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Abstract

In this paper we analyse the impact of a variety of private standards on worker empowerment in the horticultural export sector in Peru. Empowerment is defined as workers' knowledge on their own rights and workers' perceived agency to improve employment conditions. We use data from a company and a two-round employee survey, and difference-in-difference propensity score matching methods. We find positive effects of private standards on worker empowerment, with core labour standards having a more pronounced effect than standards with a small focus on labour, and thus complement previous evidence on the effects of standards on tangible employee wellbeing.

Key Words: global horticultural supply chains, labor standards, worker empowerment, Peru

JEL classification: F63, J83, O54, Q17

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1. Introduction

In recent decades agri-food trade has increased considerably, especially high-value horticultural exports from low- and middle-income countries to high-income countries (Mergenthaler et al., 2009; Reardon et al., 2009). There are two stylized observations about this high-value trade. First, the expansion has been associated with substantial employment creation in rural areas of developing countries. It has for example been estimated that horticultural export sectors in Peru and Kenya employ each around 100,000 people, and the flower export sector in Ethiopia 50,000 people (Maertens et al., 2012; Schuster and Maertens, 2015). This employment concerns field labour on large-scale farms and plant labour in handling and packing units. Second, private standards are increasingly important in high-value food trade (Beghin et al., 2015). This includes basic standards on food quality and safety aspects as well as more advanced standards on social and environmental concerns of food production and trade (Henson and Humphrey, 2010). The latter type of standards includes labour standards that address working conditions and the respect to labour rights in food producing and exporting companies and countries. They have emerged in response to consumer, corporate and civil society concerns about employment conditions in the countries the food, that is distributed and consumed in high-income countries, originates from (Disdier and Marette, 2012). Labour standards are generally based on resolutions of the ILO Declaration on Fundamental Principles of Rights at Work and set out basic rights at work and common principles for dignified and safe employment. They provide indications on tangible employment conditions, such as workers' health and safety, wages and contract terms; and intangible employment conditions, such as the right to organization and worker empowerment. The latter are a development outcome in itself, but are also a means to access more tangible rights and benefits (Barrientos and Smith, 2007).

It has been documented that employment in high-value export sectors can contribute substantially to upwards income mobility and poverty reduction (Barron and Rello, 2000; Weinberger and Lumpkin, 2007; Maertens et al., 2011). Yet, the overall well-being of workers in high-value export chains crucially depends on the quality of employment (Barrientos et al., 2011; Selwyn, 2013). Even if employment contributes importantly to household income, if workers are not facing decent working conditions, the overall impact of employment on their well-being is ambiguous. There are many potential obstacles to fair, dignified and safe work: weak or non-existent labour inspection in remote areas, absence of labour laws and government

regulation, informality of rural employment, and poor literacy and empowerment of workers themselves. Specific concerns relate to insecure and unsafe jobs, long working hours, low wages and scarce social services, especially for the most vulnerable (young, female, migrant and low-skilled) workers in high-value export sectors (Barrientos et al., 2003; Nelson et al., 2007; Tallontire et al., 2007). Private labour standards emerged in response to these issues. Yet, there is little robust evidence about whether or not and to what extent the adoption of private labour standards in export sectors actually improves workers' well-being.

Some studies have looked at the effects of standards on tangible wellbeing outcomes for workers. Based on evidence from horticultural export sectors in South-Africa (Barrientos et al., 2003; Nelson et al., 2007), Senegal (Colen et al., 2012), Kenya (Ehlert et al., 2014) and Peru (Schuster and Maertens, forthcoming) authors have indicated that the adoption of private labour standards is associated with higher wages, longer employment periods, better regulated working hours, more social services, better health and safety or improved housing conditions and asset ownership of workers. Some authors point to effects being less pronounced for temporary and female employees (Barrientos et al., 2003; Nelson et al., 2005 & 2007) and others more sceptically argue that effects are only modest (e.g., Locke et al., 2009; Bonanno and Barbosa, 2012). Only a few studies have analysed the effects of standards on intangible well-being indicators. Barrientos and Smith (2007) show that the *Ethical Trading Initiative (ETI)* standard has no major impact on workers' freedom of association, rights to collective bargaining and protection against discrimination in South-African, Costa Rican and UK horticultural sectors. Riisgaard (2009) and Reynolds (2012, 2014) provide evidence from the Kenyan flower industry, and recognize labour standards – including Fair Trade standards – as a possible way of empowering workers to organize and collectively negotiate their rights. These studies use qualitative research approaches; which provide key insights on the effectiveness of labour standards but have difficulties in tackling causality issues.

In this paper we empirically analyse the effects of private labour standards on worker empowerment in the horticultural export sector in Peru. The sector has a long tradition, includes some 100,000 employees and around 400 export companies of which some adopted labour standards recently. There are specific concerns about the quality of employment in the sector, the capacity of workers to defend their own rights, and the ability of labour authorities' to supervise the sector (Chacaltana, 2007). We use data from a company survey and a two-round employee survey to estimate how the adoption of a variety of labour standards by companies in the sector, affects worker empowerment. We define empowerment as workers' knowledge on

their own rights and workers' perceived agency to improve employment conditions. Our approach – a quantitative estimation of the effect of different types of labour standards on intangible labour conditions – is highly complementary to existing studies that have mainly focused on tangible labour conditions, used qualitative approaches and analysed one single labour standard. To the best of our knowledge, only Colen et al. (2012), Ehlert et al. (2014) and Schuster and Maertens (forthcoming) quantitatively investigate the impact of labour standards but their focus is on wages and other tangible employment conditions. Also, qualitative studies are very valuable to document processes and channels of effects, with our quantitative approach we can better address the causality of the effects and reduce endogeneity bias. Finally, most existing studies analyse one specific standard such as ETI (e.g. Barrientos et al., 2003; Barrientos and Smith, 2007) or GlobalGAP (e.g. Colen et al., 2012; Ehlert et al., 2014). We look at a variety of standards and contribute to the literature by shedding light on how effects on intangible worker wellbeing measures vary over private standards with a more or lesser-pronounced focus on labour issues.

2. Background and data

2.1. The horticultural export sector in Peru

Peru is a worldwide leader in horticultural exports. Exports expanded significantly since the mid-1990s and have been growing at an average annual rate of 8.56% since the turn of the millennium (FAOSTAT, own calculations). The sector initially evolved around asparagus but the importance of other products such as grapes, avocado and artichoke has steadily increased. In 2011, nearly 450,000 ton of these four crops, or 90% of the national production, was exported for a total value of 872,364 USD. The horticultural production area ranges from 300 km south (Ica region) to 600 km north (La Libertad region) of Lima along the desert coast. The sector includes about 400 export companies, and a large number of producers and processors who deliver to these export companies.

Private standards started to gain importance in the Peruvian horticultural export sector from 2000 onwards. In the fresh asparagus sector for example, the share of firms certified to private standards increased from 7% in 2001 to 38% in 2011 and the share of certified export produce from around 25% in 2001 to 75% in 2011 (Schuster and Maertens, 2015). These standards are diverse and include pre-farm gate or production standards as well as post-farm-gate or processing standards. Until the end of the 2000s only basic standards addressing quality and safety issues were important. Around the year 2010 more advanced environmental and labour standards started to emerge, mainly due to increased pressure by buyers seeking to control

employment conditions along the entire value chain. Companies in the sector often combine multiple standards.

