

International trade regulation and food safety: the case of Italian imports of fruit and vegetables from Southern Mediterranean Countries

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Abstract

The paper focuses on the implications entailed by the current EU food safety regulation on Italian firms importing fresh fruit and vegetables from Southern Mediterranean Countries. Its specific objectives are to identify the main benefits and difficulties of compliance with food safety regulation perceived by domestic operators and to provide recommendations on suitable policy intervention tools. The study was developed in three steps. Firstly, we provided an overall assessment of the compliance capacity of fruit and vegetables imported from Southern Mediterranean Countries, by means of secondary data gathered from the European Food Security Agency and the Italian Ministry of Health. Secondly, we formulated a set of research hypotheses on the main factors affecting compliance capacity according to the relevant scientific literature. Thirdly, based on these hypotheses, we carried out a direct survey on key players involved in fruit and vegetable imports in Italy, using a Delphi approach.

Keywords

Fruit and Vegetables, International Trade, Food Safety Regulation, Southern Mediterranean Countries, Delphi approach.

Introduction

Compliance with mandatory Sanitary and Phytosanitary Standards and food safety requirements are crucial issues for international trade (Otsuki et al., 2001; Wilson, 2000). Food import safety constitutes an important subject in the EU food safety legislation that aims at ensuring that all the merchandises entering the EU market comply with the same regulations imposed to European producers (Reg. 178/2002, Reg. 396/2005 and Reg. 178/2006). EU regulations are currently considered as the most severe at international level, as compared, for example, to the *Codex Alimentarius*. However, the complexity of import procedures, the large number of public bodies involved and the risk of failure (liability and market sanctions) can have a negative impact on domestic players downstream the supply chain, entailing a heavy administrative burden and additional costs.

A further controversial issue is that of the implementation of food standards and control systems by each Member State (Whitakert et al., 1995; Willems et al., 2005), that, along with the complexity of administrative import procedures, may favor opportunistic behavior to the detriment of both consumer health and supply chain transactions efficiency (Grazia et al. 2015).

In fact, EU food safety legislation most often regulates “results” (e.g. maximum admitted levels of contaminants - MRLs) without specifying what means/inputs should be used to achieve these results.

These are issues of high relevance especially with regard to trade flows between countries characterized by heterogeneous agricultural production conditions and regulations. It is particularly the case of for fresh fruit and vegetables (FVs) imported by EU Member States from Southern Mediterranean Countries (SMCs). In fact, trade flows of agricultural and food products between EU Member States and SMCs has intensified significantly in the last decades and particularly imports of France, Italy, Spain and Greece from Algeria, Egypt, Morocco and Turkey (Crescimanno et al., 2013). Further, Malorgio and Grazia (2013) pointed out that FVs imported by Italy from SMCs may be considered not only substitutes for domestic products, but in many cases they are complements for the product range required to meet the national and EU market demand.

In light of these considerations, the present study focuses on the implications entailed by the current EU food safety regulation on Italian firms importing FVs from SMCs. More precisely the paper intends to evaluate the impacts of compliance with sanitary standards on the domestic import supply chain and to suggest possible improvements in policy action. In fact, EU policy action should ensure both sufficient and efficient provisioning to meet the internal demand, as well as compliance with internal food safety standards to ensure public health. Thus, the specific objectives of the paper are to identify the main perceived benefits and difficulties of compliance with food safety regulation and to provide recommendations on suitable policy intervention tools favoring compliance with food safety requirements and trade.

Method

As a first step of the study, in order to evaluate the degree of compliance with EU food safety standards of fresh FVs imported by EU Member States from SMCs, we gathered and elaborated secondary data provided by the European Food Security Agency (EFSA) and the Italian Ministry of Health – USMAF.

