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## The rise of private food quality and safety standards: illustrations from Brazil<sup>☆</sup>

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### Abstract

Over the past decade, the private sector has rapidly built up an array of private food standards to assure quality and safety in a fiercely competitive market. These private standards have sometimes been to fill in for missing public standards, especially for safety, and to differentiate products and build reputation, for both quality and safety. Moreover, private standards are increasingly related to meta-management systems assuring both quality and safety at all levels of a chain, enforcing and certifying the implementation of process standards. The privatization of standards has been important for both buyers and suppliers in the chain. They tend to be formulated and imposed by buyers (retailers and processors), and are key to their cost control and reputation with consumers, thus overall competitiveness. They are imposed on suppliers, who often find that the standards imply very substantial outlays for reporting, new equipment, and training. The lucky—a relatively small subset of the original set of suppliers—tend to find that meeting the standards, with formal certification in hand, benefits their business, opens new opportunities. The excluded tend to find themselves relegated to waning and unprofitable markets. The above points concerning the determinants and effects of the formulation and implementation of private standards are illustrated with cases from the dairy, coffee, wheat products, and coconut product chains in Brazil. © 2002 Elsevier Science Inc. All rights reserved.

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## **1. Introduction**

Until recently, food grades and standards (G&S) were viewed (in policy debate and research circles) nearly exclusively as *public* domain issues—not as a subject strategically relevant to private sector management. The focus on standards as public policy issues was rooted in several factors. (1) Historically, standards have emerged with the rise of markets for commodities, usually as public standards to reduce transaction costs and increase efficiency, allowing expansion of trade. (2) Standards were viewed as public goods necessary in the presence of imperfect and asymmetric information that causes market failure. (3) The recent debates related to the WTO have focused attention on standards as potential non-tariff trade barriers erected by governments to block imports competing with domestic production.

This paper argues that in the new competitive context of liberalized, globalized food markets, standards should be seen as major issues for private sector managers, just as they already are for government policymakers. The importance of formulating private standards for the competitiveness of firms downstream in the chain (such as in retail and processing) is paralleled with the importance of meeting new private standards for the survival of suppliers upstream in chains.

We begin with a general discussion of the reasons for the rise of importance of private standards and then focus on illustrations from Brazil. The latter is because Brazil presents a fascinating combination of rapid concentration in key product chains (and thus exit of many small firms upstream and downstream) and rapid growth in the domestic and export food economies. We think that the rise of private standards plays a key role in this “boom with exclusion” food economy, and believe that it is important, for management and policy reasons, to explain why. The paper thus proceeds from general discussion to illustration and concludes with implications.

## **2. Definitions**

G&S consist of a collection of technical specifications, terms, definitions, and principles of classification and labeling. They include rules of measurement established by regulation or authority (standards) and a system of classifications based on quantifiable attributes (grades) (Jones and Hill). G&S pertain to: (1) quality (e.g., appearance, cleanliness, taste); (2) safety (e.g., pesticide or artificial hormone residue, microbial presence); (3) “authenticity” (guarantee of geographical origin or use of a traditional process); and (4) the “goodness of the production process” (e.g., with respect to worker health and safety, or to environmental contamination).

“Performance G&S” are the characteristics the product is expected to have when it reaches a certain point in the agrifood chain, for example, the maximum amount of pesticide residue permitted when apples are purchased from a grower by a processor. “Process G&S” concern the characteristics of the processes in the agrifood chain, from production of the raw product, to processing into intermediate or final goods, and distribution. For example, they might specify that an apple be organically grown or that milk be stored/handled in certain

ways so as to keep the bacteria count below a threshold. HACCP standards are important examples of process standards.

### **3. Hypotheses concerning the determinants of the privatization of standards**

We hypothesize categories of determinants of the emergence of private agrifood standards: (1) incentives to create private standards; (2) capacity to formulate and implement them.

