium scientists are developing nanocapsules whose walls burst at different microwaves frequencies so that the consumer can switch on new tastes and colours. L'Oréal and Nestlé (Nestlé holds a 49% stake in L'Oréal) recently formed the laboratory Innéov, a 50/50 joint venture, to develop new nanotech 'cosmetic nutritional supplement'. Mars currently coats its M&Ms, Twix, and Skittles brand candies with an inorganic nano-film that increases the product shelf life (ETC Group, 2004).

7: Baker and Obstfeld (1999) suggest that the institutional context that assures the higher social capital access is the one characterised on the one hand by small, dense, and integrated networks – where behaviors are based on cooperation, trust, and collectivism – and on the other hand by large, sparse, disconnected networks – where behaviours are based on competition, opportunism, and individualism.

8: As food safety and quality attributes responsible for the exchange complexity are simply codified and enforced through standards and third-party certification, the global value chain governance, using the terminology and the analytical framework suggested by Gereffi (2003), shifts from the relational type to the captive type, where both the power asymmetry and the explicit coordination by the leading party are higher.

9: Property rights are rules that define who have claims on the profits of firms. Governance structures refer to the general rules in a society that define relations of competition and cooperation and how firms should be organised. Rules of exchange define who can transact

and the conditions under which transactions are carried out. Conceptions of control reflect market-specific agreements between actors in firms on principles of internal organization, and the hierarchy or status ordering of firms in a given markets (Flingstein, 2001).

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Table 1. Food safety regulation framework in the European Union

Third international level (non-statutory intervention)	<ul style="list-style-type: none">• Food and Agriculture Organization and the World Health Organization setting goals and guidelines• International agencies supplying informative and operative support
Second international level (non-statutory intervention)	<ul style="list-style-type: none">• Codex, suggesting guidelines and advices• Certification bodies (accreditation of certifiers)
First international level (statutory intervention)	<ul style="list-style-type: none">• The World Trade Organization, statutory advices, and trade rules agreements
EU level (statutory and non-statutory intervention)	<ul style="list-style-type: none">• Regulation (minimum standards on residues, additives, and microbiological contamination; hazard analysis and critical control point; labeling)• Directives (standards, labeling, hazard analysis and critical control point)• Guidelines (planning and defining goals and procedures)• Certification bodies (accreditation of private certifiers)• Food Safety Agency (task of coordination, procedure settings, information, risk analysis)
National level (statutory intervention)	<ul style="list-style-type: none">• Laws implementing directives from the European Union• Enforcement powers (allocation of liability and penalties)• National certification bodies
Subnational level (statutory intervention)	<ul style="list-style-type: none">• Local laws and policies
Private level (non-statutory intervention)	<ul style="list-style-type: none">• Private standards and third party certification

Table 2. Food safety policy: public and private tools

Public tools that are enforced by the legal system	Private tools that are enforced by implicit contracts (reputation) or by formal assurance contracts and third party certification
<ul style="list-style-type: none">• Minimum quality standards• Mandatory hazard analysis and critical control point• Labeling• Mandatory traceability• Product liability	<ul style="list-style-type: none">• Reputation• Standard and quality certification• Voluntary traceability• Voluntary hazard analysis and critical control point

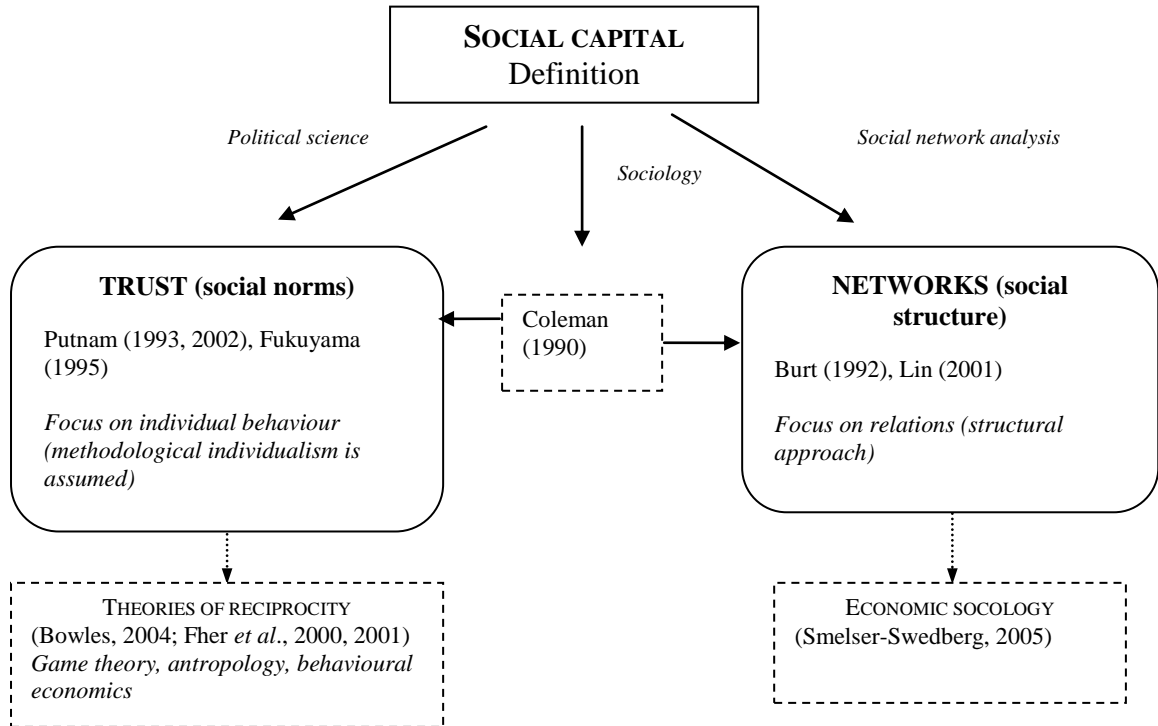


Figure 1. Two social capital perspectives