Employment in the sector almost quadrupled, from 40,000 workers in 2000 to more than 100,000 in 2013; and in Ica and La Libertad the sector is the main source of employment (Schuster and Maertens, forthcoming). Workers are mainly employed in labour-intensive harvest and post-harvest activities, such as sorting, washing, grading and labelling. This employment is regulated by two specific labour laws that are meant to increase the external competitiveness of the sector and spur its development. First, the “*Decree Law 22342*” allows export companies and producers of non-traditional products² to indefinitely employ workers on short-term contracts. An “intermittent” contract allows companies to suspend the employee within the agreement terms when the seasonality of the activities requires it; the worker is not remunerated during the suspension and the work is restarted if the labour force is again required by the employer. Second, the “*Agricultural Sector Promotion Law 27360*” establishes a special labour regime for agricultural workers, stipulating other rights and benefits for workers in export-oriented non-traditional agri-businesses. The special *Agrarian Labour Regime* includes for example reduced annual leave for workers, less strict regulations for overtime and severance pay, and lower employer contribution for health insurance (see table A1 for more details). The specific employment regulations contribute to reducing the cost of hiring temporary workers (Chacaltana, 2007).

2.2. Data

We use a combination of two original datasets. The first dataset contains two-round panel survey data from workers in the horticultural export industry. Respondents were surveyed twice, prior to starting employment in horticultural export companies, in August-September 2013 (baseline), and at the end of the main export season, in February-March 2014 (follow-up). The first round sample includes 592 respondents in 78 villages in the two main horticultural export regions Ica and La Libertad. Respondents were randomly selected among young people (between 17 and 21) with little or no previous employment experience in the sector (up to 3 months) but with a declared willingness to start horticultural employment in the subsequent export season. With 18 being the age limit for formal employment, this strategy allows us to reduce “contagion” from previous employment experiences and to more precisely estimate

² This mainly includes agriculture, livestock and textiles products, but also fishing, wood and paper, chemical, metallurgic and non-metallic mining products.

short-run impacts of seasonal employment. In the follow-up, 528 respondents from the original sample could be re-surveyed³, of which 414 had actually started employment in the horticultural export sector. The dataset contains information on the workers' socio-demographic background, economic and employment situation, health, education, overall wellbeing, and their employment between August 2013 and February 2014.

The second dataset includes information from Peruvian horticultural export farms and companies⁴, and is constructed from secondary data sources and an own company survey. The secondary data consists of custom records (SUNAT - Peru) and tax administration data from all horticultural export firms from 1993 to 2013; and includes information on the identification of the exporter, the transaction-level export volumes and values, the destination market, the foundation date of the firm, core activities, general managers, location and branches. A representative sample of companies was surveyed between July and September 2011; the sample was expanded and the information updated in September 2013 and again in March 2014 to include all employers of the sampled workers. The company survey contained questions on the adoption of private food standards, production and processing procedures, management structure, ownership etc. This leaves us with a two-round panel dataset on 414 workers who were employed in 159 different companies between the baseline and the follow-up survey.

3. Standards, companies and workers

3.1. Company classification and characteristics

We classify the companies in our sample according to the type of labour standards they adopt. The classification is based on a standards' mapping developed by the International Trade Centre (ITC), which allows to compare standards according to environmental, social, management, quality and ethical criteria⁵. Based on the ITC social mapping, we categorize two types of labour standards: 1/ core labour standards (LS) with a main focus on employment conditions, including at least 40 requirements on labour and social issues that need to be met within three years; and 2/ quasi-labour standards (QLS), general food standards with less than 40 but at least some requirements on labour, which have to be implemented within a predefined time frame. LS are concerned with responsible, safe and ethical business practices in global supply chains and relate to respecting ILO's core worker rights and good employment conditions within a firm.

³ The attrition was due to people moving back to their district of origin or because of wrong name and address information being provided by the workers. We tested for differences in observable characteristics between re-surveyed and dropped respondents but no significant differences were detected.

⁴ This includes asparagus, grapes, artichoke, mango, avocado and pepper farms and companies (AGAP, 2012).

⁵ <http://www.standardsmap.org/>; Standards' Map database

QLS focus on quality and safety aspects in production and post-harvesting but additionally include at least one section on worker health and safety in their requirements. We identify 25 different private standards in the Peruvian horticultural export sector, out of which seven are labour standards and three are quasi-labour standards; the remaining 15 are general food standards (GS) without any labour requirement⁶.

We categorize the 159 companies in our sample into mutually exclusive groups according to the most stringent labour standard they are certified to: 1/ LS companies, adopting at least one LS (14 companies); 2/ QLS companies, adopting at least one QLS but no LS (24 companies) and 3/ non-labour standard (NLS) companies, not adopting any LS nor QLS (121 companies). The latter category includes both companies adopting general standards (GS) and companies not adopting any private standard.

Table 1 reports differences in means for observable company characteristics across LS, QLS and NLS companies. The majority of LS and QLS companies are export companies while only 16% of NLS companies export directly. LS and QLS companies export significantly larger volumes, handle a larger variety of products, have more production sites, employ more workers and are more likely to be vertically integrated (i.e. owning both agricultural land and a processing plant) than NLS companies. All LS and QLS companies are formal companies registered with the national tax authority while only 42% of the NLS companies are. This indicates that especially formal and larger companies adopt some type of labour standard.

Only 4 % of the companies in the whole sample have a trade union but for LS companies this is significantly larger at 29%. Our sample statistics reflect how poorly organized workers in the sector are. In the whole sector, only five companies in Ica and three in La Libertad have a trade union, with respectively 328 and 1,160 members (personal communication with FENTAGRO⁷, 2013); representing only 1.5% of all workers in the sector. The poor workers' organization is surprising in the light of the large number of employees, the relatively high formality of the sector, and the difficulties to recruit enough labour during the harvest season. The low unionization likely relates to the historical discrediting of labour unions during the Fujimori

⁶ Standards classified as LS: Amcham – ABE certification; Business Social Compliance Initiative (BSCI); Ethical Trading Initiative (ETI); Fair for Life; Fair Trade; Rainforest Alliance; Social Accountability 8000 (SA 8000). Standards classified as QLS: GlobalGAP; Marks & Spencer - Field to Fork; Tesco Nurture. Standards classified as GS: British Retail Consortium (BRC); Business Alliance for Secure Commerce (BASC); GAP/ US GAP; GMA Safe; Good Manufacturing Practice (GMP); Hazard Analysis Critical Control Point (HACCP); International Featured Standards (IFS); ISO 9001 and 14001; Kosher Certificate; Linking Environment and Farming (LEAF); Nutriclean label; SQF 1000 and 2000; Voluntary Control System (VCS Safety). For more details see Schuster and Maertens (forthcoming).

⁷ National Federation of Agro-industry Workers

regime in the 1990s and a persistent negative perception on unions since. Unionized workers are often seen as ‘troublemakers’ and companies tend to discourage employees to join unions.

