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The role of Fairtrade certification for wages and job satisfaction of plantation workers

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Abstract:

Worker welfare and employment conditions in the agri-food producing and processing sectors in the global south have become an increasing concern for consumers. Sustainability standards, such as Fairtrade, play an important role in agri-food markets of horticultural produce and may be a tool to address these concerns. However, so far the implications of Fairtrade certification for extrinsic and intrinsic employment factors of hired labor on large-scale plantations remain hardly understood. In this paper we assess its effect on workers' hourly wages and their level of job satisfaction with primary survey data from 325 randomly sampled workers from eight different export-oriented pineapple companies in Ghana. We apply a linear, linear mixed model and instrumental variable approach to take into account the multilevel characteristics of our data and possible selection bias. Our findings show that both hourly wages and job satisfaction are indeed higher on Fairtrade certified plantations. Factors of increased job satisfaction are likely driven by higher wages, permanent employment contracts, training opportunities, company services such as medical care and paid leave as well as established labor unions on Fairtrade certified plantations.

Keywords: Fairtrade certification, horticultural employment, worker wages, job satisfaction

JEL Codes: J28, J31, Q13

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1. Introduction

Exports of high-value produce such as fresh fruits, vegetables and flowers from developing countries have increased tremendously in the past couple of decades. Developing countries' share in global high-value agri-food exports has nearly doubled from 23% in 1985 to 40% in 2005 (Maertens et al., 2012). Horticulture exports constitute between one fourth and one third of total agri-food exports from developing regions (Van den Broeck and Maertens, 2016). This led to the expansion of large-scale horticultural and floricultural estates and processing plants catering for the export market. Diversification into export horticulture, often fostered by foreign investments, has become a strategy for employment generation and increased foreign exchange earnings for many developing countries (Barrientos et al., 2003). Today, about 450 million workers are employed as casual, temporary or permanent workers on agricultural plantations for traditional cash crop production, like tea or coffee but also increasingly fresh fruits, vegetable and flower production (Hurst, 2007). The quality of jobs on export plantations has been questioned by a number of studies pointing to insecure, badly paid and hazardous jobs and risk of exploitation (Riisgaard, 2009, Barrientos et al. 2003, Dolan, 2004). Plantation workers are considered one of the most vulnerable groups in the global trade system as they are often exposed to discrimination, difficult working conditions and at the same time lack bargaining opportunities. In recent years however, consumers have become increasingly aware of unfavorable employment conditions in the food producing and processing industry. This awareness has been mirrored by the rise of private food and sustainability standards, such as Fairtrade. The Fairtrade movement is most well-known to support smallholder farmers with fair prices but it also supports plantation agriculture with the aim of empowering workers and economically develop their communities (Fairtrade International, 2014).

In this paper we analyze the implications of Fairtrade certification for low skilled workers on pineapple plantations in Ghana. As the pineapple export sector in Ghana experienced a recent shift from being partially smallholder based to being almost completely based on large-scale plantation production, the focus on workers in the sector is particularly pertinent. While there is a rather large literature on the implications of Fairtrade certification for smallholder farmers in various sectors, evidence on the implications of Fairtrade for plantation workers is very scarce. A handful of studies has analyzed the impact of Fairtrade on wages and workers' income (Granville and Telford, 2013; Ruben and van Schendel, 2009; Cramer et al., 2014) but few studies have looked beyond wages at other employment characteristics and job satisfaction – with the studies of Ruben and van Schendel (2009) and Reynolds (2012) as notable exceptions. In this paper we take a broader perspective by incorporating extrinsic as well as intrinsic factors of employment, and by investigating the impact of Fairtrade certification on wages as well as job satisfaction. More specifically, we address the following two questions: (1) Does Fairtrade certification have a positive effect on wage levels of plantation workers and (2) Are workers on Fairtrade certified plantations more satisfied with their jobs?

2. Literature review

2.1. Conceptual arguments

We rely on exchange theory (Homans, 1958; Blau, 1964) and link it to Herzberg's two-factor theory of job satisfaction (Herzberg, 1966). Exchange theory is a prominent theory on social behavior that can be applied to understand job satisfaction. Exchange theory stipulates that individuals enter into

social relationships with the expectation of rewards, benefits and remuneration. To ensure the fulfillment of these expectations, they are willing to invest effort, time, skills and education amongst other contributions. According to the two-factor theory of workplace satisfaction, rewards of employment can be either extrinsic and objective – including pay, job security and quality of leadership – or intrinsic and subjective – including variation of tasks, new skills development, autonomy, empowerment (Herzberg, 1966). Workers experience satisfaction from both extrinsic and intrinsic rewards of their job, which are determined by the characteristics of the job and the employment environment. Job satisfaction is determined by both extrinsic and intrinsic rewards, but is also regarded as an intrinsic reward in itself because it is related to the actual job activity of a worker.