#### *3.1. Incentives to implement private standards*

First, in many places and for many products, the demand for standards to define and regulate markets has out-paced the growth of supply of public standards. Farina and Reardon (2000) illustrate with examples from MERCOSUR (a trade bloc on the road to becoming a common market, comprising Argentina, Brazil, Paraguay, and Uruguay). The newly competitive context in the bloc in the 1990s (to the present) required a three-pronged strategy of firms in order to survive. (1) Firms needed to differentiate their products and identify niches. G&S were critical to that product differentiation. (2) Firms needed to communicate product quality and safety to consumers or intermediate input purchasers. Certification and labeling schemes were crucial to the communication of the implementation of quality and safety G&S. (3) To survive, a firm had to reduce costs while maintaining quality. However, whereas private agrifood sector development cried out for G&S to facilitate the strategy of competitive survival described above, the governments of MERCOSUR, individually and collectively, lagged in the needed creation and harmonization of G&S. Firms and associations had strong incentives to create and enforce private standards and communicate them to consumers via labels and certification in order to capture rents from quality and safety and product differentiation. In some cases, public G&S existed, but their form or specified levels did not meet the needs of the private agrifood system actors, and were perceived as hindering transactions. A typical situation is where the gradations and attribute categories in the public G&S were too narrow and simple to permit and facilitate the product and quality differentiation that the market was ripe to allow. Examples are provided from Brazil in Section 5.

Second, standards are not merely public goods to resolve market failures—they are strategic instruments of market differentiation and market share and niche protection by food companies (Reardon et al., 1999). The growth of their strategic role in the rapidly changing food economy of the 1990s was paralleled in the theoretical literature by growing empirical research in the vein of new institutional economics, with resurgent interest in established theories of market capture and rent-seeking.

Third, private standards have become increasingly important as tools of chain coordination, as meta-management systems (Caswell, Bredahl, & Hooker, 1998) to implement process standards such as HACCP and quality process standards such as ISO standards, at each level of the chain. This is done to cut costs and thus be competitive in a liberalized market, and assure quality and safety.

Fourth, the incentive for standards to be private is less the stronger is the public good nature of the standard. In general, quality standards tend to be private goods and safety and agricultural health standards, public goods. But there are important exceptions to this general rule, in particular, in developing countries as follows.

In many developing countries, food safety and agricultural health standards are not present—or if they are, are often not strictly enforced by public authorities. Yet the reputation of private retail and processing firms depends on a safe product. Thus, there is an incentive for them to create private or semi-private food safety standards and certification systems. An example is Carrefour in Brazil, with its Seal of Meat Quality and Safety (Nassar & Jank, 2000). McDonalds in Brazil has private agricultural health standards for lettuce seed that must be used by its lettuce suppliers. It is also the case with private milk standards in Brazil, a case discussed below.

Moreover, large firms downstream in the chain often set-up “meta-management systems” that combine quality and safety process standards and certification for the supplier firms from the farm through the first-stage processors. An example is that of the Nestlé Quality Assurance (NQA) system for coconut products in Brazil, a case discussed below.

### *3.2. Capacity to implement private standards*

The main capacity variable appears to be the buying power of the firm. This can be strong when the firm is giant and operating nationally and buying inputs widely, or it can be strong when a firm is only medium or small but in a niche market with a restricted set of possible suppliers of its inputs. An example of the latter are the new fresh-cut businesses in the São Paulo area, buying greens, and cleaning, cutting, packaging, and delivering them to supermarkets and fast food chains. They are not large or sophisticated but do set private standards and have a strong effect on the practices of suppliers.

## **4. Hypotheses concerning the effects of privatization of standards**

The establishment of G&S on an agrifood system can have several opposing effects. First, G&S can increase the market size for a particular product, reducing barriers to entry so as to allow the participation of more firms and the expansion of trade, thereby increasing transaction efficiency and lowering transaction costs. They can do so either by defining and facilitating a broad commodity market or by defining a set of differentiated products. Greater market efficiency and broader participation of firms imply more competition, potentially leading to lower consumer prices and better product quality.