Table 1: Company classification and characteristics

	Total sample	Different type of companies		
		NLS	LS	QLS
Horticulture export company in 2013/ 2014	0.33	0.16	0.86 ***	0.88 ***
Horticulture export volumes in 2013 (in ton)	1,854 (6,923)	109 (496)	7,890 (8,198)	6,853 (14,678)
Number products produced/ exported in 2013	1.74 (1.71)	1.25 (0.65)	3.71 (2.70)	3.00 (2.86)
Number of production sites	2.52 (4.81)	1.18 (1.00)	7.57 (6.50)	6.12 (9.33)
Number of workers in Dec 2013	706 (2,133)	129 (202)	3,387 (4,676)	1,975 (3,221)
Owning field and plant	0.30	0.14	0.86 ***	0.76 ***
Owning field only	0.62	0.76	0.14 ***	0.20 ***
Owning plant only	0.08	0.10	0.00	0.04
Ica region	0.65	0.60	0.71	0.88 ***
Formal company	0.56	0.42	1.00 ***	1.00 ***
Foreign manager	0.07	0.04	0.07	0.20 ***
Company has a trade union	0.04	0.01	0.29 ***	0.04
Number of observations	159	120	14	25

LS=labour standard; QLS=quasi-labour standard; NLS=non-labour standard. Standard deviation for continuous and count variables in parenthesis. Test for difference in means for LS and QLS with NLS as comparison group, ttest of continuous variables and chi2 test for categorical variables. Significant differences indicated with *p < 0.10, **p < 0.05, ***p < 0.01.

3.2. Worker classification and characteristics

In the same way as we classified the companies in our sample, we classify the sampled workers according to whether they were employed by LS, QLS or NLS companies between August 2013 and March 2014 (table 2). If workers have experience in different types of companies, we classify them with the most stringent standard. The majority of all sampled workers were employed in LS companies (173 workers), followed by QLS workers (145) and NLS workers (96). The average age in our sample of workers is barely 20 and 50% of workers are female (table 2). Education is on average 10 years, which points to incomplete secondary schooling. Over two thirds of surveyed workers are not yet married, nor cohabiting, while around one fourth has at least one child. The average household size is 4.3. Forty-seven percent of the workers are migrants, meaning they are not born in the Peruvian coastal area. Workers in LS and QLS companies are slightly older, are less likely to own land, and are more likely to be migrants than NLS workers. QLS workers are more likely to be male, have larger households

and own less assets than NLS workers. LS workers more frequently participate in social or political organizations than NLS workers. LS workers are less likely and QLS workers more likely than NLS workers to live in the Ica region.

Table 2: Worker classification and characteristics ^(a)

	Total sampl e	Different type of workers				
		NLS	LS	QLS		
Age	19.59 (1.78)	18.87 (2.02)	19.8 (1.70)	** *	19.76 (1.57)	***
Female (=1 if female)	0.5	0.47	0.43		0.61	**
Education, in years	9.9 (2.36)	9.73 (2.06)	9.54 (2.63)		10.41 (2.11)	
Single (=1 if single)	0.77	0.79	0.75		0.78	
Number of household members	4.29 (2.53)	4.63 (2.22)	4.39 (2.70)		3.95 (2.51)	**
Children (=1 if has children)	0.26	0.22	0.28		0.27	
Migration (=1 if migrant)	0.47	0.30	0.47	** *	0.57	***
Government support (=1 if receives it)	0.40	0.42	0.36		0.44	
Land ownership (=1 if owns land)	0.21	0.28	0.18	**	0.20	**
Number of assets of the household ^(b)	4.67 (2.10)	5.05 (2.00)	4.68 (2.25)		4.42 (1.96)	**
Participation in a social or political organization	0.28	0.23	0.34	**	0.24	
Number of friends he sees at least once a week	4.32 (5.38)	4.25 (4.36)	4.81 (6.72)		3.78 (4.01)	
Frequency reading a newspaper (times/month)	10.34 (15.97)	12.19 (18.85)	9.89 (12.57)		9.66 (19.45)	
Frequency communicating with somebody outside the department (times/month)	8.60 (17.86)	5.89 (8.75)	8.43 (14.31)		10.61 (24.62)	
Ica region	0.5	0.54	0.32	** *	0.67	***
Number of observations	414	96	173		145	

(a) Worker characteristics from the baseline survey are reported

(b) Variable counting the number of assets the household has: fixed telephone, mobile phone, TV, microwave, sofa, fridge, radio, computer, radio, motorbike, car, bicycle

LS=labour standard; QLS=quasi-labour standard; NLS=non-labour standard. Standard deviation for continuous and count variables in parenthesis. Test for difference in means for LS and QLS with NLS as comparison group: ttest for continuous variables and chi2 test for categorical variables. Significant differences indicated with *p < 0.10, **p < 0.05, ***p < 0.01.

3.3. Worker empowerment

We follow Andersen and Siim (2004) and interpret empowerment as “the process of awareness and capacity-building, which increases the participation and decision making power of citizens and may potentially lead to transformative action” (Andersen and Siim, 2004; quoted from Said-Allsopp & Tallontire, 2014). We measure worker empowerment using two sets of indicators; a first set relates to workers’ awareness of labour rights and a second set relates to workers’ perceived agency to take action to improve their working conditions. While the concept of worker empowerment has gained considerable attention in the development and management literature, there is no generally accepted definition of the term nor a commonly approved method to measure it (Rowlands, 1995; McEwan and Bek, 2006; Said-Allsopp & Tallontire, 2014). We focus on workers’ awareness about labour rights and workers’ perceived agency as part of the empowerment process; which is relevant in the horticultural export sector in Peru (Chacaltana, 2010; Gamero, 2011).

Table 3: Indicators of workers' awareness of labour rights

Indicator variable	Description	Question in the survey: "According to the Agrarian Labour Regime..."
<i>Binary variables</i>		
Right to holidays	= 1 if answer is yes	"... do you have the right to holidays?"
Number of days of holidays	= 1 if answer is 15 days	"... how many days of holidays per year worked to you have?"
Right to overtime payment	= 1 if answer is yes	"... do you have the right to an overtime payment?"
Amount of overtime payment	= 1 if answer is s +25% more for the first 2 hours, +35% for the subsequent hours	"...what is the amount paid for overtime work?"
Right to social security	= 1 if answer is yes	"... do you have the right to social security services?"
Right to pension	= 1 if answer is yes	"... do you have the right to pension contributions?"
Right to minimum wage	= 1 if answer is yes	"... do you have the right to a minimum wage payment?"
Amount of minimum wage	= 1 if answer is 750 soles	"... how much is the monthly minimum wage payment?"
Right to severance payment	= 1 if answer is yes	"... do you have some rights on severance payments?"
Right to dismissal indemnity	= 1 if answer is yes	"... do you have some rights in case of an arbitrary dismissal?"
Type of dismissal indemnity	= 1 if answer is monetary compensation and/or reintegration in the company	"... in what does your dismissal indemnity consist?"
Right to maternity pay and leave	= 1 if answer is yes	"... do you have the right to some maternity leave and/or pay from your employer in case of pregnancy?"
Right to form a labour union	= 1 if answer is yes	"... do you have the right to form or adhere to a trade union within your company, without consequences for your job?"
<i>Count variable</i>		
Total number of correct answers	= sum of binary variables [0 to 13]	

In both rounds of the worker survey we included specific sets of questions related to workers' awareness of labour rights and their perceived agency for actions to improve their employment conditions (table 3 & 4). To measure awareness, we included thirteen questions that test respondents knowledge about labour rights embedded in the *Agrarian Labour Regime*, which applies to all employment in the sector (table 3). The questions were closed, focus on the employees' entitlements and responses were binary (=1 if person knew the correct answer). Based on to the total number of correct answers to the closed questions, we construct an additional overall awareness variable, taking on values from zero (no answer correct) to thirteen (all answers correct). To measure workers' perception of their own agency, respondents were asked to mention which actions they felt they could carry out to improve their own working conditions (table 4). The question was open and multiple answers were possible. Answers were classified based on recent actions of small groups of workers who started to mobilize and organize themselves to stand up against their employers. We classified the answers in three categories: 1/ forthright actions, when the worker mentioned at least one action that could be directed to the employer; 2/ evasive actions, when the worker mentioned at least one action that could be directed to another actor or that tried to find a solution elsewhere and 3/ repressed actions, where workers mentioned at least one action where he looks for a solution in his own behaviour or sees no solution at all. Forthright actions point to worker empowerment while evasive and repressed actions point to intimidated employment relationships.