Fairtrade certification can affect job satisfaction by influencing both the extrinsic and intrinsic rewards for workers. Fairtrade particularly emphasizes social equity, alternative trade arrangements, fair prices for producers and fair wages for hired workers. Fairtrade focuses on three main principles to improve employment conditions on plantations and support worker empowerment: (1) the management of a Fairtrade Premium through a joint body consisting of workers and management, (2) freedom of association and collective bargaining, and (3) fair working conditions, including fair wages and the implementation of health and safety measures (Fairtrade International, 2014). The application of these principles is a list of Fairtrade requirements – marked out as core requirements and development requirements – which certified plantations must adhere to (see Annex 1 for an overview of the requirements). These principles and requirements can affect job satisfaction in a number of ways. To begin with, we discuss several channels through which Fairtrade certification may affect extrinsic rewards. Firstly, Fairtrade regulations stipulate the implementation of either an official minimum wage or if absent a regional average wage. From 2014 onwards, Fairtrade International has revised its requirements and now promotes a so-called living wage, which is established by the organization itself based on the costs of living in a particular setting. Fairtrade certified companies are now required to remunerate their employees according to the living wage if the minimum wage is lower. Secondly, Fairtrade companies may ensure permanent work contracts to the majority of their workers, specifically in the pineapple sector where produce is harvested all year round. Further, produce sold into the Fairtrade market receives a minimum and stable price – independent of the world market price. Fairtrade companies also engage in long-term relationships with importers usually enforced through contracts. The ability to rely on prices and trading relationships enables companies to plan ahead also regarding their workforce. Thirdly, working conditions and company services including paid leave, access to appropriate health care and the provision of social security are regulated in Fairtrade requirements.

Fairtrade certification may influence intrinsic rewards for workers as well. Firstly, the provisions of trainings are required for Fairtrade companies. These provide workers with opportunities to grow in terms of skills and education. Secondly, Fairtrade certification strongly emphasizes collective bargaining and the empowerment of workers through strict regulations regarding labor union formation and collective agreements between the workforce and the company. Workers are further to be members of the so-called Fairtrade Premium Committees. The Committees are responsible for the management of the additional Fairtrade Premium that producers automatically receive from their exporter or importer when selling a Fairtrade product. The workers together with the company decides and votes upon the use of these available funds for the implementation of educational, health or other social projects to benefit those involved in the goods production.

2.2. Empirical evidence

Some studies have analyzed the implications of standards such as GlobalGAP and Ethical Trade Initiative towards specific rewards of employment on export plantations. These studies mostly point to positive effects on employee training, labor organizations and employment security but not necessarily on wages (Barrientos et al. 2003; Nelson and Pound, 2009, Gibbon and Riisgaard, 2014; Colen et al., 2012; Ehlert et al., 2014). Schuster and Maertens (2016 a, b) find that the adoption of private labor standards (including Fairtrade) in the Peruvian horticultural export sector results in a higher likelihood for workers to receive the minimum wage, more job security and more employee trainings as well as improved worker empowerment; which implies these standards contribute to both extrinsic and intrinsic rewards.

Insights from studies on Fairtrade in particular are diverse. Granville and Telford (2013) point out that Fairtrade workers in the wine industry in South Africa earn salaries above the minimum wage. A study by the “Fairtrade, Employment and Poverty Reduction” project from the University of London does not find evidence for higher wages or better working conditions through Fairtrade certification on small farms and large estate units in the tea, coffee and flower sectors in Uganda and Ethiopia (Cramer et al. 2014). These studies focus on specific extrinsic rewards. There are very few studies looking at more intrinsic rewards or overall job satisfaction, likely because these are more subjective and more difficult to measure. Based on evidence from the Ecuadorian flower sector Reynolds (2012) concludes that Fairtrade benefits for workers particularly lie in the ability to empower them and secure their well-being at work. To the best of our knowledge, there is only one study that specifically assesses the implications of Fairtrade certification for worker job satisfaction. Ruben and van Schendel (2009) compare workers on a Fairtrade certified banana plantation with workers on a non-certified one. They do not find significant differences in job satisfaction between these workers. Workers on the non-certified plantation are found to receive a higher salary but also to work longer hours and receive less non-monetary benefits. A potential drawback of this study (and other studies on Fairtrade and workers) is that the data comes from only one certified and one non-certified company, which makes it more difficult to disentangle the effect of Fairtrade certification from other company characteristics. In this study, we use data from workers on several certified and non-certified companies to assess the implications of Fairtrade certification for wages and job satisfaction. This is possible because of the large size of the Ghanaian pineapple sector and allows to better control for other company characteristics.

