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Private standards and employment insecurity: GlobalGAP in the Senegalese horticulture export sector

LIESBETH COLEN and MIET MAERTENS

Liesbeth.Colen@econ.kuleuven.be; Miet.Maertens@ees.kuleuven.be

Katholieke Universiteit Leuven, Belgium



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Introduction

During the past decades developing countries have become increasingly integrated in global trade and investment. As a result, agri-food systems in these countries have undergone substantial changes and have evolved into modern global supply chains (Swinnen, 2007). Private and public standards have started playing an important role in these supply chains. Requirements on food quality and safety have become stringent and have affected the structure and organization of these supply chains. GlobalGAP is the single most important standard in international food supply chains, and there is a general consensus that it has thoroughly affected the governance of modern supply chains in fresh food products.

However, there is still debate on how the proliferation and increased stringency of food standards affect welfare. There are contradicting findings on the costs and benefits of certification at firm level (Graffham et al., 2007; Henson et al., 2011) and there is an ongoing debate on the welfare implications for the rural population that participates in these modern supply chains as contract farmers or employees. Studies have looked at how GlobalGAP leads to increased vertical integration and to its effects on smallholder exclusion (Doland and Humphrey, 2000) and on the income of contract farmers and employees (Maertens and Swinnen, 2009; Maertens et al., 2011). Asfaw et al. (2009) find positive health implications of GlobalGAP certification for smallholder farmers. Yet, there are no existing studies that analyze how GlobalGAP certification itself may affect the welfare of employees.

A number of studies have focused on gender discrimination and employment insecurity in high-value supply chains and on the impact of codes-of-conduct on gender discrimination and workers' wellbeing (Barrientos and Smith, 2007; Nelson et al., 2007). Barrientos et al. (2005) and Oxfam (2004) put forward the concern that the increasing dominance of supermarkets in global supply chains lead to increased vulnerability of (mainly female) workers. They argue that much of the employment generated by commercial horticulture for supermarkets is insecure and informal. Dolan (2004) argues that women are specifically preferred for this type of work because of the low cost and because it allows more flexible labour adjustment.

On the other hand, one may argue that modern supply chains and high standards are associated with more stable relations, which could potentially trickle down to employees in developing countries. Barrientos and Kritzing (2004) also mention for South African fruit exports that modern high-value supply chains may be associated with a more stable outlet and that on average prices are higher. While supermarkets mostly do not agree on the upfront, they usually do negotiate on the quantity and quality six months in advance. They find that those firms that obtained EurepGAP certification or were in the process of compliance tended to engage less in the reduction of permanent labour. But on the other hand they argue that those firms that are left out of these supermarket-led value chains may become subject to even more volatile markets, which may be associated to increased uncertainty for workers (Barrientos and Kritzing, 2004).

These studies only sum a number of potential arguments, and none has analyzed what the real effect is of the modernization of supply chains and the increased importance

of private standards on employment insecurity. In this paper we combine secondary data on firm-level export volumes, with company-level interviews and unique household survey data for the horticulture sector in Senegal. Based on interviews with Senegalese exporting firms, we illustrate that more stable exports and a longer exporting season are one of the main perceived advantages of GlobalGAP certification. We analyze the effect of GlobalGAP certification on the length of the export season of green bean exporting firms and find that GlobalGAP firms have a longer export season than non-GlobalGAP firms. While this might have been the case before certification already, it seems that the difference in the length of export season has increased after firms have become certified. Most interestingly, we analyze household survey data collected in the main exporting region of Senegal, Les Niayes. We find that employees employed at GlobalGAP certified firms have a significantly longer season of employment at the firm and that their contracts are more on a seasonal and less on a day-to-day basis, compared to employees at non-GlobalGAP certified firms. This indicates that private standards certification may reduce rather than increase the insecurity of employees involved in modern supply chains.

The impact of GlobalGAP certification

Over the past decade public and private standards have increasingly gained importance in global food supply chains. Especially GlobalGAP (the former EurepGAP) has become very widespread. More and more European retailers require that their suppliers are GlobalGAP certified and as a response the number of suppliers certified to GlobalGAP has been increasing largely over the past decade.

