



# The determinants of voluntary traceability standards. The case of the wine sector

Stefanella Stranieri, Alessia Cavaliere\*, Alessandro Banterle

*Department of Environmental Science and Policy, Università degli Studi di Milano, Via Celoria, 2 20133 Milan, Italy*

Received 28 July 2017; received in revised form 6 February 2018; accepted 23 February 2018

## Abstract

The aim of this paper is to study the determinants leading firms to choose among different kinds of voluntary traceability standards in the wine sector. To achieve this goal, we referred both to individual and institutional-level determinants, which are identified to play an important role in the literature related to the implementation of quality and safety standards. In specific, we referred to two theoretical approaches to better understand the industry behaviour towards the adoption of voluntary traceability, i.e. the Theory of Reasoned Action and the Institutional Theory. We developed a vis-à-vis survey through a questionnaire on a sample of Italian wineries approached during the most important Italian wine exhibitions in 2016. The results suggest that when wineries show positive cognitive beliefs towards voluntary traceability standards, they will probably implement complex traceability systems, which require high investments and efforts for their management. On the contrary, when the institutional environment plays a key role in the perception of wine processors, a simple and flexible traceability system seems to be preferred. © 2018 UniCeSV, University of Florence. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

*Keywords:* Voluntary traceability standards; Institutional determinants; Cognitive determinants

## 1. Introduction

The aim of this paper is to study the determinants of leading firms to choose among different kinds of traceability standards in the wine sector. This research aim finds support in the growing number of unfair practices affecting food supply chains, which raise the need to better manage the negative economic consequences affecting the efficacy of related economic activities (Manning and Soon, 2016; Tähkää et al., 2015). For example, the counterfeit of thousands of bottles of Brunello di Montalcino and Chianti, which were recently falsely labelled with geographical indication of origin, or the frauds concerning high-quality brands, such as Moët & Chandon, highlight the necessity of wineries to adopt efficient

systems able to manage quality risks and liabilities within the supply chain.

Traceability standards are among the instruments that can be used to foster the efficiency of vertical relationships within supply chains (Stranieri et al., 2017a, 2017b). Such schemes have been introduced both by public and private institutions in the EU. At the public level, traceability has become mandatory by Reg. 178/2002, and it is applied to all agri-food products, including wine. Voluntary traceability standards do not replace mandatory traceability, but they are usually used by wineries as instruments to accomplish quality requirements of supply chain agents or as instruments to better coordinate vertical relationships through an improved transaction transparency compared to mandatory traceability. Mandatory traceability relates to simple procedures with main the aim to identify the agents who are part of a certain supply chain; however, it does not allow an efficient increase of supply chain transparency that is better able to allocate liabilities among transacting parties. Voluntary traceability standards have been introduced

\*Corresponding author. Fax: +39 0250316486.

E-mail addresses: [stefanella.stranieri@unimi.it](mailto:stefanella.stranieri@unimi.it) (S. Stranieri),

[alessia.cavaliere@unimi.it](mailto:alessia.cavaliere@unimi.it) (A. Cavaliere),

[alessandro.banterle@unimi.it](mailto:alessandro.banterle@unimi.it) (A. Banterle).

Peer review under responsibility of Wine Economics and Policy.

to decrease information asymmetry among the supply chain partners and to increase product quality management.

The transparency provided by these standards depends on the traceability systems implemented by food firms. Indeed, the level of supply chain transparency delivered by the systems differs on the basis of the level of the traceability complexity implemented; that is on the kinds of rules and procedures adopted (Stranieri et al., 2017).