3. Background and data

3.1. Research area

Pineapple is Ghana's 6th most important export crop with fresh and processed pineapple exports amounting to 51 Million USD in 2011 (Gatune et al., 2013). Pineapple was introduced in Ghana in the 1980s and first produced by smallholder farmers. With rising demand from Europe, large-scale pineapple farms established close to the shipping port and airport (Fold and Gough, 2008). In the 1990s, Ghana was the 3rd most important pineapple supplier to the European Union after Cote d'Ivoire and Costa Rica. The dominant variety was “Smooth Cayenne” and exports were realized by both smallholder farmers and large-scale plantations. In the late 1990s, Fresh Del Monte developed a new variety called MD2, the so-called “shipping pineapple” with much longer shelf-life. Its expansion in Costa Rica and other countries, coupled with vast marketing campaigns in the United

States and Europe, ultimately changed consumer taste in favor of the new variety and caused a drop in international market prices. MD2 is regarded as an industrial crop for large-scale mechanized production as it requires fertilizer, pesticides, plastic mulching and cooling facilities, and therefore larger and continued capital investments. Ghanaian smallholder producers were unable to adapt to the quick change due to information and capital constraint and dropped out of export production. This led to a decline in the EU market share from 10.5% in 2003 to 4.3% in 2007 (Fold and Gough, 2008; Harou et al., 2015; Kleemann et al. 2014) and a shift in export production from smallholders to large-scale industrial plantations.

Today, about 15 large-scale plantations produce pineapples for the export market, of which eight are responsible for 93% of Ghana's fresh pineapple exports. Smallholder farmers predominantly sell to the local market or to processors. All plantations are GlobalGAP certified and approximately 40% have an additional Fairtrade certification. This provides an interesting context to study the implications of Fairtrade certification for workers.

3.2. Data

Our study focuses on the so-called Ghanaian pineapple belt, which is the central area for pineapple production stretching across the Central Region, the Eastern Region, the Greater Accra Region and the Volta. Data were collected from two sources. First, in November 2014 we implemented semi-structured interviews with main stakeholders in the pineapple export sector, including representatives from agricultural ministerial divisions at the central and district level, the association of sea-freight pineapple exporters of Ghana, foreign aid agencies, and management boards from pineapple producing and processing companies. Second, we collected original survey data from 361 hired plantation workers and their households between April and July 2015. We purposively selected eight pineapple companies, four (out of the six) Fairtrade certified companies and four (out of the nine) Non-Fairtrade certified companies. All selected companies are GlobalGAP certified as all companies in the sector are. Fairtrade companies are generally larger in terms of the area, the number of workers and the export volumes and more often include foreign investment and management than Non-Fairtrade companies (see Annex 2 for an overview of the companies). In order to create the best comparison, we selected the four smallest Fairtrade companies and four Non-Fairtrade companies that best match these in terms of size and foreign management. From the selected companies we obtained lists of villages they recruit laborers from and from these villages we obtained lists of people working as wage laborer on the pineapple plantations. From this sampling frame of all workers employed by the sampled pineapple plantations, we randomly selected 30 to 50 workers per company. The survey was implemented through face-by-face interviews with a team of local field assistants. Our total sample includes 361 workers but for this paper we restrict the total sample of 361 workers to a subsample of 325 workers (166 workers in Fairtrade companies and 159 in Non-Fairtrade companies) only including manual or low skilled laborers and excluding management, administrative and technical personnel. In this paper, we refer to companies that are Fairtrade certified as "Fairtrade companies" and their employees as "Fairtrade workers". Companies that do not comply with Fairtrade certification are called "Non-Fairtrade companies" and the workers on those plantations "Non-Fairtrade workers".

4. Descriptive analysis

4.1. Company characteristics

The sampled pineapple companies, including four Fairtrade and GlobalGAP certified and four GlobalGAP-certified companies, use on average 270 hectares for pineapple production and employ on average 230 workers. Despite our strategy to sample the most similar companies, Fairtrade companies are significantly larger than Non-Fairtrade companies in terms of the area of production and the workers employed (table 1). On average the Fairtrade companies have been Fairtrade certified for 2 to 14 years. Three of the Fairtrade companies sell approx. 30% of their produce into the Fairtrade market; the fourth about 60%. The remainder, although produced under Fairtrade requirements, is sold as conventional produce. The Fairtrade Premium companies receive for social projects are on average approx. 40.000 Euro per year. So far, none of the companies has taken up the new possibility to use this premium to pay out bonuses in cash to employees. Both Fairtrade and Non-Fairtrade companies apply a salary scale set up in accordance to various factors such as punctuality, target achievements, daily appearance at work, quality assurance etc.

Table 1 Overview of the selected companies for the survey

Variable <i>N</i> (<i>g</i>)	Fairtrade company		Non-Fairtrade company		Difference and Test statistics
	Mean value	Std. deviation	Mean value	Std. deviation	
Size of the company in hectares ^a	338	122.32	190	58.31	148*
Size of the company in worker numbers ^a	347.50	112.66	148.50	48.12	199**
Productivity level in metric tons per week ^a	165	107.55	79	55.53	86

^a Variable is continuous and has been tested with a t-test

* Result is significant at a 10% significance level

** Result is significant at a 5% significance level

*** Result is significant at a 1% significance level

4.2. Worker characteristics

Table 2 provides a mean comparison of the demographic characteristics of Fairtrade and Non-Fairtrade workers and their households. Similarities are particularly found with regard to certain socio-demographic characteristics, such as religion and living conditions as well as the level of income generation apart from horticultural wage labor. The computation of an asset index¹ shows that Fairtrade workers have a higher number of assets than Non-Fairtrade workers. Further, Fairtrade workers are on average 2.08 years older and have more dependents (children below the age of 18 and/ or adults above the age of 65 living in the household) to care for. Non-Fairtrade workers show slightly better education levels with a higher number of workers being at least secondary school graduates and a fewer share with no formal education at all. Literacy rates are nonetheless comparable across all workers.