Table 4. Indicators of workers' perceived agency

Indicator variables <i>(binary variables)</i>	Answers to the question in the survey: "Which actions do you think you could carry out to improve your working conditions in the horticultural agro-industrial sector?"
Forthright actions (directed to employer)	= 1 if workers mentions at least one of the four actions below
Form a trade union	= 1 if worker mentions forming a trade union
Strike	= 1 if worker mentions striking
Sue employer and complain	= 1 if worker mentions complaining and suing the employer
Talk to the boss	= 1 if worker mentions talking to the boss
Evasive actions (directed to another actor)	= 1 if worker mentions at least one of the two actions below
Search for another job	= 1 if worker mentions searching for another job
Continue with the studies	= 1 if worker mentions continuing with study
Repressed actions	= 1 if worker mentions at least one of the three actions below
Work harder	= 1 if worker mentions working harder

Impossible to take action	= 1 if worker mentions it is impossible to take action
Does not know	= 1 if worker mentions not to know any action

Table 5 and 6 report the responses to these two sets of questions, previous to employment (baseline) and after employment (follow-up), and comparisons across LS, QLS and NLS workers.

Table 5: Mean comparison of workers' awareness of labour rights

		Total sample	Different type of workers		
			NLS	LS	QLS
Number of correct answers (0 - 13)	baseline	6.53 (1.97)	6.55 (1.95)	6.58 (1.98)	6.46 (1.98)
	follow-up	7.41 (2.12)	6.54 (1.88)	7.9 (2.10) ***	7.39 (2.11) ***
Right to holidays	baseline	0.93	0.95	0.91 *	0.94
	follow-up	0.93	0.89	0.95	0.93
Number of days of holidays ^(a)	baseline	0.48	0.48	0.48	0.5
	follow-up	0.58	0.44	0.68 ***	0.54
Right to overtime payment	baseline	0.68	0.71	0.73	0.61
	follow-up	0.71	0.76	0.69	0.7
Amount of overtime payment ^(a)	baseline	0.3	0.4	0.25 **	0.31
	follow-up	0.29	0.18	0.31 **	0.34 **
Right to social security	baseline	0.97	0.97	0.98	0.95
	follow-up	0.98	0.95	0.99 **	0.98
Right to pension	baseline	0.83	0.76	0.84 *	0.85 *
	follow-up	0.88	0.78	0.92 ***	0.9 **
Right to minimum wage	baseline	0.73	0.73	0.74	0.72
	follow-up	0.73	0.64	0.78 ***	0.72
Amount of minimum wage ^(a)	baseline	0.19	0.2	0.17	0.21
	follow-up	0.24	0.08	0.35 ***	0.2 **
Right to severance payment	baseline	0.09	0.1	0.09	0.09
	follow-up	0.24	0.15	0.3 ***	0.22
Right to dismissal indemnity	baseline	0.42	0.43	0.42	0.42
	follow-up	0.58	0.53	0.62	0.57
Type of dismissal indemnity ^(a)	baseline	0.32	0.36	0.25	0.39
	follow-up	0.54	0.45	0.58	0.55
Right to maternity pay and leave	baseline	0.72	0.7	0.76	0.68
	follow-up	0.82	0.71	0.85 ***	0.86 ***
Right to form a trade union	baseline	0.24	0.19	0.27	0.25
	follow-up	0.32	0.32	0.33	0.31

LS=labour standard; QLS=quasi-labour standard; NLS=non-labour standard. Standard deviation for continuous and count variables in parenthesis. Test for difference in means for LS and QLS with NLS as comparison group: ttest of continuous variables and chi2 test for categorical variables. Significant differences indicated with *p < 0.10, **p < 0.05, ***p < 0.01.

(a) The number of observations is limited and conditional on the positive answer of the previous question.

Overall, sampled workers have a good knowledge of their rights to holidays and social security services – more than 90% of the sampled workers answers correctly to these questions (table 5). There is a moderate knowledge of overtime payments, pension services, a minimum wage

and maternity payments – around or more than 70% of correct answers. Most of the remaining rights are known by around 20 to 50% of sampled workers. For all indicators, there are knowledge improvements from the baseline to the follow-up. The largest improvements are seen in areas in which little knowledge was present at baseline, i.e., rights to severance payments and dismissal indemnities. For the overall awareness indicator there is an improvement of 0.88 points, i.e. almost one additional correct answer. Apart from LS and QLS workers being more aware about their right to pension and LS being less aware about holidays and amounts of overtime payments than NLS workers, there are little knowledge differences between the different categories of workers at baseline. At follow-up, there are more differences in knowledge: LS workers have become more aware than NLS workers about the days of holidays, amount of overtime payment, social security, pension services, minimum wages, severance payments and maternity rights. QLS workers have become more aware than NLS workers about overtime payments, pension services, correct minimum wage and maternity rights. This results in a significantly higher number of correct answers for both LS and QLS workers compared to NLS workers.

Table 6. Mean comparison of workers' perceived agency

		Total sample	Workers in different companies		
			NLS	LS	QLS
Forthright actions	baseline	0.53	0.59	0.5	0.53
	follow-up	0.56	0.44	0.67 ^{**}	0.52 [*]
Form a trade union	baseline	0.11	0.11	0.11	0.11
	follow-up	0.15	0.13	0.17	0.14
Strike	baseline	0.16	0.19	0.15	0.14
	follow-up	0.21	0.1	0.31 ^{**}	0.16 [*]
Sue employer and complain	baseline	0.11	0.13	0.09	0.14
	follow-up	0.08	0.05	0.12 [*]	0.06
Talk to the boss	baseline	0.25	0.29	0.25	0.21
	follow-up	0.28	0.18	0.35 ^{**}	0.26 [*]
Evasive actions	baseline	0.09	0.09	0.09	0.1
	follow-up	0.14	0.11	0.09	0.19
Search for another job	baseline	0.05	0.07	0.03	0.05
	follow-up	0.07	0.08	0.06	0.07
Continue with the studies	baseline	0.05	0.02	0.05	0.06
	follow-up	0.07	0.03	0.03	0.13 ^{**}
Repressed actions	baseline	0.58	0.51	0.6	0.61 [*]

	follow-up	0.32	0.48	0.24	** *	0.3	** *
Work harder	baseline	0.14	0.10	0.13		0.17	
	follow-up	0.03	0.05	0.03		0.02	
Impossible to take action	baseline	0.32	0.27	0.34		0.34	
	follow-up	0.07	0.18	0.03	** *	0.02	** *
Does not know	baseline	0.24	0.2	0.29		0.21	
	follow-up	0.24	0.31	0.18	**	0.26	

LS=labour standard; QLS=quasi-labour standard; NLS=non-labour standard. Test for difference in means for LS and QLS with NLS as comparison group: ttest of continuous variables and chi2 test for categorical variables. Significant differences indicated with *p < 0.10, **p < 0.05, ***p < 0.01.