Several concerns have been raised concerning the implication of this wave of GlobalGAP certifications on producers in developing countries, often focusing at the effects on smallholder producers. Graffham et al. (2007) show that compliance to GlobalGAP is associated with significant costs. Asfaw et al. (2008) and Mausch et al. (2006) argue that certification and the associated investments for compliance are characterized by economies of scale, which disadvantages smallholders. Dolan and Humphrey (2000) state that GlobalGAP leads to the exclusion of smallholders, while Asfaw et al. (2007) and Mausch et al. (2006) show that there are important income gains for those that succeed in getting certified. Okello et al. (2007) indicate that certification is associated with greater productivity, increased market access, and reduced pesticide application. Maertens and Swinnen (2009) describe how the increasing importance of GlobalGAP leads to increasing levels of vertical integration by Senegalese green beans exporters and a reduction in the share of green beans source from contract farmers. All of these studies focus on producers and the major focus in this literature is on the implications for smallholders.

The decision on GlobalGAP certification is most often taken by export firms, who are directly confronted with the demands by importers and see advantages in achieving compliance. When contract farmers get GlobalGAP certification, this is mostly in cooperation with (and often with financial support of) an exporting firm. Hence, it is crucial to understand how exporting companies decide whether or not to engage in certification and to get insights in the constraints and opportunities of GlobalGAP certification. Henson et al. (2011) are the only ones that look specifically at the impact

for firms rather than for smallholders. Henson, Masakure and Cranfield study to which extent export performance of firms is enhanced through GlobalGAP certification. They focus on the fresh produce exports from 10 Sub-Saharan African countries. Using propensity score matching they show that GlobalGAP certification leads to higher export revenues.

A number of studies have studied private standards other than GlobalGAP, and show that certification reduces costs, enhances a better and more consistent quality of the produce and improves the efficiency of the production process. Certification also creates benefits through market-level effects: it lowers transaction costs, creates price premiums and better market access, growth in market share, and the ability to attract new customers (a.o. Herath et al. (2007) for Canadian food processing ; Corbett et al. (20)05) for ISO9000 certification in the US; Maldonado et al. (2005) for HACCP in the Mexican meat industry). In this paper we look specifically into one of these market-level effects and especially at its trickle-down effects on employees.

While mostly the decision on certification is taken by these export firms, it obviously has implications for downstream actors. This often concerns smallholder farmers, but also workers employed by these exporting companies may be affected. While most of the literature on standards and supply chains has focused on the implications for smallholder farmers, Maertens and Swinnen (2009), Barrientos and Kritzinger (2004) and Maertens et al. (2010) emphasize that a large share of the rural population may be involved through employment linkages, rather than as contract farmers. They show that large income effects are generated by employment in these sector, and that this employment is taken up by the poor and low-skilled. Yet there are no studies analyzing the potential implications of the increasing importance of private standards on employees in global food supply chains.

Some studies have analyzed the implications of labor standards and standards setting minimum levels of employment security and workers' welfare. Yet, in the Senegalese horticulture export sector (as in most agricultural export sectors in Sub Saharan Africa) these labor standards are of minor importance. Yet, indirectly also GlobalGAP may have implications on employees. To our knowledge, no studies have looked into the potential implications of GlobalGAP on employees before.

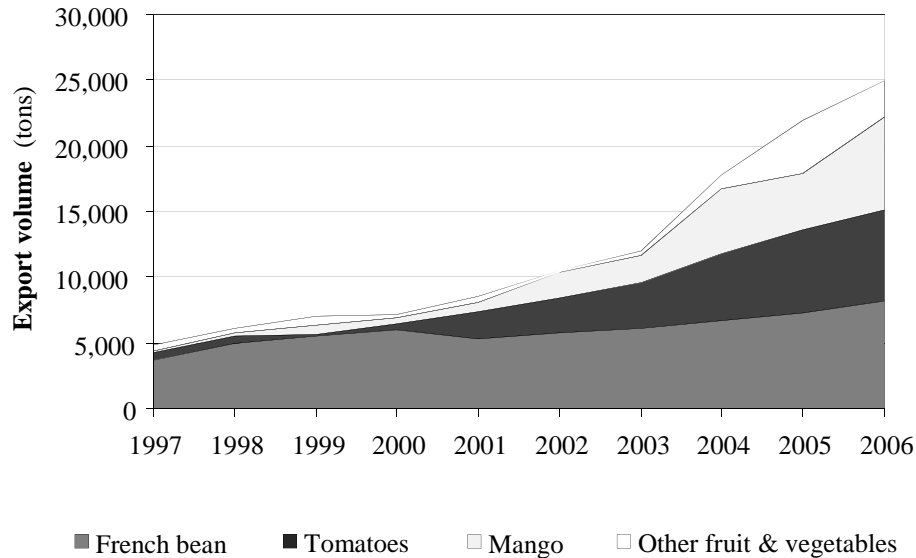
In this paper we try to identify one potential channel through which GlobalGAP certification may affect the welfare of workers employed in the supply chain, namely through its effect on the length of the export season, the period of seasonal employment and employment insecurity.

