



Product standards and developing country agricultural exports: The case of the European Union



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ABSTRACT

This paper shows that voluntary product standards in EU food and agriculture markets can have significant trade effects. In particular for all countries and for goods that are raw or lightly processed, EU standards can often be trade-inhibiting. However, internationally harmonized EU standards—those that are equivalent to ISO norms—have much weaker trade effects, and in some cases are even trade-promoting. EU standards may have hurt developed countries more than developing countries, but this result is dependent on the sector. At a policy level, the results highlight the importance of dealing with the trade effects of voluntary standards in major markets, not just mandatory public standards.

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Introduction

As traditional market access barriers, such as tariffs and quotas, have fallen in many countries over recent decades, attention has increasingly turned to other regulatory measures that have the potential to act as trade barriers. Although rarely designed as explicitly protectionist measures, product standards nonetheless have the potential to keep foreign producers out of domestic markets by imposing fixed and variable adaptation costs—the so called “standards as barriers” view. These costs have the potential to fall particularly heavily on developing country producers, whose adaptability is constrained by technical and financial capacity. Indeed, recent trade theory suggests that fixed cost measures such as product standards might play an important role in explaining the pattern of bilateral trade (Helpman et al. (2008) and see Tamini et al. (2010) for an application to trade in agricultural products). On the other hand, foreign standards can also act as a catalyst for production upgrading, as resources shift to producers able to make the required technical adaptations (the “standards as catalysts” view; Maertens and Swinnen, 2009; Henson, 2008).

A number of recent contributions to the literature focus on the trade effects of mandatory product standards, including in the agricultural sector. For example, Disdier et al. (2008) construct an

inventory of such measures and use a gravity model to show that they tend to reduce developing countries' exports to the OECD, but have little effect on intra-OECD trade. By contrast, there is much less work on voluntary product standards, even though they are commercially crucial for developing countries seeking to integrate into agri-food supply chains in developed country markets. Moenius (2004) considers a range of industries across a number of developed country markets. He finds that bilaterally shared voluntary standards tend to be trade promoting, but that country-specific standards tend to inhibit trade in non-manufactured goods such as agriculture. Czubala et al. (2009) examine the impact of voluntary EU standards on African exports of textiles, clothing, and footwear. They find that EU standards tend to inhibit African exports, except for those standards that are internationally harmonized. Portugal-Perez et al. (2009) extend that analysis to electrical products (cf. Moenius, 2007), but they do not examine the potential for differential impacts across developing and developed countries. Finally, Shepherd (2007) presents evidence that voluntary product standards and international harmonization affect the extensive margin of trade—particularly in developing countries—which is consistent with a significant role for fixed costs of adaptation.

Although there is considerable anecdotal evidence that similar mechanisms may be at work in the food and agriculture sector, quantitative evidence remains scarce (Henson, 2008). Emlinger et al. (2008) find that even after controlling for tariffs, there is a significant “border effect” in EU fruit and vegetable trade with Mediterranean partners. They interpret this as possible evidence of the

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effects of non-tariff measures, including standards. Moenius (2004, 2006) finds that voluntary standards in food and agriculture can be trade-inhibiting in a sample of developed countries. More recently, Anders and Caswell (2009) and Tran et al. (2012) show that stricter food safety standards for seafood have negative impacts on many developing country exporters.

This paper builds on and extends this existing work in four main ways. First, we complement single sector studies such as Anders and Caswell (2009) and Tran et al. (2012) by covering a wide range of agricultural products from HS Chapters 1–24. In light of differences in the level of product differentiation between manufactured goods sectors, like textiles and clothing (Czubala et al. (2009)), it is important to know whether similar mechanisms are at work in the relatively more homogeneous agricultural sector. Second, we focus on the increasingly important area of voluntary standards, rather than the mandatory standards considered by Didier et al. (2008). Third, we allow for standards to have different effects on developing and developed country exporters. Fourth, our dataset allows us to identify agricultural product standards that are internationally harmonized versus those that are not, as in Czubala et al. (2009) and Portugal-Perez et al. (2009) for textiles and clothing, and electronic goods, respectively.

Against this background, the paper proceeds as follows. The next section discusses materials and methods, covering the dataset, estimating equation, and basic descriptive results. *Results and discussion* section presents results from the econometric model and discusses them. *Calculation* section provides some illustrative calculations to give an idea of the empirical importance of our results. Finally, *Conclusion* section concludes.

