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Cross-national adoption of private food quality standards

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ABSTRACT

Retailer initiated food quality standards are important elements to market food and agricultural products. However, farmers' certification proceeds at an unequal speed worldwide with some countries representing a large number of certified producers and others representing very few, if any. This study aims at analysing the adoption of two private food standards, BRC Food Technical Standard and GlobalGAP, at an aggregated cross-country level using data of 2007. Negative binomial models are applied to quantify the determinants of standards' spread at an aggregated level. The results of the econometric analysis reveal some (potential) barriers for farms and firms in developing countries to access this type of organisational innovation. Certificates of both standards seem to be issued more likely in countries with established trade relations with Germany, the Netherlands and the United Kingdom, home countries of the standards. Furthermore, larger countries and countries with better institutional quality host more certified firms. Finally, a country's level of economic development displays a clear non-monotonic relationship to the number of certified enterprises. Although no evidence for a general exclusion of developing countries can be found, the main implication of this paper is that third-party certification for export purposes seems to reinforce already existing trade relations, potentially hampering new entrants.

Introduction

Global agricultural and food trade is governed by various standards and regulations, which can be divided into two segments. One group is formed by regulations countries may impose on imports. According to World Trade Organization (WTO) rules, these regulations are subject to the Agreements on Sanitary and Phyto-Sanitary barriers (SPS) and Technical Barriers to Trade (TBT). Another group is composed by standards which emerged from retailers' action and is required by several large retailers, some wholesalers and food service companies. By definition these standards do not fall under the SPS and TBT Agreements.

Already in 2003, Von Braun (2003) called attention to the emergence of retailer driven food quality standards. There are fears that these standards increase the inequality within countries, between farmers that are able to comply and those that are not. Additionally, standards' possible effect as new trade barrier for agricultural producers in developing and transition countries is criticised. In any case, concerns emerge that especially small farmers and/or farmers in developing countries might not be able to comply with standards and could be excluded from European and North American export markets (Reardon et al., 2001; Ponte, 2008). Campbell (2005) even raises the question whether retailer dominated standards lead to a type of re-colonialisation.

However, other studies provide more positive evidence of small-holder market integration through third-party certification in African countries (e.g. Maertens and Swinnen (2009) as well as Minten et al. (2009) and the literature discussed therein).[1]

Taking a more aggregated view and looking at the number of issued certificates for standards such as GlobalGAP or BRC Food Technical Standard reveals a large heterogeneity between countries. Some countries, developed as well as developing countries like Italy, Spain, Chile or Kenya, are home to hundreds of certified enterprises whereas other countries, especially countries in Eastern Europe and Central Asia, perform much poorer. Treating private standards as an organisational innovation, a rich literature aims at explaining the adoption behaviour of entrepreneurs using firm-level data. However, as pointed out by Rogers (2003), beside firm-specific characteristics, country characteristics, like technologies available, infrastructure and macroeconomic conditions as well as quality of institutions, might shape the accessibility of innovations by producers located in a respective country.

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[1] A comprehensive discussion of standard's impact on farmers in developing countries is beyond the scope of this paper. The interested reader is referred to Maertens and Swinnen (2009);Minten et al. (2009), Henson and Humphrey (2010) and Valkila and Nygren (2010).

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Against the described background, this paper aims at explaining the spread of food quality standards from an aggregated perspective. More specifically, we are interested in the determinants of the certification's international distribution beyond the reach of any single producer. We analyse the global spread of retailer driven business-to-business international quality standards with global relevance. As representative examples we focus on GlobalGAP and BRC Food Technical Standard.[2] To do so, the aggregated number of issued certificates per country is explained by a set of historical, institutional and macroeconomic factors using a large cross-sectional dataset.

This paper's contribution is twofold. First, previous literature falls short in analysing the spread of private standards on a global scale quantitatively. To be able to derive conclusions if certain countries, and by this farmers and food processors in those countries, might be generally excluded from modern food chains, such a perspective seems relevant. Second, the impact of the determinants beyond the reach of individual producers, like historical, institutional and macroeconomic factors, of private food quality standards' adoption across countries is unexplored so far.

The rest of this paper is organised as follows. After a short description of the two standards, the following section reviews briefly the previous literature of individual and aggregated adoption of quality standards. The section Conceptual framework and development of hypotheses prepares the analytical ground for the econometric analysis. The section data description and methodology introduces the data and methodology applied in the econometric analysis. We use a negative binomial model to analyse the number of GlobalGAP and BRC certificates issued per country. Results of the analysis are presented and discussed subsequently in Results and discussion. The paper ends with some concluding remarks.