Table 6 reports the answers to the questions on workers' perceived agency. Only about half of the sampled workers feels to have agency for forthright actions and this does not change substantially over the employment period. At baseline there are no differences in perceived agency for forthright actions between LS, QLS and NLS workers but at follow-up LS workers perceive their agency for striking, complaining and talking to the boss significantly higher than NLS workers. The frequency of mentioning evasive actions is generally low (3 to 14%) and, except for the higher likelihood of continuing with their studies of QLS workers at the follow-up survey, there are no substantial differences between baseline and follow-up and between LS, QLS and NLS workers. Repressed actions are mentioned by 58% of the respondents at baseline but this reduces to 32% at follow-up, which is a sign of increased empowerment. While there are no differences between different workers for repressed actions; at follow-up repressed actions, and especially the impossibility to take action, are less frequently mentioned by LS and QLS workers compared to NLS workers. Working harder is less frequently mentioned as a repressed action in the follow-up survey than in the baseline survey and is dropping equally for all types of workers. LS workers are less likely to mention not to know which actions to take than NLS workers in the follow-up survey.

4. Empirical strategy

In what follows we want to assess whether the observed differences in worker empowerment can be attributed to the impact of labour standards. There are two potential sources of selection bias in estimating the impact of labour standards on worker empowerment. First, companies voluntarily decide whether to adopt standards, and LS and QLS companies therefore differ from NLS companies (table 1). Bias could result from observable and unobservable company

characteristics being correlated with both certification and worker empowerment. Second, workers voluntarily decide in which company to work, and LS and QLS workers differ from NLS workers (table 2). If selection into employment in certain companies is correlated with observable or unobserved worker characteristics, an additional selection problem arises.

We focus on estimating the average treatment effect on the treated (ATT), which is the average change in worker empowerment due to employment in a LS or QLS company (i.e. the treatment) for those who were actually treated (i.e. LS or QLS workers). We treat LS and QLS workers as two different treatment groups and NLS as the control group. To address potential selection bias we use two models: 1/ we estimate a Difference-in-Difference (DiD) model and control for a large set of observable company characteristics; and 2/ we combine this DiD model with propensity score matching (PSM) to control for both observable and unobservable worker characteristics.

We use the following specification of the DiD model:

$$Y_{it} = \alpha_0 + \alpha_1 \tau_{2014} + \alpha_2 E_T + \alpha_3 (E_T * \tau_{2014}) + \alpha_4 Z' \nabla + \alpha_5 (\tau_{2014} * D)' + \pi_v + \pi_e + \varepsilon_{it} \quad (I)$$

Where Y_{it} are indicators of worker awareness of rights and perceived agency of worker i at time t ; τ_{2014} is a time dummy that equals 1 for the follow-up survey, and E_T is the treatment variable equalling 1 for LS or QLS workers and 0 for NLS workers. The DiD estimator calculates the effect of treatment on empowerment outcomes by comparing the average change over time in the outcome variable for the treated group with the average change for the control group. The parameter of interest, α_3 isolates this effect. We additionally add a large set of observable firm characteristics (Z') as control variables (described in table 1⁸), in order to account for the voluntary adoption of labour standards by companies. We account for diverse time trends in different districts in which the workers reside, by interacting the time dummy with the 14 district dummies ($\tau_{2014} * D$). We add village and enumerator fixed effects, which respectively account for village spill-over and interviewer differences that could have important effects on the rather sensitive outcome variables.

The DiD estimation relies on the parallel trend assumption, i.e. that the treatment and comparison group would follow the same trend over time in the absence of the treatment. The short time period of our analysis, seven months, makes the parallel trend assumption more plausible. Yet, if this assumption is not satisfied the DiD estimates are biased. In order to more

⁸ Only the “number of production sites” is excluded from the analysis, because of its high correlation with the export volumes and the number of products produced

plausibly assume a parallel trend, we combine the DiD model with a PSM approach in a ‘Difference-in-Difference Propensity Score Matching’ (DiDM) model (Heckman et al., 1998). We first match workers from the different treatment groups with workers from the control group based on observable baseline characteristics and then time differentiate to eliminate any time-invariant unobservable workers’ heterogeneity (such as workers’ motivation or ability). In the first step of the DiDM we estimate the propensity score (PS) using baseline observable worker characteristics (described in table 2) that could affect both the selection into treatment and the outcome variables (Blundell and Costa-Dias, 2009; Heckman and Navarro-Lozano, 2004). The PS estimation results are reported in table A2. We adopt Kernel matching, which uses weighted averages of all workers in the control group to construct the counterfactual outcome. PSM requires balancing in the covariate distribution between treated and untreated observations (Dehejia and Wahba, 2002; Imbens, 2004) – we test this in table A3 and find that after matching all covariates are balanced. In the second step of the DiDM, we take the first difference and compare the average change in outcome variables for the matched treatment and control groups. We use the same specification as in the DiD model and as specified in equation I. The DiDM estimator eliminates the parallel trend assumption under the premise that the observable characteristics that are used for estimating the PS are correlated with the different trends of the treatment and comparison groups.

5. Results

The estimated effects of labour standards on worker empowerment are summarized in table 7 for the indicators of worker awareness of rights and in table 8 for the indicators of perceived agency. In general DiD and DiDM estimates point to the same direction and statistical significance of effects, which is an indication of the general robustness of the results. For some indicators the magnitude of DiD estimates are somewhat higher than for the DiDM estimates while for other indicators it is the other way around. This likely relates to the parallel trend assumption underlying the DiD model not holding completely. We discuss results based on the DiDM estimations.

The results in table 7 show that employment in a LS or QLS company, in comparison with employment in an NLS company, has a significant positive impact on workers’ awareness of labour rights. We find the largest effects for LS workers. LS employment increases the number of correct answers by almost 1.7 compared to NLS employment; and for QLS employment this lies around 1.1. We find significant positive effects of LS employment for the following indicators: rights to holidays, the right to a minimum wage, the right to severance payment, the

right to and the type of dismissal indemnity, and the correct amount of the number of days of holiday and the minimum wage. Employment in a QLS company significantly affects workers' knowledge on holidays, correct amount of overtime payment, minimum wage, and dismissal indemnity.

The results in table 8 show that employment in a LS or a QLS company, in comparison with employment in an NLS company, affects workers' perceived agency in taking actions directed at the employer. Being employed in an LS or a QLS company increases the likelihood of mentioning forthright actions by respectively around 29 and 23 percentage points. While employment in LS companies increases mentions of striking, complaining with authorities, and talking to the boss; QLS employment only has a significant effect for the latter indicator. We find no significant effect for the formation of unions. In addition, employment in a LS company, in comparison with employment in a NLS company, significantly reduces the likelihood of mentioning repressed actions, with an estimated effect of 27 percentage points. Effects are significant and lie between 9 and 22 percentage points for all indicators of repressed actions: LS workers feel less inept (i.e., feel that they cannot take any action or don't know which action to take) and feel that doing more effort does not necessarily improve their current employment conditions.