The corollary of the above is an expanding market means reaching more consumers. G&S facilitate that by communicating and reassuring consumers regarding safety and quality, and by identifying differences in products and gradations in quality of a given product, thus adding diversity to the shopping cart. Examples from the Brazilian milk and coffee markets are discussed below.

Second, firms and chains that implement standards can increase efficiency through better intra-firm and inter-firm coordination and management. That increases profit rates, as discussed by Mazzocco (1996) for the case of implementation of HACCP by U.S. firms.

Third, G&S establishment can decrease market size or limit the number of firms participating, by increasing entry barriers through raising investment requirements for participation. The investment requirements can range from upgrading management skills to new equipment purchase to establishment of quality control and coordination systems. Such investment costs can be very substantial relative to the means of small firms, and can force their exit or their movement to a less profitable market (Reardon et al., 1999). These effects are illustrated in the Brazilian dairy case below.

Note that the above hypotheses about effects of G&S are not specific to public or private standards. However, one can surmise that given the characteristics of private G&S that produce the incentive to formulate them (that they are more differentiated and target market-specific than broad public standards, and that they are in general more stringent), the above effects can be hypothesized to be magnified in the case of private standards.

## 5. Illustrations from Brazil

### 5.1. *Privatization of G&S for product differentiation: wheat products and coffee*

For wheat products, during the 1960s–1980s, the Brazilian market was strictly regulated, and there were only two grades of wheat flour in the public G&S. With market liberalization circa 1990, domestic wheat milling firms (such as Moinho Pacifico and Pena Branca, the case studies in Farina (1997)) were able to offer a variety of grades of flours geared to the needs of the bakeries. The millers created their own G&S system to supplant the public system and reflect and create the incentives for product differentiation. However, the strategy has turned out to benefit imports, because wheat flour is an international commodity that has an adequate and well known grading system that allows Brazilian milling companies or the food industry (pasta, bread and biscuits) to globally source.

Similarly for coffee, in the second half of the 1990s, the Coffee Roasters Association of Brazil (ABIC), as well as foreign firms such as the relatively small Italian firm Illycaffè, promoted differentiation strategies based on blends of different types and grades of coffee and used these to establish price differentials to create an incentive for coffee growers to make the necessary investments in quality control. Again, the new private standards were much more adapted to the needs of quality and variety differentiation than were the public G&S (Zylberstajn & Farina, 1999).

### 5.2. *Privatization of G&S for chain coordination and quality/safety assurance: Nestlé and Socôco in the coconut products chain*

Farina et al. (2000) analyze the relation of Nestlé-Brazil and its supplier of grated coconut, Socôco, and the role of private standards for quality and safety assurance in that relation. Socôco is among the largest and most modern coconut processors in Brazil and in the world. By the late 1990s, Socôco supplied 80% of Nestlé's input of grated coconut. While Nestlé is global and diversified, Socôco is national and specialized, as well as vertically integrated (primary production and first-stage processing).

Before 1991, Nestlé used private performance standards and implemented its own monitoring—subjecting samples of water, raw material, semi-manufactured products, and final products to tests in its laboratories. The process was time-consuming and risky, but was necessary due to lack of public standards and public monitoring.

After 1991, implementation of NQA increased quality and safety (to Nestlé global, private standards) and traceability, reduced risk, and drastically reduced the monitoring cost of raw material quality from the certified supplier. The monitoring cost dropped because the inspection of the product no longer takes place at the Nestlé factory, and Nestlé can ask the supplier for the results of its monitoring of the production processes for each lot of an item sent to the factory.

Socôco was invited by Nestlé in 1996 to take part in the system. By 1999, 3 years later, Socôco had obtained full certification for its full vertical chain, from coconut production or import to first-stage processing. The firm must assure product quality and safety, beginning with coconut production, and first-stage processing involving careful manual removal of the meat (allowing no residues of shell filaments that would discolor the grated coconut), dehydration, adjustment of oil content and fiber length, and packaging. Additional substantial effort is needed for training workers and documenting operations. The process standard of NQA is equivalent to a combination of ISO, HACCP, and good manufacturing practices (GMP).