The recurrent frauds and misleading information characterizing the wine market have led wine operators to introduce voluntary traceability systems to determine the varietal origins of wines and reducing opportunistic behaviour among supply chain agents (Villano et al., 2017). Wine traceability is one of the biggest challenges for Italian wineries, which are among the world's largest producers of high-quality wine (Recupero et al., 2013). Wine operators have begun to implement innovative traceability tools to protect their reputation against the negative monetary consequences of counterfeit wines and to strengthen brand equity (Wang et al., 2017). In the wine sector, there are different kinds of voluntary traceability, such as, for example, the ISO 22005 and the private standards that are implemented by operators, like wineries or retailers. The complexity of the standard implemented does not depend on the type of standard applied but it relates mostly to firms' strategic decisions on the rules to be implemented.

Current debate on voluntary standards in the wine sector has mostly investigated the motivations and the consequences associated with the implementation of such systems. The increase of the opportunities to enter new markets, the improvement of business performances, and the augmentation of product quality control have been identified as consequences of the implementation of voluntary quality standards in the wine sector (Aggelogiannopoulos et al., 2007; Giacomarra et al., 2016). With regards to the motivations affecting wineries' decisions to implement voluntary quality standards, most of the studies identify the internal business environment, namely, firm internal efficiency, and external business factors, such as, for example, customer requirements, as leading drivers for the adoption (Kafetzopoulos and Gotzamani, 2014; Corsinovi and Gaeta, 2017).

To the best of our knowledge, there is still a gap in the literature related to the motivations affecting wineries to choose from different kinds of voluntary standards. In regards to voluntary traceability, wineries can choose from different kind of systems. The more complex the traceability is, the higher the costs associated with its implementation (Asioli et al., 2014). The proliferation of different traceability systems in the wine sector is not easily predictable, and it raises questions on the firm strategic decisions on the type of traceability system to be adopted. Current traceability-related literature has been discussing the most efficient analytical methods to improve wine traceability (Catalano et al., 2016; Geana et al., 2016; Versari et al., 2014). According to Karlsen et al. (2013), there is still a little understanding of firms' strategic behaviour on the kind of traceability to adopt and a need to conceptualize further on the mechanisms leading

firms to choose among different traceability rules and procedures.

To fill this gap, we analysed the influence of both the individual- and institutional-level determinants on firms' strategic decisions to implement traceability standards. Such determinants are identified to play an important role in the literature related to the implementation of quality and safety standards (Marshall et al., 2005). More precisely, individual determinants involve mostly cognitive factors related to firms' behaviours, namely, firm attitude towards a strategic decision or the influence of stakeholders' opinions that can influence firm strategic decisions. Institutional drivers consider all the factors of the institutional environment that are independent from firms' behaviours, and they can influence firms' strategic behaviours, namely, the regulatory framework, the characteristics of the market in which firms operate, and so on.

To conduct the analysis, we referred to two theoretical approaches to better understand the industry's behaviour towards the adoption of voluntary traceability; i.e. the Theory of Reasoned Action (Ajzen and Fishbein, 1980) and the Institutional Theory (Scott, 2001).

The paper is organized as follows: Section 2 describes the two theoretical approaches, Section 3 focuses on the methodology, and Section 4 deals with the results. The concluding remarks are drawn in the final section.

## 2. Conceptual framework

### 2.1. The economic implications of traceability systems

There are two different kinds of traceability systems (Stranieri and Banterle, 2017):

- the supply chain traceability system, and
- the supply chain and product traceability system.

Supply chain traceability aims at identifying the economic agents of the supply chain. This system is mandatory in Europe. The main purpose of such a system is the enhancement of food safety. However, this system does not allow an association of the traced information with a specific product, and it does not provide a reconstruction of the product's history. On the other hand, supply chain and product traceability refer to more complex systems. This is characterized by the management of raw materials and products in separate batches and by procedures that attribute specific information to each single batch.

According to Golan et al. (2004), different traceability systems can be distinguished on the basis of their breadth, depth, and precision. Breadth relates to the information recorded by the traceability system. Depth involves the sectors of the traced chain. Precision is associated with tracking unit dimension. Moreover, McEntire et al. (2010) introduced the traceability speed to describe the difference between traceability systems. The speed relates to the effectiveness of traceability in transferring the information traced.

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