Table 7: Estimated effects of labour standards on employee awareness

Awareness indicator	LS workers		QLS workers	
	DiD	DiDM	DiD	DiDM
Number of correct answers	1.696 *** (0.379)	1.691 *** (0.394)	1.133 ** (0.395)	1.135 ** (0.435)
Right to holidays	0.366 ** (0.155)	0.124 ** (0.058)	0.475 ** (0.199)	0.159 ** (0.063)
Number of days of holiday ^(a)	0.325 *** (0.110)	0.239 * (0.116)	0.086 (0.101)	0.044 (0.119)
Right to overtime payment	0.063 (0.111)	0.057 (0.092)	-0.105 (0.106)	-0.114 (0.109)
Amount of overtime payment ^(a)	0.202 * (0.116)	0.353 *** (0.132)	0.404 *** (0.139)	0.272 * (0.158)
Right to social security	0 (0.001)	0.005 (0.036)	0 (0.000)	-0.009 (0.046)
Right to pension	0.134 (0.118)	0.086 (0.077)	0.043 (0.109)	0.009 (0.085)
Right to minimum wage	0.211 ** (0.101)	0.245 ** (0.098)	0.165 * (0.096)	0.219 ** (0.109)
Amount of minimum wage ^(a)	0.581 *** (0.196)	0.262 ** (0.110)	0.217 (0.189)	0.152 (0.120)
Right to severance payment	0.343 *** (0.092)	0.168 ** (0.075)	0.136 * (0.090)	0.086 (0.078)
Right to dismissal indemnity	0.285 *** (0.099)	0.188 * (0.104)	0.128 (0.095)	0.194 * (0.107)
Type of dismissal indemnity ^(a)	0.241 (0.198)	0.497 * (0.277)	-0.069 (0.142)	-0.167 (0.324)
Right to maternity leave	0.066 (0.096)	0.069 (0.094)	0.268 *** (0.100)	0.133 (0.098)
Right to form a labour union	-0.101 (0.098)	-0.121 (0.094)	-0.049 (0.092)	-0.135 (0.101)

LS=labour standards; QLS=quasi-labour standards; DiD: difference-in-difference; DiDM: difference-in-difference matching. Standard errors in parenthesis. All models control for firm covariates, village fixed effects, enumerator fixed effects and time/district interaction terms. Marginal effects are reported. Significant effects are indicated with *p < 0.10. **p < 0.05. ***p < 0.01. Number of observations varies over the different models. (a) conditional on knowing that they are entitled to some rights.

Table 8: Estimated effects of labour standards on employee perceived agency

Indicator of perceived agency	LS workers		QLS workers	
	DiD	DiDM	DiD	DiDM
Forthright actions	0.256 *** (0.099)	0.288 *** (0.105)	0.241 ** (0.101)	0.229 ** (0.114)
Union	0.151 0.115	0.037 0.069	0.139 0.127	0.064 0.065
Strike	0.251 *** (0.092)	0.225 * (0.085)	0.038 (0.135)	0.053 (0.076)
Complain with authorities/ sue	0.233 ** (0.115)	0.196 *** (0.065)	0.103 (0.146)	0.064 (0.071)
Talk to the boss	0.173 * (0.097)	0.157 * (0.092)	0.183 ** (0.091)	0.16 * (0.096)
Evasive actions	0.025 (0.123)	0.023 (0.068)	-0.057 (0.104)	0.044 (0.082)
Look for another job	0.07 (0.164)	0.034 (0.056)	0.142 (0.130)	-0.004 (0.063)
Go back to studies	- (-)	-0.004 (0.041)	0.185 (0.169)	0.035 (0.057)
Repressed action	-0.287 ** (0.099)	-0.265 ** (0.105)	-0.185 ** (0.097)	-0.163 (0.112)
Cannot do anything	-0.362 *** (0.130)	-0.135 * (0.080)	-0.372 *** (0.110)	-0.142 (0.091)
Don't know	-0.181 * (0.106)	-0.218 ** (0.090)	0.031 (0.099)	-0.029 (0.097)
Do more effort	-0.406 *** (0.151)	-0.099 ** (0.056)	0.391 * (0.218)	-0.093 (0.060)

LS=labour standards; QLS=quasi-labour standards; DiD: difference-in-difference; DiDM: difference-in-difference matching. Standard errors in parenthesis. All models control for firm covariates, village fixed effects, enumerator fixed effects and time/district interaction terms. Marginal effects are reported. Significant effects are indicated with * $p < 0.10$. ** $p < 0.05$. *** $p < 0.01$. Number of observations varies over the different models.

^(a) conditional on knowing that they are entitled to some rights.

Given that we estimate two different models (DiD and DiDM), for two different treatment groups (LS and QLS workers), and for 26 different outcome indicators related to worker empowerment, we cannot report full regression results and restrict ourselves to describing the main significant effects of company variables (Z'). Working in an export company increases workers' awareness on rights but does not affect their perceived agency. The number of workers in a company has an inverse u-shaped effect on perceived agency, with a turning point respectively at 1,180 workers for forthright actions and 850 workers for repressed actions. This indicates that worker empowerment decreases with the size of the company but increases again when workers reach a critical mass. Surprisingly, we find that a trade union in the company has a negative effect on worker empowerment. This likely reflects the poor workers' organization in the sector, in which unions are often discredited and even feared.

6. Discussion

In our analysis we show that labour standards increase workers' awareness of existing labour rights and their perceived agency for actions to improve their employment situation. We find that core labour standards have the highest impact on worker empowerment while also quasi-labour standards have a positive impact but effects are smaller. In addition, our results indicate that labour standards have the largest and most significant impact on worker awareness for those domains of labour rights where worker awareness before employment (at baseline) was the lowest, i.e. holiday time, amount of overtime, minimum wage and severance payments; and dismissal indemnities. This implies that standards are particularly important to compensate for information spreading among networks of workers. We interpret our results on worker awareness of labour rights and on perceived agency as indications of a positive impact of labour standards on worker empowerment. Increased awareness and agency for action empowers workers as it creates the conditions for workers to gain the ability and tools to negotiate their employment conditions (a view shared by Selwyn, 2013; Raynolds, 2014).

Our findings that core labour standard and quasi-labour standards increase worker empowerment, with the effect of the former being larger, can be explained in light of the principles of the labour standards themselves. Core labour standards explicitly focus on the conditions of work, social protection and employment relationships. They specifically include principles on the provision of information on workers' rights and duties, freedom of association and collective bargaining, and on best labour practices; and policies on communication, non-discrimination, gender issues and workers' grievance and satisfaction. Our findings imply that standards with these principles are effective and have an impact on worker empowerment. Our result that also quasi-labour standards increase worker empowerment are more surprising as such standards usually include less specific and strict labour-related requirements; primarily requirements related to employees' health and safety, working techniques, and transparent communication. Nevertheless, such general requirements might improve worker empowerment as well. In addition, it has been demonstrated that general private standards increase employee training (Nelson et al., 2007; Ehlert et al., 2014; Schuster and Maertens, forthcoming) and the likelihood of signing a contract (Colen et al., 2012; Egels-Zandén and Lindholm, 2014; Schuster and Maertens, forthcoming). Even if trainings are not devoted to labour rights specifically workers learn, share information and communicate with knowledgeable outsiders, which might increase their empowerment. Also written communication of the employment terms and conditions in a formal contract likely increases employees' knowledge about their rights and

duties. Our results are in line with findings of previous (qualitative) studies showing that a good quality and secure employment and a supportive management structure – values promoted by labour standards – are crucial in fostering empowerment of workers (e.g., Said-Allsopp and Tallontire, 2014).

Our results complement findings and perceptions from previous studies on private standards and workers' intangible well-being outcomes. Some studies highlight the limitations of standards in promoting worker empowerment within value chains (i.e., Nelson et al., 2005 & 2007; Barrientos and Smith, 2007) while others point to standards as entailing the potential to contribute to the empowerment of workers (Riisgaard, 2009; Reynolds, 2012 & 2014). Our analysis supports the latter view and corroborates it with quantitative evidence and inference on the magnitude of the effects. Our results, showing a positive impact of private labour standards on worker empowerment, also complement previous evidence on the impact of private labour standards on wages and other more tangible working conditions (e.g., Colen et al., 2012; Ehlert et al., 2014; Schuster and Maertens, forthcoming).