Table 2 also presents information on household income and income sources – differentiating between (1) income from horticultural wage employment, (2) income generated on own agricultural land, (3) income from self-employment (such as tailoring, shop keeping or hair dressing etc.), (4) income from off-farm wage employment as well as (5) additional incomes from pensions, gifts and others. Fairtrade workers have a higher total and per adult equivalent household income than Non-

¹ The asset index was computed with the Principle Component Analysis approach.

Fairtrade workers. While the different income sources are equally important for both types of workers, the income from horticultural wage labor is significantly higher for Fairtrade workers than for Non-Fairtrade workers. Contributing about 60% to total household income, it is the main income source for workers and their households.

Table 2 Summary statistics of worker and household characteristics

Variable	Worker in a Fairtrade company		Worker in a Non-Fairtrade company		Difference and Test statistics
	Mean value	Std. deviation	Mean value	Std. deviation	
Household Demographics					
Number of workers in Household ^a	1.49	0.61	1.36	0.49	0.14**
Number of workers on pineapple plantations in Household ^a	1.23	0.47	1.10	0.30	0.13***
Female Household Head ^b	0.23		0.28		0.04
Number of dependents ^a	2.52	1.54	1.97	1.43	0.55***
Protestant ^b	0.85		0.86		0.01
Catholic ^b	0.03		0.06		0.03
Muslim ^b	0.04		0.02		0.02
Worker Demographics					
Female worker ^b	0.62		0.61		0.01
Worker is married ^b	0.81		0.67		0.13***
Worker is literate ^b	0.46		0.50		0.04
Worker did not go to school ^b	0.33		0.15		0.17***
Worker finished primary school only ^b	0.23		0.23		0.01
Worker finished secondary school or higher ^b	0.44		0.62		0.18***
Age of Worker (years) ^a	38.51	9.10	36.07	10.46	0.03**
Living conditions					
Number of rooms ^a	1.90	1.27	1.91	1.42	0.03
Electricity ^b	0.86		0.78		0.08*
Earthen floor ^b	0.17		0.11		0.06
Access to improved sanitation ^b	0.24		0.19		0.06
Clean drinking water ^b	0.88		0.69		0.19***
Total agricultural land ^a	1.02	1.35	0.98	1.22	0.04
Standardized Asset Index ^a	22.47	17.45	15.77	16.95	6.70***
Household Incomes (in Ghana Cedi)					
Total income ^a	5720.05	5951.88	4068.02	3272.86	1652.03***
Total income per adult equivalent ^a	2064.96	2843.07	1615.45	1236.11	449.51*
(1) Horticultural wage labor income ^a	3116.36	1339.32	2602.60	1101.19	513.76***
(2) Agricultural income ^a	960.99	3734.57	559.20	2808.91	401.79
(3) Self-employment income ^a	720.98	1580.82	584.78	1449.81	136.20
(4) Other wage labor income ^a	573.25	2441.30	264.60	1306.67	308.65
(5) Other income ^a	75.12	287.77	56.82	155.66	18.30
<i>N</i> (325)	<i>N</i> (166)		<i>N</i> (159)		

a Variable is continuous and has been tested with a t-test

b Variable is bivariate and has been tested with a Wilcoxon-Mann-Whitney test

* Result is significant at a 10% significance level

** Result is significant at a 5% significance level

*** Result is significant at a 1% significance level

4.3. Employment characteristics

Summarizing horticultural employment characteristics, table 3 shows, that daily working hours are similar across groups. Fairtrade workers work fewer hours per month, which can also be attributed to the average of 23 days of paid leave per year granted to Fairtrade workers in comparison to the 5 leave days for Non-Fairtrade workers. The descriptive data further shows that Fairtrade workers are more likely to have a permanent employment status (87%) than Non-Fairtrade workers (53%). This may also be the reason for a much longer time of employment for Fairtrade workers, who at the

point of interview have been working on average 7.27 years at their particular company in comparison to 3.70 years for Non-Fairtrade workers. With our sample we cannot confirm that wage employment on pineapple plantations is associated with casual employment by young and short-term workers, as is often put forward for high-value plantation agriculture. We calculate an average hourly wage for each worker based on data on monthly wage payments, the number of hours worked per day, and the number of days worked per month. We see that Fairtrade workers receive higher hourly wages overall and in almost all work categories. With an average daily wage of 10.10 Ghana Cedi on Fairtrade plantations and 9.22 Ghana Cedi on Non-Fairtrade plantations, wage levels are on average above the daily minimum in Ghana of 7 Ghana Cedi.