Secondly, drawing from previous scientific literature, we set up a conceptualization of the main factors affecting compliance capacity of imports with food safety standards, based on the following research hypotheses:

- compliance with food safety standards reduces health risk and commercial risk associated with market failures, thus improving market access capability (Giraud-Héraud et al. 2012; Ait Hou et al. 2015) – H1;
- ex-ante compliance with food safety requirements can be improved by effective inspection/control procedures (Grazia et al. 2012) – H2;

- compliance difficulties can be related to the nature of information and the complexity of vertical relationships along the food supply chain (i.e. difficulties in monitoring/selecting suppliers) (Starbird and Amanor-Boadu, 2007; Starbird, 2005) – H3;
- private standards may act as complements to public regulations as a tool of upstream “regulation”, favoring ex-ante compliance capacity (Hamza et al. 2014; Fares and Rouviere, 2010) – H4.

These hypotheses were then used to structure the following empirical analysis that we conducted on key players involved in food safety and trade in the Italian FV sector, to gather their opinion on the structure and functioning of the current import safety regulation system (Henson et al. 2008). To do that, we adopted a Delphi approach that is aimed at producing an informed judgment by collecting and refining information based on the knowledge of a group of experts (panel), through a series of questionnaires and feedback on the opinions expressed. The method includes a multistage process involving the initial measurement of opinions (first stage), followed by data analysis, design of a new questionnaire, and a second measurement of opinions (second stage).

Among the various Delphi implementation methods available, we choose a “mini Delphi” method (Helmer, 1972), entailing semi-structured interviews in the first stage and an informal consultation in the second stage.

Semi-structured interviews were carried out by means of a questionnaire, constructed according to the conceptual framework described before. The main topics targeted by the interviews include the expected benefits arising from compliance with health standards currently in force, as well as the main difficulties in ensuring the health security in the FV imports, but also strategies and tools that could be implemented to facilitate compliance with health standards. The questionnaire included both open-ended questions and closed-ended questions. Many of these were assessed with a five-point Likert scale to gather attitudinal or preferential data from respondents.

The second stage informal consultation has been conducted with no strict scaling of responses, but with the aim to provide a shared vision of the most appropriate policy orientation and lines of action that should be taken.

The expert panel was composed of 20 key players and representatives from national and regional authorities (5) international transport/logistic providers (3), FV exporters’ associations (4), Producer Organizations (4) and trade consultants (4).

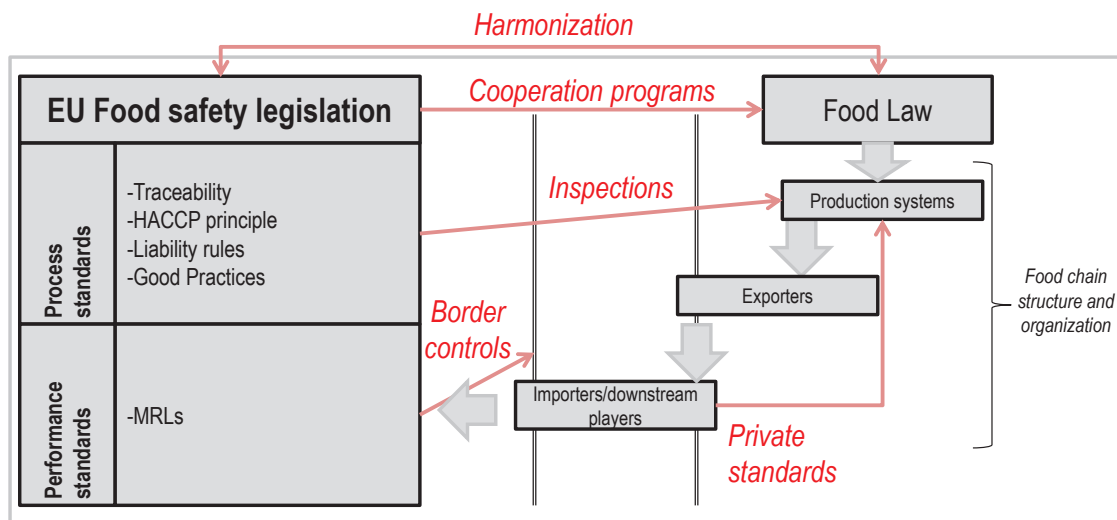
Results

As a preliminary result, we provided an overview of the food safety regulation and its implementation system, both at the EU level and at Member State level, with specific reference to Italy (Figure 1).