The risk of the investments required of the grated coconut suppliers is that such investments are characterized by high specificity. Other purchasing firms do not require these procedures and if the firm stops supplying Nestlé, the investments will not have the same value. The product of the certified supplier is immediately received by Nestlé, but the supplier does not enjoy commercial price advantages or even a purchase guarantee. There is no formal purchase commitment between the firms. There is no contract that guarantees exclusivity of supply or preferential treatment in the purchase. If the price of imported grated coconut is lower than that produced by the certified supplier, Nestlé can use the imported raw material instead. Nestlé can, indeed, certify competing suppliers, as is the case of two firms supplying labels and packaging, two for glass, and two for wheat flour (in addition to another two undergoing the certification process).

However, Socôco is only partially exposed to the above risks, as 75% of the coconut that it processes goes into its own final products bearing the Socôco brand name. Thus, the majority of the investment in quality management can be appropriated by loyalty to the brand name and by the cost reductions resulting from this process.

There are also risks for Nestlé in imposing a costly certification process, as it means dependence on the few firms that can meet the requirements—hence its dependence on Socôco is great. The second national supplier, Ducôco, operates on a much smaller scale and is not yet a certified supplier. The spot market works with coconut of inferior quality demanding traditional analysis procedures that cause delays in moving the raw material, making it necessary to maintain stocks.

Given that certification involves investment and adaptation costs, incentives are needed. For Nestlé itself, the strong motivation is in consistent quality and safety of the inputs, and the cost reductions from efficiency gains. For a supplier such as Socôco, three main incentives induce them to make the investments: (1) operation at a large-scale supplying to a firm with a large share of the market; (2) the creation of a general reputation for the firm,

based on the NQA certification, which serves it well in the rest of the market, communicated by advertising; (3) cost reductions from the increase in efficiency. The case study found that Socôco perceived these benefits.

The Nestlé–Socôco case study shows that: (1) cost and quality leadership call for the imposition of stringent process standards focused on both quality and safety; (2) meeting those standards imposes costs and risks on suppliers; (3) but imposer and imposee both perceive substantial benefits in terms of firm and chain efficiency improvements.

### *5.3. Privatization of G&S to improve chain efficiency and assure safety and quality, with exclusion effects: the case of dairy*

Public milk quality G&S formulated in the 1950s were finally fully implemented in the 1970s by the private sector seeking market segmentation. Private standards for milk safety formulated in the 1990s were used for both market segmentation and building firm reputation. The cycle is today complete with the public sector taking up the private safety standards and introducing them as public standards. Over those five decades, standards played a role in restructuring the industry and the market. The story is as follows.

Milk quality public standards (with grades A, B, and C), were formulated in the 1950s. They were not implemented until the 1970s when milk processors and retailers began using them for market segmentation based on quality, to take advantage of rapidly expanding urban milk consumption and rising incomes.

In the 1990s, liberalization of foreign investment led to an influx of foreign direct investment and entrance of global dairy products firms such as Parmalat, Royal Numico, MD Foods, and Nestlé. Dairy product prices dropped (real retail prices for milk fell 40% over 1994–1997, while farmgate prices did not fall until 1997–1998). Yet consumer incomes were rising. Hence the dairy products market burgeoned.

Stiffer price competition in dairy product markets led to the adoption of new strategies of chain management. Leading processors, such as Itambé (the largest Brazilian dairy coop and second largest dairy processor), Nestlé, and Parmalat, imposed new private standards for milk producers—for both quality and safety. The private G&S specify milk refrigeration on farm, and also specify volume and microbiological requirements (Jank, Farina, & Galan, 1999). The main objective of the dairy firms and cooperatives was cost reduction to meet price competition. A better raw material quality reduces losses in industrial processing, allowing large-scale transport and more efficient logistics. A secondary, but growing motivation of the implementation of the standards is to communicate milk safety to the consumers and avoid food safety scandals. The latter motivation is re-enforced by rapid concentration on the retail side, with some 75% of the Brazilian retail sector now dominated by a handful of large supermarket chains (Farina, 2000).