Table 3 Summary statistics of variables concerning horticultural employment

Variable	Worker in a Fairtrade company		Worker in a Non-Fairtrade company		Difference and Test statistics
	Mean value	Std. deviation	Mean value	Std. deviation	
Employment conditions					
Working months per year ^a	11.45	1.42	11.28	1.92	0.169
Working days per month ^a	21.28	4.73	22.36	3.52	1.075**
Working hrs per day ^a	7.98	2.15	8.14	1.62	0.169
Average hrs overtime per week ^a	1.33	2.60	1.44	2.53	0.115
Permanent employment status ^b	0.87		0.53		0.338***
Years of employment ^a	7.27	4.37	3.70	3.76	3.567***
The overtime rate is higher than the normal wage rate ^b	0.75		0.63		0.113*
Yearly extra bonus (in Ghana Cedi) ^a	81.52	107.74	63.67	90.17	17.851
Worker takes leave ^b	0.88		0.19		0.691***
Days of paid leave to be taken per year ^a	22.96	7.55	4.87	9.76	18.09***
Labor union membership (if there is a labor union present at the company) ^b	0.73		0.45		0.273***
Received training within last 12 months ^b	0.47		0.16		0.306***
Nr of trainings received within last 12 months ^a	1.70	2.86	0.40	1.44	1.296***
Hourly wages in the different activity sectors					
Daily salary (in Ghana Cedi) ^a	10.10	6.02	9.22	4.18	1.734***
Hourly salary (in Ghana Cedi) ^a	1.54	1.39	1.17	0.61	0.376***
Packaging, Export, Processing ^a	1.18	0.42	1.18	0.64	0.003
Field preparation and maintenance ^a	1.73	1.21	1.09	0.38	0.643***
Planting and Harvesting ^a	1.43	0.74	1.17	0.62	0.259
Chemical application ^a	1.80	0.85	1.23	0.36	0.573*
Sucker management ^a	2.04	2.65	1.11	0.26	0.937
Other menial jobs (cleaning, security etc.) ^a	1.03	0.31	1.14	0.29	0.111
Company services used					
Lunch ^b	0.21		0.28		0.072
Transport ^b	0.49		0.70		0.210***
Medical care for worker on site ^b	0.64		0.35		0.293***
Medical care for worker off site ^b	0.59		0.40		0.188***
Medical care for family off site ^b	0.06		0.006		0.054***
Social allowances (for funerals etc.) ^b	0.07		0.01		0.054**
Loan ^b	0.24		0.05		0.191***
<i>N</i> (325)	<i>N</i> (166)		<i>N</i> (159)		

^a Variable is continuous and has been tested with a t-test

^b Variable is bivariate and has been tested with a Wilcoxon-Mann-Whitney test

* Result is significant at a 10% significance level

** Result is significant at a 5% significance level

*** Result is significant at a 1% significance level

There are several services provided by all companies. Transport is often organized as are medical check-ups for workers either on-site or in cooperation with a local health facility. Fairtrade companies seem to have better social allowances and loan provisions, which may partly be funded by the Fairtrade Premium. Qualitative data shows that Non-Fairtrade companies differentiate between

permanent and casual workers, which may be reflected in the access to services. As table 3 shows, many Non-Fairtrade workers do not have a permanent employment status. Furthermore, Fairtrade workers participate in a higher number of trainings, contributing to their educational capital. Labor union membership is also more pronounced in Fairtrade companies with 73% of their workers being a member of a labor union and only 45% of the Non-Fairtrade workers.

4.4. Job satisfaction

We measure job satisfaction based on multiple questions concerning satisfaction of different aspects of the job. Most studies on job satisfaction consider a single-item question “How do you feel about your job?” and thereby assume that workers are able to jointly consider all aspects of their job to make an overall assessment of job quality. We therefore apply a different approach and asked a set of questions regarding overall job satisfaction as well as organizational identification and climate. These questions were based on various studies in these fields from Andrews and Withey (1976) and Menon (2001). The full overview of questions, that have been adapted both to the local as well as to the working context asked, can be found in the Annex 2. We apply a Principle Component Analysis (hereafter PCA) to group individual variables according to their degree of correlation and relation. This is done via the transformation of correlated variables into a new set of uncorrelated components using a covariance matrix. Weights are applied via factor loadings to generate a component that explains the majority of the variance amongst the job satisfaction variables. We apply specific tests (Cronbach’s alpha, Kaiser-Meyer-Olkin measure and Bartlett test of sphericity) to ensure the suitability of variable use within the PCA. For easier interpretation we calibrate the job satisfaction score on a 0 to 100 scale. In table 4 we compare the overall job satisfaction score but also take a closer look at the differences across the individual variables of the job satisfaction score component. Table 4 shows, Fairtrade workers have a higher overall job satisfaction score and show much higher satisfaction levels when it comes to different conditions at the employment level (co-workers, provisions, supervisors etc.). They also confirm higher levels of company identification and positive company climates. The individual indicators of job satisfaction are measured on a Likert scale from 1 to 5 as described in Annex 3.

