



Do private standards create exclusive supply chains? New evidence from the Peruvian asparagus export sector



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ABSTRACT

Developing countries are increasingly exporting fresh horticultural products to high-income countries. These exports increasingly have to comply with stringent public and private standards, as well as other quality and safety issues. There is an ongoing debate on the effect of private standards on the inclusion of small-scale farmers in export supply chains. With this paper, we contribute to this debate by providing new evidence from the Peruvian asparagus export sector, and by addressing several important methodological shortcomings and gaps in the existing literature. We describe export dynamics using a unique firm level dataset on 567 asparagus export firms from 1993 to 2011 and the evolution of certification to private standards using own survey data from a stratified random sample of 87 export firms. We use an unbalanced panel of the surveyed companies on 19 years and several methods, including fixed effects and GMM estimators, to estimate the causal impact of certification to private standards on companies' sourcing strategy. We find that certification leads to vertical integration and significantly reduces the share of produce that is sourced from external producers, with a larger effect for small-scale producers. When distinguishing between production and processing standards, and between low-level and high-level standards, we find that especially high-level production standards have a negative impact on sourcing from (small-scale) producers.

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Introduction

Standards are increasingly governing international food production and trade. While public standards, set by public authorities, mainly focus on food quality and safety issues, private standards, set by private companies and non-state actors often add other aspects such as ethical or environmental concerns. Private standards started to emerge at the end of the 1990s, mainly in response to consumer concerns in high-income countries about food safety and quality. The spread of private standards has been intensively documented in the literature (e.g. Henson and Reardon, 2005; Humphrey, 2008; Jaffee, 2003). Due to the expansion of agricultural trade between industrialized and developing countries, private standards have quickly become a global phenomenon, influencing developing countries' markets and producers (Jaffee and Masakure, 2005; Reardon et al., 2001; Unnevehr, 2000). The private nature of these standards creates a non-regulated area that goes beyond the competence of national authorities and opens up new debates on the legal dimensions as well as on the development impacts of private standards (Marx et al., 2012).

A major concern is that standards engender an unequal distribution of the gains from trade because they lead to the exclusion of the least developed countries and the poorest farmers, who are unable to comply with stringent requirements due to a lack of technical and financial capacity (Graffham et al., 2007; Maertens and Swinnen, 2007; Reardon et al., 2001 or Swinnen and Vandeplass, 2011; Vandemoortele et al., 2012 for theoretical notes). There is a stream of empirical literature that focuses on the impact of private standards on export volumes, either at the country level (e.g. Anders and Caswell, 2009; Jongwanich, 2009; Wilson et al., 2003; Wilson and Otsuki, 2003) or at the individual firm level (e.g. Schuster and Maertens, 2013). A second stream of studies – to which this paper will contribute – is addressing the issue of inclusion or exclusion of smallholder and family farms as a result of increasing standards (e.g. Henson et al., 2005; Maertens and Swinnen, 2009; Reardon et al., 2009). Several studies have documented that with increasing standards, a decreasing share of export produce is sourced from small farmers. For example, Maertens and Swinnen (2009) document a recent shift from smallholder contract farming to vertically integrated farming on large-scale plantations in the vegetable export sector in Senegal and attribute this shift to the increased importance of standards. Gibbon (2003) observes that increased exports of fresh produce from developing countries is generally accompanied by a decline in the proportion of this

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produce accounted for by smaller-scale producers. Several authors, based on diverse empirical case-studies, have indicated that the inclusion of family-type farms in high-standard trade and the adoption of high standards by smallholder farms is only possible through external interventions, e.g. development programs, public–private partnerships or collective action support (e.g. Boselie et al., 2003; Kersting and Wollni, 2012; Narrod et al., 2009; and Okello et al., 2011). Bandon et al. (2009) indicate that producers' traditional marketing preferences could impede them to participate in emerging supply chains, characterized by growing quality requirements, and thus to take advantage of the potential opportunities the modern chains offer. Contrariwise, a recent study on African exporters by Henson et al. (2013) points to a complementary rather than a competitive relationship between company own-farm production and sourcing from smallholder farmers. Maertens et al. (2012) provide a review of the literature on smallholder inclusion/exclusion in high-standards horticultural export chains in Africa. They conclude that the evidence is mixed, and that in some sectors and countries standards have led to increased exclusion of smallholder farms while in other sectors and countries high-standards exports are largely realized by smallholder farmers.