Background and literature review

The nature of GlobalGAP and BRC standards

Following the terminology by Hobbs (2010) the two standards, GlobalGAP and BRC Food Technical Standard, emerged as voluntary consensus standards. They can be understood as a joint action of retailers and their interest groups.[3] This distinguishes them from other process standards such as HACCP or ISO-based standards which have been developed by public authorities or inter-governmental organisations and aim for a consistent documentation of the production process. HACCP has been implemented as mandatory for seafood, juice and meat imports into the United States, to name one example (Anders and Caswell, 2009; Kaplinsky, 2010). Any standard mandated by governments can be brought to the dispute settlement procedure of the World Trade Organization (WTO). By definition, this mechanism does not exist for standards such as BRC and GlobalGAP which are mandated by business partners. Furthermore, retail standards like BRC and GlobalGAP go beyond the mere documentation and require clearly defined production criteria.

GlobalGAP, previously known as EurepGAP, has been established by the European-Retail Working Group, originally an association of German, Dutch and British retailers. In the meantime, more than 40 retailers from 15, mainly Western European, countries require their suppliers to be GlobalGAP certified (GlobalGAP, 2010). The BRC standard bases on an initiative of British retailers only. Both standards started to be developed in 1997/98 and are counting today certified producers in more than 80 countries on all continents. First growers were certified some years later, e.g. in 2001 with respect to then EurepGAP. While the BRC Food Technical Standard as a post-farm gate standard is directed towards processors, GlobalGAP is targeting the process of agricultural production (pre-farm gate approach). Thus fresh agricultural products to be directly supplied to supermarkets or gastronomy can be certified by GlobalGAP. Both are in-chain standards, not to be communicated to the consumer via labels on the product.

Determinants of standards' adoption

So far, analyses of standard's adoption concentrate on determinants at the individual farm/firm-level in one country and/ or certain agricultural sectors (e.g. Zaibet and Bredahl, 1997; Yiridoe et al., 2003; Henson and Holt, 2000; Turner et al., 2000). Fouayzi et al. (2006) analyse the adoption of multiple Quality Management Systems (QMS) like HACCP, organic certification, ISO 9000, and Good Agricultural Practices, among US based firms in the fresh-cut produce sector, covering not only farmers but also packers, distributors, processors, retailers and importers.

The implementation of HACCP practices in UK dairy processing companies is analysed by Henson and Holt (2000). The authors derive from the results by their analysis four main determinants of adoption: improvement of internal efficiency, pressure by customers, external legal and customary requirements and recommendation as good practice. Similarly, South African agribusiness firms named customer related factors, improvement of own products' quality and internal efficiency as well as access to foreign markets as most important factors which motivated introduction of ISO 9000 certification (Turner et al., 2000).

Studying the example of GlobalGAP, the adoption at farm level is analysed by Kleinwechter and Grethe (2006) regarding Peruvian mango producers as well as Souza Monteiro and Caswell (2009) focusing on the adoption behaviour of Portuguese pear growers. Whereas the first study relies on qualitative data analysis, the latter reveals quantitative estimates. Both studies suggest that producers' orientation towards exporting and their involvement in producer organisations increases the probability of GlobalGAP certification. Furthermore, farm size as well as vertical integration via contracts is positively correlated with certification in the case of Peruvian mango producers. Surprisingly, results by Souza Monteiro and Caswell (2009) point to no statistically significant impact of farm size on the probability of adoption.

Looking at the other side of the food supply-chain, Fulponi (2006) discusses incentives of retailers in OECD countries to set up such privately organised and to a large extent business-to-business standards. Similarly, Gereffi et al. (2005) relate the emergence of 'global commodity chains' to the activity of large retailers and brand marketers (not only on food markets) in international sourcing and increasing trade of intermediary products. Those activities can be seen as alternatives to complete vertical integration, i.e. in-house production.

There is a number of studies looking into the adoption of quality assurance systems at an aggregated level. Neumayer and Perkins (2005) as well as Guler et al. (2002) analyse determinants of aggregated ISO 9000 certification of manufacturing firms across countries. Results by Neumayer and Perkins (2005) show that countries exhibiting higher 'transnational network ties' represent a higher number of ISO certified firms. More specifically, their terminology includes variables such as the share of exports to the EU and Japan on country's GDP, stocks of foreign direct investment (FDI), historical colonial ties to Europe and the availability of telecommunication. In the econometric analysis, all four variables are shown to significantly increase the number of ISO 9000 certificates

[2] Burrell et al. (2007) present an overview of various recently emerged food standards and Quality Assurance Systems.

[3] Other authors classify the two schemes discussed here as third-party certification, i.e. standards are not directly introduced by supplier or buyer (e.g. Hatanaka and Busch, 2008).