Table 4 Mean comparison of workers’ satisfaction for individual factors of job satisfaction, organizational identification and employee empowerment

Variable	Worker in a Fairtrade company		Worker in a Non-Fairtrade company		Difference and Test statistics
	Mean value	Std. deviation	Mean value	Std. deviation	
Job satisfaction score ^a	63.26	18.91	52.15	22.41	11.10***
General job satisfaction ^a	3.34	1.07	2.83	1.08	0.508***
Job satisfaction: co-workers ^a	3.97	0.75	3.69	0.90	0.280***
Job satisfaction: work itself ^a	3.33	1.04	2.99	1.15	0.344***
Job satisfaction: environment & conditions ^a	3.51	0.97	3.11	1.10	0.404***
Job satisfaction: provisions ^a	3.77	0.96	3.30	1.18	0.474***
Pride to be an employee at company ^a	3.62	1.02	3.13	1.14	0.487***
Right company choice ^a	3.50	1.06	3.00	1.10	0.494***
Company cares for employees ^a	3.18	1.11	2.66	1.08	0.518***
Company is fair towards employees ^a	3.24	1.20	2.79	1.18	0.451***
<i>N</i> (325)	<i>N</i> (166)		<i>N</i> (159)		

^a Variable is continuous and has been tested with a t-test

* Result is significant at a 10% significance level

** Result is significant at a 5% significance level

*** Result is significant at a 1% significance level

5. Model specification and econometric analysis

We first apply a linear regression model as follows:

$$(1) \quad y_i = \alpha_0 + \alpha_1 FT_j + \alpha_2 c_j + \alpha_3 x_i + \varepsilon_{ij}$$

The outcome variables of interest (y_i) are (1) individual hourly wage in log and (2) worker job satisfaction – and we estimate separate models for these two outcome variables. The outcome variable is a function of the main variable of interest for Fairtrade certification FT_j of the company, other company level characteristics c_j and a vector x_i of worker level characteristics including demographics. As control variables we consider variables used in previous research related to horticultural wage employment and the role of certification (Ehlert et al. 2014; Schuster and Maertens, 2016 a, b). The treatment dummy FT_j takes a value of one if the pineapple plantation is Fairtrade certified and zero if otherwise. We account for factors of efficiency and productivity of the company c_j in terms number of workers, plantation size of the company in hectares and company capacity in output per week. Worker characteristics include the gender of the worker, education level, age, job and pineapple production experience as well as the type of job performed on the plantation. ε is a random error term.

We extend the linear model to take into account the multilevel nature of the data at worker and company level. Workers are employed in eight different companies and wages within a company are likely more correlated than wages across companies, leading to correlation in the error term. To account for this, we apply a linear mixed model with the combination of fixed and random effects. This relaxes the assumption of no linear dependence in the error term as in the linear model. This means we add random effects to the fixed effects in our model, which characterize the idiosyncratic variation due to individual company differences.

$$(2) \quad y_i = \alpha_0 + \alpha_1 FT_j + \alpha_2 c_j + \alpha_3 x_{ij} + \gamma_{0j} + \varepsilon_{ij}$$

Where γ_{0j} is the random deviation from the intercept α_0

$\alpha_1, \alpha_2, \alpha_3$ are “fixed” slope parameters of the explanatory variable (FT_j), company level variables (c_j) vector (x_{ij}) for worker $i = 1, \dots, n_i$ in company $j = 1, \dots, m$

Estimates may be biased because of unobserved heterogeneity at the company and the worker level. First, companies that become Fairtrade certified may differ from companies that chose not to become Fairtrade certified. While we are able to control for certain observed characteristics of the companies in the vector c , we cannot account for unobservables such as altruism of the management, social conscience, sense of responsibility for community development and other unobservable characteristics that might be correlated with both Fairtrade certification and the outcome variables of interest. Interviews with company management have revealed that Fairtrade certification is not regarded a sign of altruism but rather an important marketing choice. They regard Fairtrade as a tool to raise their standard and quality of production. While GlobalGAP certification is perceived as mandatory to be able to export to the European Union, Fairtrade certification provides an entry pathway into a particular niche market, that other export countries do not target. It is possible however, that we measure more of a “general attitude” of Fairtrade companies than necessarily the certification effect specifically. The linear mixed model addresses the problem of endogeneity of our explanatory variable to a certain extent. The random intercepts in the linear mixed model can be

interpreted as effects of omitted covariates and therefore account for unobserved heterogeneity (Fahrmeir et al., 2013). Second, workers who seek employment in Fairtrade companies may be inherently different regarding their motivation. In rural Ghana, the freedom to choose a work place is often restricted due to distances and access to transport. In reality therefore, workers choose their work places mainly based on proximity to their village and vice versa companies source the majority of their workers from villages surrounding their estate units. To reduce potential bias from unobserved heterogeneity at the worker level, we apply an instrumental variable approach with a distance measurement as instrument. Our instrumental variable model is as follows:

$$(3) \quad y_i = \alpha_0 + \alpha_1 FT_j + \alpha_2 C_j + \alpha_3 X_i + \varepsilon_{ij}$$

$$(4) \quad FT_j = \delta_1 FTD + \delta_2 X_i + \varepsilon_i$$

We define the instrumental variable (*FTD*) as a dummy variable of whether the next Fairtrade company is located within a 5km radius of the village. We chose this instrumental variable based on the arguments above. Distance plays a major role in the choice to take up wage labor due to limited mobility. This is also reflected in the high correlation with the endogenous variable (correlation = 0.53***). The suitability of the variable as an instrument is confirmed through a weak instrument test ($\chi^2 = 67.38^{***}$). In the first stage (see Annex 4) we include socio-demographic characteristics of the worker to account for self-selection into Fairtrade certified plantations.

6. Results

6.1. Hourly wage

The results in table 5 show that Fairtrade certification positively and significantly correlates with hourly wages of hired labor. All models show that hourly wages are more than 30% higher for Fairtrade workers than for Non-Fairtrade workers. Estimated coefficients on Fairtrade certification are slightly higher in the linear mixed model (35%) and the IV model (43%), in which unobserved company heterogeneity and self-selection into certification is better accounted for - than in the OLS regression model (32%). Other company level characteristics also influence wage levels, such as the size of a company which is here proxied by the number of workers employed as well as the production capacity of a company. These findings confirm the assumption that more productive companies are better able to provide fair wages due to their business success. However the company size does not necessarily have the same implications as can be seen by the negative sign of the coefficient. The scales of these effects are very small however. We account for the different types of jobs in comparison to field management and maintenance, which is used as the baseline for the different types of jobs as it represents the sector with most overall workers. The worker experience does not play an important role in the determination of worker wage. Neither those that have previous employment experience in the pineapple sector nor those that grow pineapple themselves, have a higher wage than others. In the linear mixed model, the results are confirmed with slightly less statistical significance for Fairtrade certification.

Both the Wald test and the likelihood-ratio test confirm that the random-intercept model provides a better model fit than a linear regression model. The Hausman test does not confirm correlation between random effects and covariates, so using the linear mixed model is suitable. However, the intraclass correlation coefficient shows low correlation within clusters. The instrumental variables approach confirms the results of the other models. Here, we can reject the null hypothesis of no

correlation between the treatment errors and the outcome errors within the IV model. Annex 4 presents the results from the first stage regression of the IV approach.

Table 5 Regression results on the hourly wages of hired labor

Variable	OLS regression model		Linear mixed model		IV regression model	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Fairtrade certification	0.319***	(0.0804)	0.348**	(0.154)	0.434***	(0.131)
Number of workers	-0.000989**	(0.000465)	-0.000976	(0.000876)	-0.00117**	(0.000480)
Plantation size of company	-0.000342	(0.000286)	-0.000341	(0.000544)	-0.000414	(0.000287)
Company capacity	0.00137***	(0.000477)	0.00129	(0.000897)	0.00164***	(0.000522)
Female worker	-0.0242	(0.0502)	-0.0133	(0.0477)	-0.0247	(0.0494)
Education	0.0324	(0.0481)	0.0543	(0.0470)	0.0436	(0.0484)
Age	-0.00386*	(0.00232)	-0.00175	(0.00227)	-0.00449*	(0.00235)
Job experience	0.0505	(0.0767)	0.0430	(0.0725)	0.0389	(0.0762)
Pineapple experience	0.0419	(0.0783)	0.0501	(0.0747)	0.0152	(0.0808)
Planting	-0.00875	(0.0648)	0.0176	(0.0624)	-0.0152	(0.0635)
Export	-0.110	(0.0670)	-0.123*	(0.0642)	-0.116*	(0.0657)
Chemicals	0.0944	(0.0827)	0.0943	(0.0782)	0.0933	(0.0807)
Sucker management	0.0643	(0.0748)	0.0683	(0.0710)	0.0643	(0.0730)
Others	-0.120	(0.0916)	-0.0836	(0.0869)	-0.120	(0.0894)
Constant	0.318**	(0.128)	0.192	(0.171)	0.315**	(0.126)
			-2.283***	(0.340)		
			-1.026***	(0.0398)		
	N = 325		N = 325		N = 325	
	F (14, 310) = 3.96		No. of Groups = 8		Wald $\chi^2(14)$ 35.92	
	Prob>F = 0.000		Wald $\chi^2(14)$ = 26.83		Prob> χ^2 0.001	
	R-squared = 0.152		Prob> χ^2 0.0203		LR test of indep. Eqns. (rho=0)	
	Adj R-squared = 0.114		LR Test = 0.0005		Prob> χ^2 0.276	
	Root MSE = 0.380					