As far as the administrative documents are concerned, the general regulation for food and grocery requires that both a certificate of PanEuroMediterranean origin is provided and that the transport documentation is issued by the customs offices. Further specific documents required for FV produce are the Phytosanitary Certificate, the Sanitary Certificate and the Quality Certificate. In Italy these documents are issued by the Ministry of Agriculture, Food

and Forestry, by the Ministry of Health (offices of maritime, air and border health – USMAF) and by the National Agency for Controls in Agriculture (Agecontrol). In the downstream supply chain, liability rules are designed to sanction non-compliant behaviors (Polinsky and Shavell, 2006; Hobbs, 2006). In fact, products not complying with the food safety standards that may be detected are either returned to the country of origin, transferred to another country ready to accept the provision or destroyed within the importing country, entailing market sanctions and important consequences in terms of both country and individual firm reputation. In case of non-compliance with labeling information, products can be downgraded to a lower quality category or, in case the product does not fit into any lower quality category, they will be either returned to the country of origin, sent to a third country, or destroyed.

Figure 1 – Food safety regulation and its implementation system in Italy



Source: authors' own elaboration

According to EFSA (European Food Security Agency, 2015), in 2013 the official control activities performed by EU Member States to ensure compliance of food with the legal limits for pesticide residues (MRLs) concerned 80,967 samples for a total of 685 different pesticides. When compared with samples from the EU and European Economic Area (EEA) EEA countries, those from third countries were found to have a higher MRL exceedance rate (5.7% vs 1.4%) and non-compliance rate (3.4% vs 0.7%). In most cases these MRL exceedances for pesticides not approved in the EU were related to imported products (23.6% vs 6,7%). However, compared to 2012 the MRL exceedance rate for imported food products declined (7.5%).

The products with the highest MRL exceedance rate are strawberries (2.5% of the samples), lettuce (2.3%), peaches (1.1%) and tomatoes (0.9%), but these are most often produced in EU and EEA countries (Iceland, Estonia, Bulgaria and Cyprus) and Third Countries (China) rather than SMCs. Actually the only relevant MRL exceedance rate detected among SMCs relates to tomatoes produced in Morocco (2.4%), but it is still very close to those observed

for tomatoes produced in Poland (2.5%), Greece (2.3%) and Italy (2.1%) and much lower than that of Portugal (4.2%).

The information gathered from the Italian Ministry of Health – USMAF concerning the analyses conducted on fresh FVs imported (Table 1) shows that the frequency of rejections is higher for fresh fruit than for fresh vegetables (8.7% vs 2.5%), but the overall non-compliance rate is rather low (5%), especially when compared to the one observed for total food derived from FVs.

Table 1. Results of laboratory analyses on samples of fruit and vegetables imported in Italy (2013)

	Consignments (n.)	Samples (n.)	Analyses (n.)	Rejections (n.)	Rejections (%)
Fresh fruit	21,462	1,097	1,305	96	8.7%
Fresh vegetables	14,751	1,616	1,750	40	2.5%
Total fresh fruit and vegetables	36,213	2,713	3,055	136	5.0%
Total food derived from fruit and vegetables	80,459	4,740	6,646	606	12.8%

Source: authors' own elaboration on USMAF data

Based on these considerations, we can argue that fresh FVs imported by EU Member States from SMCs generally meet the food safety requirements imposed by the EU legislation. Nevertheless, the EFSA itself acknowledges that limited capacities and resources are available for pesticide residue analysis in the competent national food authorities and that a proper planning of the national and EU-wide monitoring programs is necessary to enable better targeting of resources (European Food Security Agency, 2015).

The direct survey conducted in the Italian FVs import supply chain allowed us to provide further evidence on these issues.

In the following tables we report their perception of the most important benefits and difficulties of compliance with food safety regulation and standards.