We need to note that the effects we estimate are relatively small. Even after employment in a company certified to labour or quasi-labour standards, still around one fourth of workers are not aware about a national minimum wage and overtime payment, and out of those that are aware only around 20% know the exact amounts of payment. We attribute the small effects to the short time period of observation, in which people had been employed for an average of 100 days over the seven months under observation. Also, labour standards are still relatively new in the entire horticultural export sector. In the long run, we would expect larger effects, as well as a translation of increased worker empowerment into increasing claims and mobilization – two effects we cannot measure with our data. We also need to point to the fact that we only look at effects for very young and casual workers. This rules out contagion from previous employment experiences but hinders extrapolating the estimated effects to older and more experienced workers who might be affected differently by standards. A final note is on the methodology. Our two-round panel data do not allow the use of company fixed effects to deal with time-invariant unobservable company heterogeneity in the DiD model. We control for a large set of observable company characteristics but are unable to rule out bias from unobserved company effects completely.

7. Conclusion

The expansion of high-value agri-food exports from low- and middle income countries has been associated with the creation of new employment opportunities that have been shown to

contribute to upwards income mobility and poverty reduction. Yet, there are substantial concerns about the quality of employment and the well-being of workers in these sectors. The contribution of access to employment on workers' well-being is dubious if employment conditions are not decent. In this paper we show that private standards, which have emerged as a response to consumer, civil society and corporate concerns about labour conditions in food export sectors, contribute to improving the quality employment.

More specifically, we show that private standards in the horticultural export sector in Peru positively contribute to worker empowerment, in terms of workers' awareness of their own rights and their perceived agency to improve these rights. The effects are largest for core labour standards but also general food standards with only a side-focus on labour issues have a positive impact on worker empowerment. These results, along with previous findings on a positive impact of private standards on more tangible labour conditions in the Peruvian horticulture export sector from Schuster and Maertens (forthcoming), imply that private standards contribute to the improvement of both tangible and intangible employment conditions. Schuster and Maertens (forthcoming) find that while private standards increase the likelihood of workers to receive the minimum wage and to sign a formal employment contract, effects do not go beyond national legal entitlements. Increased worker empowerment could lead to workers claiming more rights, not only with employers but also with the national government⁹. Worker empowerment is a development goal in its own right but it might also be a means to access more tangible rights and better employment conditions in future labour contracts through the exertion of power by workers. As such our findings document a positive contribution of private standards to social development that might result in long term effects.

Our findings feed the current debate on the efficacy of private standards in food value chains and suggest some optimism about their efficacy to improve worker well-being. The adoption of core labour standards is still relatively low in food export sectors in developing countries' and our findings suggest that workers could benefit from the further spread of such standards. Our results imply that including at least some specifications and requirements on labour issues in standards that are not primarily focusing on labour, could improve the situation of workers. Yet, given that core labour standards have a superior effect on worker empowerment, expanding

⁹ Positive changes on tangible outcomes through worker empowerment are likely long and tedious; this likely explains the lack of impact of labor standards beyond legal employment entitlements found by Schuster & Maertens, 2014. Labor standards possibly first have to be implemented on several groups of workers in order to show effects on tangible employment conditions through the empowerment of workers.

the scope of general food standards that are widely adopted in developing countries, such as GlobalGAP, by including more requirements on employment conditions, could have a large impact on worker well-being.

1.1 References

- Andersen, J., & Siim, B. (2004). Introduction: the politics of inclusion and empowerment: gender, class and citizenship. In: Andersen, J., Siim, B. (Eds.). *The politics of inclusion and empowerment: gender, class and citizenship*. Palgrave Macmillan.
- Barrientos, S., Dolan, C., & Tallontire, A. (2003). A gendered value chain approach to codes of conduct in African horticulture. *World Development*. 31(9), 1511-1526.
- Barrientos, S., & Smith, S. (2007). Do workers benefit from ethical trade? Assessing codes of labor practice in global production systems. *Third World Quarterly*. 28(4), 713-729.
- Barrientos, S., Mayer, F., Pickles, J. & Posthuma, A. (2011). Decent work in global production networks: Framing the policy debate. *International Labour Review*.150, 297–317.
- Barron, M. A. & Rello, F. (2000). The impact of the tomato agroindustry on the rural poor in Mexico. *Agricultural Economics*, 23: 289–297.
- Beghin, J., Maertens, M., & Swinnen, J. (2015). Non-tariff measures and standards in trade and global value chains. *Annual Review of Resources Economics*, 7(1).
- Blundell, R., & Costa-Dias, M. (2009). Alternative approaches to evaluation in empirical microeconomics. *Journal of Human Resources*. 44(3), 565-640.
- Bonanno, A., & Barbosa Cavalcanti, J. S. (2012). Globalization, food quality and labor: The case of grape production in North-Eastern Brazil. *International Journal of Sociology of Agriculture and Food*. 19(1), 37-55.
- Chacaltana J. (2007). *El boom del empleo en Ica*. en *Desafiando al desierto: realidad y perspectivas del empleo en Ica* (Chacaltana, Juan. Editor), CEDEP, 2007, Lima.
- Chacaltana, J. (2010). Jóvenes en la agro-exportación Peruana. Consorcio de Investigación Económico y Social (CIES).
- Colen, L., Maertens M., & Swinnen, J. (2012). Private standards, trade and poverty: GlobalGAP and horticultural employment in Senegal. *The World Economy*. 35(8), 1073-1088.
- Dehejia, R. H. and Wahba, S. (2002). Propensity score-matching methods for nonexperimental causal studies. *The Review of Economics and Statistics*. 84, 151-161.
- Disdier, A., & Marette, S. (2012). How do consumers in developed countries value the environment and workers' social rights in developing countries? *Food Policy*. 37(1), 1-11.

- Ehlert, C., Mithöfer, D., & Waibel, H. (2014). Worker welfare on Kenyan export vegetable farms. *Food Policy*. 46, 66-73.
- Egels-Zandén N., & Lindholm H. (2014). Do codes of conduct improve worker rights in supply chains? A study of Fair Wear Foundation. *Journal of Cleaner Production*. 1-10.
- Gamero Raquena, J. (2011). A 10 años de su implementación. Impacto de la ley de promoción agraria 27360. Asociación Aurora Vivar
- Heckman, J., Ichimura, H., & Todd, P. (1998). Matching as an econometric evaluation estimator. *Review of Economic Studies*. 65(2); 605–54.
- Heckman, J., & Navarro-Lozano, S. (2004). Using matching, instrumental variables, and control functions to estimate economic choice models. *Review of Economics and Statistics*. 86(1); 30–57.
- Henson, S., & Humphrey, J. (2010). Understanding the complexities of private standards in global agri-food chains as they impact developing countries. *The Journal of Development Studies*, 1628-1646.
- Imbens, G. (2004). Nonparametric estimation of average treatment effects under exogeneity: a review. *The Review of Economics and Statistics*. 96, 4-29.
- Locke, R., Amengual, M., & Mangla, A. (2009). Virtue out of necessity? Compliance, commitment, and the improvement of labor conditions in global supply chains. *Politics & Society*. 37, 319-351.
- Maertens, M., Colen, L., & Swinnen, J. (2011). Globalization and poverty in Senegal: a worst case scenario? *European Review of Agricultural Economics*, 38 (1), 31-54.
- Maertens, M., Minten, B., & Swinnen, J. (2012). Modern food supply chains and development: Evidence from horticulture export sectors in Sub-Saharan Africa. *Development Policy Review*, 30 (4), 473-497.
- McEwan, C., & Bek, D., (2006). (Re)politicizing empowerment: lessons from the South African wine industry. *Geoforum*. 37, 1021-1034.
- Mergenthaler, M., Weinberger, K., & Qaim, M. (2009). The food system transformation in developing countries: a disaggregate demand analysis for fruits and vegetables in Vietnam. *Food Policy* 34(5), 426-36.