Horticulture exports and standards in Senegal

We use data on the high-value horticulture export in Senegal. Our case study looks at companies and their employees active in green bean exports from Senegal to the EU. The value of fresh fruits and vegetables (FFV) exports from Senegal as a whole have increased tremendously over the past decade: from 5 million US\$ to 30 million US\$ in 2009 (Figure 1). While FFV exports have become more diversified in recent years, green beans are still the most important FFV export product. The bean supply chains involves several exporting companies and production is characterized by two systems: smallholder contract-farming and vertically integrated agro-industrial production. The production of

green beans is concentrated in the region of Les Niayes. 90% of exported beans originate from this region.

Figure 1. Horticulture exports from Senegal, 1997 – 2006.



Source: Eurotrans – Senegal

The GlobalGAP (the former EurepGAP) standard is clearly the single most important standard in Senegal. At the time of our first company level interviews in 2005, one company was certified, while three others were in the processes of certification. As a part of this strategy several companies started their own production and reduced the volume of produce source from smallholders significantly or even completely. By 2010, five companies obtained GlobalGAP certification. All of the 13 companies that we have interviewed stated that GlobalGAP certification was an extremely important strategy for the future. As a comparison, Organic standards were only considered important for 4 out of 13 companies, and FairTrade, BRC (the British Retail Consortium) and ETI (Ethical Trade Initiative) were only considered to be important by 1 or 2 companies, and were attributed much a much lower importance than GlobalGAP.

Earlier studies in the region indicate that employment in the horticulture export sector is an important source of income for the rural population of Les Niayes. In 2005 and 2007, more than 30% of the households living in this area had at least one household member that was employed in this sector. Maertens and Swinnen (2009) show that employment in the sector have a very large positive effect on incomes and that employment is mainly directed towards the poor and low-skilled households. Given that such a large number of rural poor are participating in the supply chain of green beans for export, it is interesting and important to understand how certification to GlobalGAP - which is the main private standard in this sector – can affect the welfare of employees.

Data

Our analysis is based on company level interviews, on household level survey data collected in the region Les Niayes in 2010, and on secondary data on export volumes of fresh fruits and vegetables by Senegalese companies.

In total, 13 green bean exporting firms have been interviewed in January-February 2009 and in April 2010. The semi-structured questionnaire included, amongst others, questions on the export volumes, the importance of public and private standards, perceived advantages and disadvantages of certification, type of customers, type of contracts, production strategy, number of smallholders involved, etc.

A household survey, including 300 randomly selected households in 25 villages situated in the region of Dakar and Thiès, was organized in July and August 2010. Out of these 300 households, 101 households had at least one member that was employed in the agro-export of beans during the past 12 months. Detailed information was collected, including a.o. household demographic characteristics, land and non-land asset holdings, agricultural production, off-farm employment (including employment in agro-export firms), self-employment and non-labor income.

We use secondary data provided by the Senegalese DPV to test how GlobalGAP certification affects the length of the export season of green beans for 39 Senegalese exporting firms. For every firm we have information on how many kilograms of green beans have been exporting during the period 2001-2008. For a number of years information is not complete. Export volumes are missing for some months or there is no monthly disaggregation at all. Therefore we use monthly disaggregated data only for the years 2003, 2005 and 2008, which have complete information. Given that the first firm was certified in 2005 and 5 others became certified by 2008, these years capture both the period before and while GlobalGAP gained importance.