Table 2. Perceived benefits of compliance with EU safety requirements (1=high relevance - 5=low relevance)

	Average Score (AS)	St. Dev. (SD)
Reducing sanitary risk	1.43	0.82
Reducing commercial risk	2.00	1.00
Improving competitive advantage	2.36	0.71
Reinforcing long-term trust-based relations	2.36	0.97
Improving market access	2.36	1.04
Ensuring fair commercial practices	2.64	1.23
Improving production and commercial practices	2.79	1.01
Increasing efficiency in inter-relations among agents	3.07	0.88
<i>TOTAL</i>	<i>2.38</i>	<i>1.08</i>

Source: authors' own elaboration on direct survey data

Average Scores (ASs) showed in the tables indicate the relevance attributed on average by respondents to each item, while Standard Deviations (SDs) calculated shows the consensus across the respondents - the lower the score, the higher the importance attributed to that item; the lower the SD, the higher the consensus.

Table 2 shows that, according to our expectations (H1), the respondents agree that impacts of compliance with food safety requirements are relevant (total score = 2.38) and that the most important benefit of compliance is by far the reduction of sanitary risk (AS=1.43). The interviewees also pointed out that it has important effects on the reduction of commercial risk (2.00), improvement of competitive advantage and reinforcement of long-term trust-based relations for firms (2.36). On the other hand, in contrast with the third research hypothesis formulated (H3), respondents agree that relationships among agents do not receive a major benefit from compliance capacity (AS=3.07, SD=0.88).

As far as difficulties of compliance are concerned (Table 3), the most critical point is the harmonization of legislation between EU countries and SMCs (AS=1.71, SD=0.58). In fact the existence of active substances banned in the EU but authorized in SMCs (and that cannot be always detected by the import inspections) may give rise to potential health risks and unfair competition. This is also the case of exempted uses allowed in certain Member States, such as products containing ethoxyquin (used to preserve pears) or propiconazole (a fungicide for citrus fruits) that are allowed in Spain but not in Italy. Further, respondents report as a major issue the "scarce harmonization among control systems in EU" (AS=1.86), due to non-homogeneous enforcement capacity in various inspection posts, as well as due to incomplete and/or delayed information flows (e.g. trade codes not univocally identified, notification of import quotas exceedance).

*Table 3. Perceived difficulties of compliance with EU safety requirements
(1=high relevance - 5=low relevance)*

	Average score (AS)	St. Dev. (SD)
Difficulties in harmonizing legislation between EU countries and SMCs	1.71	0.58
Scarce harmonization among control systems in EU	1.86	1.06
Insufficient controls on export country borders	2.07	0.79
Fragmentation of import procedures	2.07	0.88
Suppliers monitoring	2.64	0.97
Insufficient EU inspections to ensure good practices	2.71	1.48
Suppliers selection according to good practices	2.79	1.08
Difficulties in harmonizing legislation among EU countries	3.43	0.90
Access to information in the countries of origin	3.43	1.12
Difficulties in establishing contractual relations	3.71	0.96
<i>TOTAL</i>	<i>2.64</i>	<i>1.23</i>

Source: authors' own elaboration on direct survey data

In accordance with the second research hypothesis formulated (H2), most respondents report that two other critical points relate to the control system on exports implemented at the borders of the country of origin and the "fragmentation of import procedures", as both

items received a score of 2.07 with rather low SDs (0.79, 0.88). An example of the former problem is given by the case of the Citrus Black Spot issued from South Africa that local authorities were not able to stop. The latter issue is of particular concern in Italy, where the number of public bodies involved in the inspections is larger than in other Member States. Again, compliance with EU safety requirements doesn't seem to be a relevant issue with regard to relational issues with local producers in SMCs (since both "access to information" and "contractual relationships" received high AS), entailing that H3 is not verified. Finally the respondents were asked their opinion on the most appropriate policy action to improve compliance capacity and three main directions have been suggested (Table 4).