Material and methods

Setting product standards is an area of mixed competence in the EU. Each member state has both voluntary and mandatory standards at a national level, while centralized EU bodies also issue standards with transnational application. A mixture of private and public agencies are involved in standard setting within the EU, with private bodies focusing primarily on voluntary standards, while public bodies emphasize mandatory ones. Swann et al. (1996) and Moenius (2004) examine the trade impacts of voluntary national standards, while Chen and Mattoo (2008) and Baller (2007) focus on transnational mandatory standards (Harmonization Directives). Only Czubala et al. (2009) and Shepherd (2007) look at the role played by transnational voluntary standards, such as those issued by the European Committee for Standardization (CEN). However, the empirical literature on the trade effects of private versus public standard on food and agriculture is thin if not non-existent (Henson, 2008).

EU standards database

To conduct the empirical analysis in the next section, we use previously unexploited data from the World Bank's EU Standards Database (EUSDB).² EUSDB collates data on voluntary standards in force in the EU over the period 1995–2003, and provides the first catalogue of CEN European standards with mapping to a standard trade classification (HS 2000). These standards are of the same type studied by Swann et al. (1996) and Moenius (2004), although their jurisdictional reach is different since they apply to all EU member states. To be clear, although these standards are voluntary, not mandatory, they are to be distinguished from private standards used

by retailers and distributors that are not catalogued in the sources used to create the dataset used here. EUSDB covers two product clusters of particular interest to developing countries: agriculture, and textiles and clothing. The first product cluster was analysed by Czubala et al. (2009), who found evidence of significant trade effects. The present paper is the first one to use the agriculture component of EUSDB.

EUSDB construction

Concretely, EUSDB was constructed by searching the CE-Norm and Perinorm databases for Community-level ('EN') standards, and extracting the relevant information from individual records, then cross-checking. Particular care was taken to ensure that the standard count for each year reflects as accurately as possible the total number of standards in force for that year (referred to as the 'stock' of standards), regardless of whether individual standards were published prior to or during the EUSDB sample period (1995–2003). Only those documents classified as 'standards' in Perinorm are included in the count data. An amendment to an existing standard is counted as an additional standard. All draft standards are excluded from the dataset.

Some previous studies have differentiated between harmonized (or shared) standards and 'idiosyncratic' standards that are unique to a particular country, e.g., Moenius (2000, 2004). Since EUSDB deals only with Community-level standards, it does not investigate differences in national standards within the EU; that subject is addressed by de Frahan and Vancauteran (2006), who find that harmonization is associated with significant intra-regional trade gains. However, EUSDB does capture information on whether or not a particular EU standard implements a corresponding ISO standard ('international harmonization'). A binary dummy variable is used to make this distinction, which is based on the presence or absence of an 'equivalent' or 'identical' tag in the Perinorm record with reference to an ISO standard. Under current data constraints, it is not possible to code an additional variable that identifies shared NonISO standards by country pair, given the broad sample of exporting countries used in this paper.

The fact that EUSDB catalogues voluntary, as opposed to mandatory, standards is significant in terms of the interpretation of our results. At the firm level, individual operators remain free to adopt or not adopt voluntary standards, whereas they are required to follow mandatory ones. The use of firm-level data on standards compliance is therefore an interesting avenue for additional research, because it captures different behaviour at a micro-level. However, given the wide sample of developing countries used in the present analysis, it is not possible to proceed using firm-level data. We must therefore rely on country-level data, which are effectively aggregated from the firm-level. Therefore, we can only present aggregate results, and cannot interpret them in terms of the behaviour of individual firms.

The evolution of standards

Voluntary standards catalogued in the EUSDB have been growing rapidly over recent years. Summing across all two-digit HS sectors in the agricultural products cluster, the total number of standards increased from less than 50 in 1995 to more than 800 in 2003. This represents an average annual growth rate of just over 40%. From the point of view of exporters to the EU, particularly those from developing countries, the expansion in these voluntary agricultural standards is clearly a dynamic with potentially major cost implications. The available firm-level evidence suggests that foreign standards can indeed impose substantial fixed costs of compliance: Maskus et al. (2005) report an average of \$425,000 per firm, or 4.7% of value added, based on a survey of over 600 firms in 16 developing countries.

² The description of the EUSDB given here draws heavily on Shepherd (2006), which fully reports the construction of the EUSDB and sets out the techniques used to create the standards variables used in Shepherd (2007) and Czubala et al. (2009), and this paper.

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