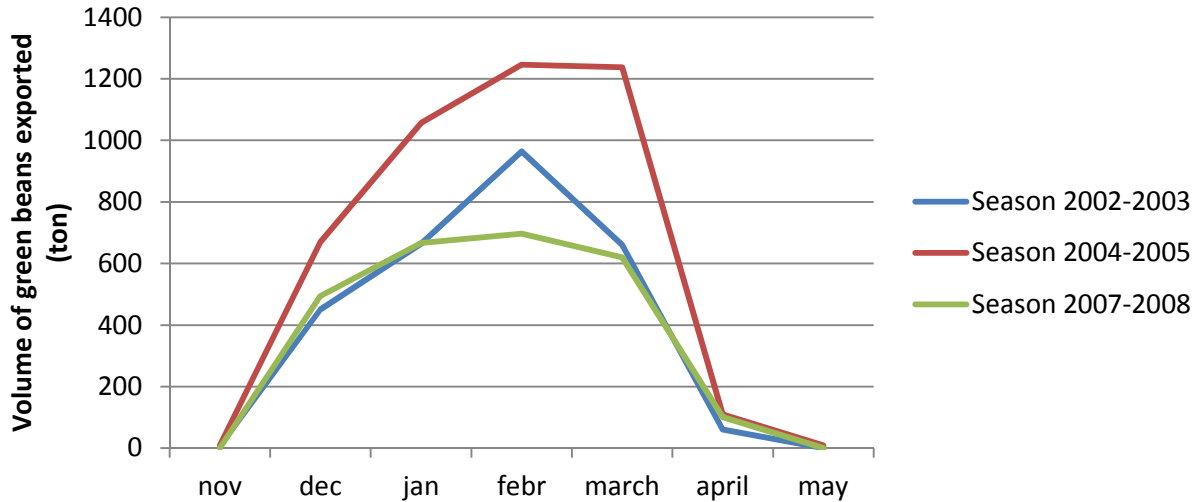
Results

The season of green bean exports from Senegal is very clearly delimited seasonally, which is mainly due to competition with other green bean producing countries (Morocco, Egypt, Ethiopia, Kenya). January, February and March are the typical export months for Senegalese green beans. This is clear from Figure 2, which illustrates the volumes of green beans exported in the seasons 2002-2003, 2004-2005 and 2007-2008. Volumes in November, December, April and May are more limited. The majority of firms only export in the peak months and do not have any exporting activity in the non-peak months. In 2005 and 2008, respectively 69 and 65 percent of the exporting companies were only active during a period of 4 months.

Based on company level interviews, we found a first indication of the implication GlobalGAP might have on the stability and security of horticulture export activities and of employment in the horticulture export sector. Companies were asked to indicate what they perceive to be the major benefits of GlobalGAP certification. The question was asked to both certified and non-certified companies. 11 out of 13 companies indicated that a more stable and longer export season was one of the main benefits of certification. 12 out of 13 companies stated that GlobalGAP certification would not create any price premium. One of these 12 said that it probably had created a price premium for the first

companies that achieved certification, referring to a first-mover advantage, but that this is not the case anymore today.

Figure 2. Monthly volume of green beans exported from Senegal for the seasons 2002-2003, 2004-2005, and 2007-2008.



Source: DPV (Direction de la Protection des Végétaux), Dakar, Senegal

Using monthly export statistics of Senegalese green bean exporting firms, collected by the customs at the port and airport in Dakar, we analyze whether companies which obtained a GlobalGAP certificate have a longer export season than other companies. Not all Senegalese exporters export every year. They may decide to export in a specific season depending on their financial means or based on the demand by customers. Looking at the number of years Senegalese companies have actually participated in exporting reveals that there is a significant difference between GlobalGAP certified and non-GlobalGAP certified companies. GlobalGAP certified companies exporting in a larger number of years. Also the length of the export season is indeed found to differ according to GlobalGAP certification status. Companies that are certified have a longer export season and also the share of total yearly exports in the non-peak months is higher for these firms. Obviously, this does not allow us to conclude that GlobalGAP certification *causes* a longer export season. Firms with large companies, larger volumes etc. are more likely to have a longer export season, and at the same time the pressure for certification may be higher for these firms, as well as the potential benefits.