- Nelson, V., Martin, A., & Ewert, J. (2005). What difference can they make? Assessing the social impact of corporate codes of practice. *Development in Practice*. 15, 539-545.
- Nelson V., Martin A., & Ewert J. (2007). The impacts of codes of practice on worker livelihoods. Empirical evidence from South African wine and Kenyan cut flower industries. *Journal of Corporate Citizenship*. 28, 61-72.
- Raynolds L. (2012). Fair trade flowers: global certification, environmental sustainability, and labor standards. *Rural Sociology*. 77(4); 493-519.
- [Raynolds, L. \(2014\). Fairtrade, certification, and labor: global and local tensions in improving conditions for agricultural workers. *Agricultural Human Values*. 31, 499-511.](#)
- Reardon, T., Barrett, C. Berdegue, J., & Swinnen, J. (2009). Agrifood industry transformation and farmers in developing countries, *World Development*, 37(11), 1717-1727.
- Riisgaard, L. (2009). Global value chains, labor organization and private social standards: Lessons from East African cut flower industries. *World Development*. 37(2), 326–340.
- Rowlands, J., (1995). Empowerment examined. *Development in Practice*. 5(2), 101-107.
- Said-Allsopp, M., & Tallontire, A. (2014). Pathways to empowerment? Dynamics of women's participation in Global Value Chains, *Journal of Cleaner Production*.
- Schuster, M., & Maertens, M. (forthcoming). Do private standards benefit workers in horticultural export chains in Peru? *Journal of Cleaner Production*.
- Schuster, M., & Maertens, M. (2015). The impact of private food standards on developing countries' export performance: an analysis of asparagus firms in Peru. *World Development*. 66, 208-221.
- Selwyn, B. (2013). Social upgrading and labour in global production networks: A critique and an alternative conception. *Competition and Change*. 17(1), 75-90.
- Tallontire A., Dolan C., Smith, S. & Barrientos, S. (2007). Reaching the marginalised? Gender, value chains and ethical trade in African horticulture. *Development in Practice*. 15, 559-571.
- Weinberger K. & Lumpkin, T.A. (2007). Diversification into horticulture and poverty reduction: a research agenda. *World Development*. 35(8), 1464–1480

Appendix

Table A1: Difference between Agrarian and Common Labour Regime

	Agrarian Labour Regime – Law N° 27360	Common Labour Regime – Law N° 728
Working time	Working time can be accumulated. Overtime is only paid when it exceeds average working time.	48 hours per week and 8 hours per day.
Wage	Daily wage of 29.26 Soles (\$ 11.42); this includes severance payments and bonuses. The wage is paid per day worked.	Monthly minimum wage: 750 Soles (\$ 277.77); this does not include severance payments, nor bonuses.
Annual leave	15 days per year of employment.	30 days per year of employment
Bonus (Christmas and National holiday)	Do not receive an additional payment; it is included in the daily wage.	Two payments per year (15 th of July and 15 th of December)
Severance payment	Do not receive an additional payment; it is included in the daily wage.	One pay per year, according to the months worked (conditional on working ≥ 4 hours/ day); the pay is deposited in an external financial institution.
Overtime payment	Only if person works more than 48 hours per week. The first two overtime hours are paid 25% more, additional hours 35% more. Sunday and official holidays: 100% more.	When a person works more than 8h/day. The first two overtime hours are paid 25% more, additional hours 35% more. Sunday and official holidays: 100% more
Indemnity for dismissal	1/2 monthly pays for each year of employment, max. of 6 pays.	1 1/2 monthly pays for each year of employment; max. of 12 pays.
Health insurance	The employer contributes 4%.	The employer contributes 9%.

Table A2: First stage probit estimation: probability of selection into treatment (employment in LS or QLS versus NLS company)

Covariates	LS employment	QLS employment
Age	0.188*** (0.051)	0.197*** (0.057)
Female (=1 if female)	-0.171 (0.191)	0.426** (0.202)
Education, in years	-0.009 (0.038)	0.123*** (0.047)
Single (=1 if single)	0.130 (0.276)	0.515* (0.298)
Number of household members	0.014 (0.035)	-0.045 (0.039)
Children (=1 if has children)	0.016 (0.287)	0.105 (0.306)
Migration (=1 if migrant)	0.401** (0.180)	0.593*** (0.195)
Government support (=1 if receives it)	-0.030 (0.174)	0.169 (0.187)
Land ownership (=1 if owns land)	-0.278 (0.200)	-0.237 (0.213)
Number of assets of the household [1 - 11] ^(a)	-0.031 (0.046)	-0.090* (0.052)
Participation in a social or political organization	0.891** (0.440)	0.491 (0.561)
Number of friends he sees at least once a week	0.012 (0.018)	-0.013 (0.023)
Frequency reading a newspaper (times per	-0.010* (0.006)	-0.009** (0.005)
Frequency communicating with somebody	0.005 (0.008)	0.009 (0.007)
Constant	-3.238*** (1.091)	-5.052*** (1.252)
Number of observations	268	240

LS=labour standards; QLS=quasi-labour standards; Robust standard errors clustered at firm-level in parenthesis; ^(a) variable counting the number of assets the household has: fixed telephone, mobile phone, TV, microwave, sofa, fridge, radio, computer, radio, motorbike, car, bicycle; *p < 0.10. **p < 0.05. ***p < 0.01

Table A3: Balancing properties of covariates in treated and control groups after Kernel matching on propensity scores

Covariates	LS vs NLS worker sample			QLS vs NLS worker sample		
	LS	NLS	Pr(T>t)	QLS	NLS	Pr(T>t)
Age	19.789	19.896	0.6335	19.503	19.668	0.4988
Female (=1 if female)	0.422	0.386	0.5627	0.562	0.554	0.9146
Education, in years	9.524	9.671	0.6311	10.223	10.128	0.745
Single (=1 if single)	0.759	0.714	0.4121	0.777	0.746	0.6244
Number of household members	4.446	4.393	0.865	4.066	4.076	0.9775
Children (=1 if has children)	0.259	0.295	0.5265	0.264	0.314	0.4557
Migration (=1 if migrant)	0.464	0.466	0.9741	0.504	0.485	0.7887
Government support (=1 if receives it)	0.367	0.413	0.4538	0.43	0.409	0.7686
Land ownership (=1 if owns land)	0.181	0.19	0.8502	0.215	0.202	0.8225
Number of assets of the household [1 - 11] ^(a)	4.741	4.763	0.9335	4.57	4.599	0.9217
Participation in a social or political organization	0.066	0.047	0.5015	0.041	0.031	0.6921
Number of friends he sees at least once a week	4.464	4.317	0.8056	3.95	3.976	0.9656
Frequency reading a newspaper (times/ month)	9.813	9.858	0.979	10.165	9.549	0.795
Frequency communicating with somebody outside the department (times/ month)	7.842	6.59	0.3678	6.9	7.362	0.7666
Number of observations	173	96		145	96	

(a) Variable counting the number of assets the household has: fixed telephone, mobile phone, TV, microwave, sofa, fridge, radio, computer, radio, motorbike, car, bicycle
 LS=labour standard; QLS=quasi-labour standard; NLS=non-labour standard