The above private standards implied large investments by dairy farmers. In only a half decade the programs were fully implemented, and milk suppliers had to transport the milk (cooled on farm) in bulk to refrigerated tanks at the receiving plant. This implied investments along the chain, by farmers, truckers, and receiving plants. The investments and changes in practices often exceeded the education, technical training, and finances of small dairy farmers, and the result has been the exclusion of thousands of dairy farms from the

chain in the past decade. Dairy companies had provided capital and some technical assistance to dairy farmers; however, they were aiming for a situation of fewer and larger milk suppliers and targeted their assistance accordingly. While the excluded suppliers are mainly small firms, they also include beef/milk producers or the beef producers who sell milk during the high season. The Brazilian experience is not unlike the U.S. experience decades earlier, when the introduction of refrigeration tanks led to a large and rapid decline in the number of milk producers and of farms with milk cows.

Of course, milk refrigeration produces benefits for the surviving dairy farms. The farmer tends to become more sensitive to price variations, though more efficient. To use the refrigeration tanks to capacity, the farmer is induced to make a series of changes and investments, starting with a second manual milking, then the adoption of mechanical milking, then improvements in animal genetics. The technological upgrade requires a continuous managerial upgrade as well.

To protect the consumer more widely (beyond those benefited in the 1990s by the implementation of the private standards in most of the milk market served by the formal sector), the Brazilian government is implementing public standards that follow the lines of the private standards. Essentially this means that the safety standards will need to be followed by the firms currently operating in the huge informal market (30% of milk consumption). That market has been beset of late by a number of food poisoning scandals and fraud. The Brazilian government recently created the Sanitary Inspection Agency whose main objective is to monitor food and drug safety. New regulations for milk product safety are part of the general effort involved in the “Milk Quality Improvement Program”. The legislation will make the current private standards public, requiring refrigeration at the farm and transport system levels.

However, the extension of safety standards to the firms now operating in the informal sector will face challenges. These include lack of universal rural electrification and insufficient laboratories to test for quality attributes required in the legislation under debate. A public standard will also mean that small farms and firms that “escaped” into the informal sector will now have to make the same costly investments made by the surviving firms that had adapted in the 1990s to the private standards—and that may well mean a new wave of small players exiting from the market.

## **6. Conclusions and implications**

In the past several years, during heated debates around the WTO and public food standards, the private sector has rapidly built up an array of private food standards to assure quality and safety in a fiercely competitive market. These private standards have sometimes been to fill in for missing public standards, especially for safety, and to differentiate products and build reputation, for both quality and safety. Moreover, private standards are increasingly related to meta-management systems assuring both quality and safety at all levels of a chain, enforcing and certifying the implementation of process standards.

The privatization of standards has been important for both buyers and suppliers in the chain. They tend to be formulated and imposed by buyers (retailers and processors), and are

key to their cost control and reputation with consumers, thus overall competitiveness. They are imposed on suppliers, who often find, as we showed with examples from dairy and coconut product subsectors in Brazil, that the standards imply very substantial outlays for reporting, new equipment, and training. The lucky—a relatively small subset of the original set of suppliers—tend to find that meeting the standards, with formal certification in hand, benefits their business, opens new opportunities. The excluded tend to find themselves relegated to waning and unprofitable markets.

The implications for policymakers, NGOs concerned with producers and consumers, and managers of retail and processing firms, are: (1) the system of private standards should be of keen interest, at least as much as public standards; (2) suppliers should gear up for substantial investments to meet stringent private standards or be excluded from supply chains; (3) scaling-up private standards into public systems will face important challenges related to access to capital (such as electrification) in poor areas, and to administration and enforcement and incentives provision.

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