Table 1. GlobalGAP and the length of the export season by GlobalGAP and non-GlobalGAP certified companies (2001-2008)

Mean	Green bean exporting companies		One-sided t-test P-value
	Not certified	GlobalGAP certified	

Total number of years exported ^a	2.4	4.6	0.00***
Nr of firms in sample (yearly data)	43	5	
Nr of months exported			
in 2003	1.5	3.0	0.07*
in 2005	1.4	5.2	0.00***
in 2008	1.0	3.4	0.00***
% volume exported in non-peak months ^b			
in 2003	3.8%	14.9%	0.01**
in 2005	10.5%	16.2%	0.38
in 2008	1.1%	8.8%	0.01**
Nr of firms in sample (monthly data)	34	5	

^a Total number of years exported in the period 2001-2008. Data are missing for the seasons 2005-2006 and 2006-2007, hence the highest possible number of years that a company participated in exporting is 6.

^b We consider January, February and March to be the peak months for green bean exports, Non-peak months are November, December, April and May.

Although the monthly export statistics do not indicate any causality, it seems likely that GlobalGAP certification ensures access to customers that have a more stable demand. Think of supermarkets compared to spot market fruits and vegetable markets in Europe. GlobalGAP is a first requirement if one wants to supply European supermarkets, so ensuring compliance with this standards opens possibilities for selling larger and more stable volumes, over a longer period. Analysis of more detailed time-series data on exports and the exact moment of certification would allow to analyze this in more detail. We are currently working on an extension on this side.

What we are finally interested in, is the potential impact private standards may have on the rural poor that are participating in modern supply chains. Therefore we analyze household survey data for employees that are working in the production, picking, sorting and handling of green beans for export. We look at the number of days and months that these workers have been employed in the agro-industry during a period of 12 months. In addition, we study on which basis they are employed and compare between employment at companies with and without a GlobalGAP certificate.

Table 2 illustrates the average number of months and days of employment in the agro-export industry during a period of one year, the mean salary, and the status of employment for workers employed in the export supply chain of green bean in the region of Les Niayes.

Table 2: Period of employment during the past 12 months and employment status for employees in the export supply chain of green beans

Mean	Employment in export supply chain of green beans		
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Number of months employed	3.9
Number of days employed	90.5
Daily salary	1578
% employed day-to-day	62.2%
% employed by season	33.1%
Nr of employees in sample	196

On average, employees work for 3.9 months, or 90.5 days, in the export supply chain of green beans. Note that the green bean season coincides with the low agricultural season and that labor opportunities (except for employment in agro-industry) are limited in this period of the year. The daily salary for an employee in green bean exports is about 1600 CFA per day. The large majority of employees are employed on a day-to-day basis. About one third is employed on a seasonal basis.

Table 3 shows the differences between employees in GlobalGAP certified companies and in non-certified companies. In certified companies, employees work during 4.5 rather than 3.5 months. The number of months and days worked is significantly larger in certified companies. We do not find a significant difference in the salary paid to workers according to the certification of the company. Interestingly, the number of workers employed on a day-to-day basis is significantly lower for certified firms. In GlobalGAP certified firms 42% of employees are employed on a seasonal basis, compared to 27% for non-certified firms.

Table 3: Period of employment during the past 12 months and employment status for employees in GlobalGAP certified and non-certified green-bean exporting companies.

Mean	Employed at green bean exporting company		One-sided t-test
	Not certified	GlobalGAP certified	P-value
Number of months employed	3.5	4.5	0.00***
Total number of days employed	80.3	105.6	0.00***
Daily salary	1564	1602	0.36
% employed day-to-day	66.7%	55.7%	0.06*
% employed by season	27.4%	41.8%	0.02**
Nr of employees in sample	117	79	

These results indicate that employees in certified firms have access to a longer period of off-farm employment in the green bean exporting sector compared to non-certified firms. Given the critique on the fact that the type of employment created in these modern supply chains is insecure and volatile, and that workers are recruited on a day-to-day basis, this is an important finding.

