Measuring the cost of compliance: the case of French apples

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Introduction

Sanitary and technical regulations can be market facilitators because they decrease market asymmetries and, thus, improving welfare. However, they can also impede trade. The effects that regulations have on trade essentially depend on the complexity stemming from the application of regulations abroad. Quantifying costs of compliance is becoming an increasingly demanding task due to the proliferation and the growing complexity of technical and sanitary regulations and standards. This soaring demand of public regulations can lead to a loss of competitiveness in countries that were major exporters, causing a redistribution of the leadership in certain sectors.

The aim of this paper is:

(i) to identify the procedures and treatments for plant protection that French exporters incur when shipping their apples;

(ii) to propose a measure of the size and scope of these procedures.

Data and methods

- We cross data on French apples' exports (from comtrade) on the period 1986-2013 with the sanitary regulations (from national regulations).
- We select a sample of 83 countries (over 146 destinations in 2013).
- We measure the complexity of the plant protection requirement as (I is the importing country and j is France)

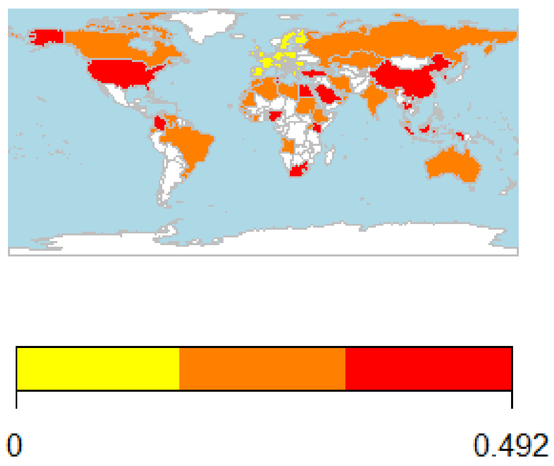
$$score_{ij} = \sum_{t=1}^{T} |requirement_i - requirement_j|$$

Table 2: dimension and value of the score in the case of USA and Taiwan

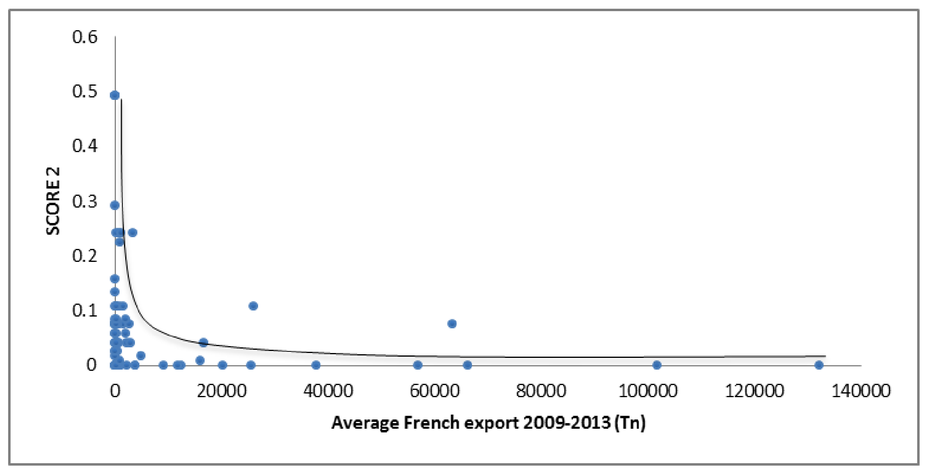
Variable	Value	USA	Taiwan
Bans	1 (No ban) 25 (Ban)	1	1
Territorial Restriction	1 (No territorial restriction) 2 (Yes territorial restriction)	2	2
Agreement	1 (any agreement) 2 (agreement on pre-listing) 3 (agreement on yearly check)	2	3
Import Permission	1 (No IP) 2 (Negotiated) 3 (Non Negotiated)	2	1
Phytosanitary Certificate	1 (No PC) 2 (Negotiated) 3 (Under negotiation) 4 (non official)	2	2
Pre-inspection	1 (No Pre-inspection) 2 (Pre-inspection)	2	2
Pre-clearence	1 (any Pre-clearance) 2 (Pre-clearance)	2	1
Pre-cold treatment	1 (any pre cold treatment) 2 (Pre cold treatment)	2	2
Cold Treatment	1 (No cold treatment) 2 (In transit cold treatment) 3 (At arrival cold treatment)	2	2
Inspection at arrival	1 (No inspection at arrival) 2 (Inspection at arrival)	2	2
Total		**19**	**18**

Results

Map of the score



Our sample can be disaggregated in 3 sub-groups:
29 European countries or assimilated (Dir. 2000/29 CE)
52 extra-European destinations (PC)
3 countries that ban French apple imports (South Africa, North Korea and Tunisia).



The size of apple trade is clearly negatively correlated with the complexity of the regulations. China and the USA appear as the most demanding in terms of plant protection requirement. They are also the main competitors of France outside the European Union.

Discussion

For a long time France has got the world leadership in the apple international markets. However, the French competitiveness is short of breath. French exporters suffer from an increasing complexity of the phytosanitary rules governing fresh fruits trade, which sometimes became excessively expensive for firms that want to export in a foreign market. The absence of compliance with foreign phythosanitary implies "rejection at the borders" for that "unsafe" products and firms' loss in competitiveness.

By relying on a polyvalent tool, we study the link between the level of French apples exports and the complexity of the phytosanitary requirements in the destination countries.

The analysis of the regulations in 84 countries leads to following conclusion: the quantity of apples exports decreases with the level of complexity of the regulation abroad. French exporters are adversely effected by the complexity of regulations and the cost of compliance. In fact, it is acknowledged that higher the complexity, higher the costs for compliance.

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Aknowledgement: *this study is part of the Sustain'Apple, funded by the French Research National Agency*