With this paper, we contribute to this stream of empirical literature with a specific case-study and address several important shortcomings and gaps in the existing studies. First, despite a large body of literature on the participation of small producers in modernizing supply chains, remarkably few studies provide quantitative evidence on the impact of standards. To the best of our knowledge, no study has been able to effectively disentangle the role of private food standards from a general trend of modernizing value chains. Second, most studies focus on smallholder producers and compare included versus excluded producers (e.g., Asfaw et al., 2010; Chemnitz, 2007; Mausch et al., 2009; Subervie and Vagneron, 2013). This approach is useful to understand which farmers are excluded/included and address issues of inequality but complicates the identification of a causal link between private standards and exclusion. Third, most studies use cross sectional farm data. With such data it is impossible to look at dynamic trends, and difficult to control for selection bias and unobserved heterogeneity to accurately estimate the effect of standards. Fourth, another limitation in the existing literature is that surprisingly little attention is given to the multiple scopes and types of private standard. The existing literature either considers private standards as a homogeneous whole or focuses on specific main standards only (e.g. Henson et al., 2011; Kersting and Wollni, 2012; and Lemeilleur, 2012 focus on Global Gap only; Herzfeld et al., 2011 focus on BRC and Global Gap). Yet, private standards are diverse (Humphrey, 2011). They can apply to food processing and post farm-gate processes only (i.e. HACCP, BRC, IFS etc.) or be concerned with farm-level production (i.e. GAP, Global Gap, Tesco etc.). Some standards only cover basic requirements, while others are more stringent.

The objective of this paper is to estimate the impact of certification to private standards on the strategy of export companies¹ to source from external producers and small-scale farmers or to vertically integrate. We focus on the Peruvian asparagus export sector and provide empirical panel data evidence at the level of export companies. The sector represents a unique case study from a scientific perspective, due to the size of the industry with around 100 exporting firms per year, its long history, the availability of firm longitudinal data for the period 1993–2011, as well as the diversity of adopted private standards. The availability of panel data for a large set of companies and years allows us to hold country and sector specific aspects constant, to take into account sourcing trends, to correct

for unobserved heterogeneity and company self-selection into private standard schemes, and to distinguish between different types of private standards. These are important methodological improvements that allow us to more accurately estimate the impact of standards on sourcing from local and small-scale producers.

The structure of this paper is as follows: we first describe the data used for the analysis and define the firm's sampling strategy. We then provide descriptive evidence on the evolution of export quantities, the different types of private food certification schemes and the sourcing behavior of firms. Further, we define our estimation and identification strategy and report econometric results. We conclude with policy implications and future research needs.

Data

We use a unique firm level dataset on Peruvian asparagus exports constructed from secondary sources and own original data collection. The secondary data include custom records (SUNAT – Peru) at a transaction level on all fresh asparagus export transactions over the period 1993–2011. This dataset contains information on 567 fresh asparagus export firms and includes the identification of the exporter (firm names and tax identification number), the exported volume, the destination market and the FOB value for all export transactions. Since virtually the entire asparagus production in Peru is destined for export markets, the customs data comprise the entire industry sales. We merge these data with tax administration data, containing information on the foundation date of the firms, core activities, general managers, location, branches, as well as historical fiscal benefits or irregularities. When companies are not exporting in a specific year, the export data are missing while the tax administration data are available for all years in which the company is registered as being active. In our dataset all companies are considered as “exporters” from the year they first export fresh asparagus and as long as they are registered as an active company with the tax administration. We substitute zeros with missing values for export volumes and FOB values of the companies considered as “exporters”.

We complement these secondary records with primary data from a survey among a representative sample of export companies. From the total population of 567 firms that at least once exported fresh asparagus between 1993 and 2011, we draw a stratified random sample of 100 companies. We randomly selected companies from three mutually exclusive strata, according to the companies exporting experience in 2011: *consolidated companies* with at least 6 years of exporting experience (total population of 63 companies), *intermediate companies*, between 3 and 5 years of exporting experience (90 companies) and *start-up companies* with less than 3 years of experiences (416 companies). Together consolidated and intermediate companies are responsible for 88% of the volumes exported between 1993 and 2011 and are more likely to be certified to private standards than start-up companies. These last companies, often only export for a few years and then withdraw from the export sector. For the analysis of dynamics in the Peruvian asparagus export sector, consolidated and intermediated companies are more relevant, and, therefore, we oversample companies in the first two strata. The sample includes both companies that were operational in 2011, the year the survey was implemented, as well as companies that ceased operations by that year. This sampling strategy ensures that the sample is representative not only for the current situation but for the whole period. The survey was implemented between July and September 2011 using an original questionnaire including recall questions on the certification to private food standards, sourcing strategies, ownership and management structure, as well as on processing and production

¹ The terms “export company” and “export firm” are used interchangeably throughout this paper.

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