Conclusion

In this paper we describe how certification to GlobalGAP seems to generate a longer export season for green bean exporting firms, and how this effect trickles down to the level of employees at these firms. Based on a combination of secondary export data, unique company level interviews and unique household survey data in the region of Les Niayes in Senegal, we are the first to assess the impact of private standards in modern food supply chains on employees, and more specifically on the length and insecurity of their employment. We find that certification to GlobalGAP generates a longer season of off-farm employment for the rural poor and that employees at GlobalGAP companies have longer term contracts than employees at non-certified companies. Given earlier studies that found a very large effect of employment in these sectors on incomes and poverty, this is a very important finding. Moreover, these findings challenge the critique that the increased modernization of food supply chains and the increasing importance of standards is necessarily leading to bad contracts and employment insecurity.

References

- Asfaw, S., Mithöfer, D. and H. Waibel (2008). What Impact are EU Supermarket Standards Having on Developing Country Exports of High-Value Horticultural Products? Evidence from Kenya. Hannover: University of Hannover.
- Asfaw, S., Mithöfer, D. and H. Waibel (2009). Food-safety Standards and Farmers Health: Evidence from Kenya's Export Vegetable Growers, *Paper presented at the International Association of Agricultural Economists Conference, Beijing, China, August 16-22 2009*.
- Barrientos, S. and Kritzinger, A. (2004). Squaring the Circle: Global Production and the Informalization of Work in South African Fruit Exports, *Journal of International Development* 16: 81-92.
- Barrientos, S., Kritzinger, A., Opondo, M. and S. Smith (2005). Gender, Work and Vulnerability in African Horticulture. *IDS Bulletin* 36(2): 74-79.
- Corbett, C.J., Montes-Sacho, M.J. and D.A. Kirsch (2005). The Financial Impact of ISO9000 certification in the United States. An Empirical Analysis. *Management Science*, 51(7): 1046-1059.
- Graffham, A., Karehu, E. and J. MacGregor (2007). Impact of EurepGAP on small-scale vegetable growers in Kenya. *Fresh Insights* 6. London: International Institute for Environment and Development.
- Henson, S. and S. Jaffee (2008). Understanding Developing Country Strategic Responses to the Enhancement of Food Safety Standards. *The World Economy*, 31(4): 548-568.
- Henson, S. J. (2007). The Role of Public and Private Standards in Regulating International Food Markets. *Journal of International Agricultural Trade and Development*, 4(1): 52-66.
- Henson, S., Masakure, O. and J. Cranfield (2011). Do Fresh Produce Exporters in Sub-Saharan Africa Benefit from GlobalGAP Certification? *World Development* 39(3): 375-386.
- Herath, D., Hassan, Z. and S. Henson (2007). Adoption of Food Safety and Quality Controls. Do Firm Characteristics Matter?: Evidence from the Canadian Food Processing Sector. *Canadian Journal of Agricultural Economics* 55: 299-314.

- Maertens, M. and J. F.M. Swinnen (2009). Trade, Standards and Poverty: Evidence From Senegal. *World Development* 37(1): 161-178.
- Maertens, M., Colen, L. and Swinnen J. (forthcoming). Globalization and Poverty in Senegal: A Worst-Case Scenario? *European Review of Agricultural Economics*.
- Maldonado, E.S., Henson, S.J., Caswell, J.A., Leos, K.A., Martinez, P.A., Aranda, G. *et al.* (2005). Cost-Benefit Analysis of HACCP Implementation In the Mexican Meat Industry. *Food Control* 16: 375-381.
- Mausch, K., Mithöfer, D., Asfaw, S. and H. Waibel (2006). Impact of EurepGAP standard in Kenya: Comparing Smallholders to Large-scale Vegetable Producers. *Paper presented at the conference on international agricultural research for development, University of Bonn, Tropentag, October 11-13.*
- Okello, J., Narrod, C. and D. Roy (2007). *Food Safety Requirements in African Green Bean Exports and their Impact on Small Farmers*. IFPRI Discussion Paper 00737. Washington DC. IFPRI.
- Oxfam (2004). *Trading away our Rights: Women Working in Global Supply Chains*, Oxford, Oxfam International.