Table 4. Perceived policy needs (1=high relevance - 5=low relevance)

	Average score (AS)	St. Dev. (SD)
Improving infrastructures in the countries of origin	1.71	1.10
Improving inspections on production sites	1.79	0.93
Simplifying and unifying control procedures	1.86	0.91
Regulation harmonization between EU countries and SMCs	1.93	0.96
Reinforcing border controls at the country of origin	2.00	0.65
Improving compliance with private standards	2.14	0.98
Reinforcing border controls at importing countries	2.29	1.10
Technical training programs development	2.43	1.12
Improving access to information and knowledge on sanitary norms	2.64	1.45
Horizontal coordination among agents in the countries of origin	2.86	1.30
Technology in production/commercialization in countries of origin	3.14	1.35
<i>TOTAL</i>	<i>2.27</i>	<i>1.16</i>

Source: authors' own elaboration on direct survey data

First, infrastructure improvement and further inspections in production sites are recommended (AS=1.71, 1.79) to ensure compliance of imported products with health standards, that are considered particularly important in case of perishable products, such as FVs.

The second point concerns the harmonization and simplification of control procedures (AS=1.86), in order to improve regulatory clarity and reduce transaction costs for firms. The ideal solution would be to set up a "one stop shop" and a single procedure for inspections with the simultaneous presence of all the bodies involved. In this view, an interesting option could be to limit the number of inspection points, providing them with appropriate staffing, equipment (certified laboratories), and spaces in order to ensure extended service hours, specialized inspections and to reduce the time and costs associated.

Thirdly, respondents underlined the opportunity to reinforce border controls at the country of origin (AS=2.00, SD=0.65) and to strengthen the principle of reciprocity in the European Union's trade with its partners.

Interestingly, "improving compliance with private standards" has been judged relatively important in favoring compliance with food safety legislation (2.14), thus confirming the role of private actors' strategies in the process of improvement of upstream agricultural practices

and reducing health risk (H4). A further interesting option suggested by interviewees envisages a co-regulatory approach between public authorities and firms that could set up dedicated structures and implement procedures by means of joint resources (equipment, staffing, etc.) and “task sharing” (Fares and Rouviere, 2010). This option would require a higher commitment for private firms, but they could benefit from a greater flexibility and improved reputation on the domestic market.

Conclusions

With the aim to evaluate the impacts of compliance with sanitary standards on the Italian FV import supply chain and to suggest possible improvements in policy action, the study sought for evidence in support of four research hypotheses formulated according to the relevant economic literature. Thus, we collected and analyzed both secondary data - from EU and national public bodies, and primary data - by means of a direct survey on domestic key players.

The first hypothesis, considering the capacity of food safety standard compliance to reduce health risk and commercial risk associated with market failures, was confirmed in the case of FVs imported by the EU and Italy from SMCs both by aggregate data (EFSA and USMAF) and by the Delphi analysis conducted. Based on the evidence gathered from secondary data (EFSA and USMAF), we can argue that the current EU food safety regulation and its implementation system is able to provide an appropriate level of protection against the sanitary risk associated with imports of FVs from SMCs. Further, interviewees agree that the benefits of compliance are relevant in terms of reduction of sanitary risk, reduction of commercial risk as well as improvement of competitive advantage for firms. Yet the direct survey conducted showed that there are various critical issues at both legislation and enforcement level that can have negative impacts on domestic firms, confirming the second hypothesis formulated, i.e. compliance with food safety requirements can be improved by effective inspection/control procedures. In fact, the main problems arising from compliance with food safety standards are both linked to the complexity of the regulatory framework currently in force and its homogeneous implementation across Member States. Further inefficiencies pointed out by the survey concern non-homogenous border controls, (both inbound and outbound from the country of origin), as well as excessive fragmentation of bureaucratic procedures.

As for the third research hypothesis, respondents agree that safety requirements are not a relevant issue with regard to vertical relationships along the supply chain (i.e. difficulties in monitoring/selecting suppliers) and that the current provisioning relationships with producers in SMCs are already satisfactory. However, they think that policy action is needed to pursue greater efficiency in supply chain relationships and they suggested on-site inspections in the countries of origin along with the strengthening of the reciprocity principle in EU's international trade.

Finally, the survey provided evidence in favor of the fourth hypothesis since interviewees think that improving compliance with private standards could be important in favoring compliance with food safety legislation. Further, a co-regulatory approach between public authorities

and firms was suggested as an option to enhance supply chain efficiency as well as firms' flexibility and reputation.

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