* Result is significant at a 10% significance level

** Result is significant at a 5% significance level

*** Result is significant at a 1% significance level

6.2. Job satisfaction

Looking at the regression results for job satisfaction in table 6, we find the different approaches to result in comparable point estimates and similar statistical significance levels. The likelihood ratio test reveals that the linear mixed model does not provide a better fit than the OLS model. This may be due to the fact, that our variable of interest is a subjective measure and therefore much more a personal perception and less related to company characteristics. The results show that Fairtrade certification is significantly positively correlated with job satisfaction. The company's production capacity has a negative effect on job satisfaction. The reasons may be related to a higher demand for workers' flexibility and effectivity and increased pressure for workers' performance. Other significant factors are worker age and the specific jobs on the plantation. Older workers are happier with their job, possibly because of the limited work opportunities for people of older age particularly in the context of rural Ghana. Having a (potentially) permanent employment status might contribute to a feeling of secure income generation. Workers engaged in export related activities are unhappier with their job. A reason may be that people working in packaging, processing and export are overall less flexible with their working hours. If a deadline is in place to supply to a specific flight or shipping vessel, the produce has to be ready. The pressure to finalize the task and the longer working hours

this may entail, is potentially higher here than in other sectors. Field management in comparison is much more task-based, where workers are allowed to finish their workday after his/ her task is completed. Activities such as planting and sucker management may be more physically demanding than other sectors, leading also to lower levels of job satisfaction.

Table 6 Regression results for job satisfaction score

Variables	OLS regression model		Linear mixed model		IV model	
	Coefficient	Standard error	Coefficient	Standard error	Coefficient	Standard error
Fairtrade	17.15***	(4.266)	16.99***	(4.788)	16.18**	(7.326)
Number of worker	0.0149	(0.0246)	0.0165	(0.0275)	0.0164	(0.0258)
Size of company (ha)	-0.0170	(0.0152)	-0.0180	(0.0170)	-0.0164	(0.0153)
Company capacity	-0.0596**	(0.0253)	-0.0614**	(0.0282)	-0.0619**	(0.0284)
Female worker	4.254	(2.686)	4.300	(2.619)	4.260	(2.623)
Education	1.910	(2.546)	1.395	(2.503)	1.816	(2.552)
Age	0.377***	(0.126)	0.372***	(0.124)	0.382***	(0.127)
Job experience	-1.379	(4.120)	-1.536	(4.009)	-1.288	(4.062)
Pineapple experience	1.859	(4.139)	2.364	(4.038)	2.086	(4.279)
Planting	-7.420**	(3.474)	-6.922**	(3.396)	-7.375**	(3.404)
Export	-8.365**	(3.574)	-7.903**	(3.489)	-8.319**	(3.501)
Chemicals	5.342	(4.399)	5.515	(4.280)	5.340	(4.295)
Sucker management	-4.536	(3.963)	-4.431	(3.862)	-4.540	(3.869)
Others	2.191	(4.846)	2.304	(4.721)	2.192	(4.731)
Constant	42.45***	(6.870)	42.71***	(7.065)	42.48***	(6.712)
			0.595	(1.395)		
			2.971***	(0.0405)		
	N 321		N 321		N = 321	
	F(14,306) 4.17		No. of Groups 8		Wald chi ² (14) 46.61	
	Prob>F 0.000		Wald chi ² (14) 51.22		Prob>chi ² 0.0012	
	R-squared 0.1601		Prob>chi ² 0.000		Wald test of indep. Eqns.	
	Adjusted R-squared 0.122		LR Test 0.3418		(rho=0) Prob>chi ² 0.872	
	Root MSE 20.06					

* Result is significant at a 10% significance level

** Result is significant at a 5% significance level

*** Result is significant at a 1% significance level

7. Discussion

Our results reveal that Fairtrade certification of large-scale pineapple plantations in Ghana has contributed to the job satisfaction of plantation workers and improved both the extrinsic and intrinsic rewards of employment on a pineapple plantation. We find that hourly wages are up to 40% higher in Fairtrade companies. This is not necessarily in line with what has been found so far. Both Ruben and van Schendel (2009) and Cramer et al. (2014) find no evidence for higher wages on Fairtrade certified large-scale plantations. Granville and Telford (2013) find that Fairtrade workers earn salaries above the minimum wage. Our data from Ghana shows that in both types of companies, Fairtrade certified and non-certified companies, wages are higher than the minimum wage set by the government. Despite wages in the whole sector being above the minimum wage, wages in Fairtrade certified companies are still about 40% higher than wages in non-certified companies. This points to a rather strong positive impact of Fairtrade certification of plantations on the wages workers earn. We believe that this effect is more related to Fairtrade stimulating good labor practices in certified companies than to the price premium and bonus system included in Fairtrade certification trickling down to workers. From company interviews we know that companies do not make use of the possibility to return the Fairtrade bonus they receive at the end of the season to their workers as wage top-up payments. In addition, the interviews revealed that Fairtrade certified pineapple companies in Ghana sell on average only 40% of their produce on the Fairtrade market; the

remainder of produce, that satisfies all Fairtrade criteria, is sold in the conventional market. Companies hence receive a Fairtrade price premium for only part of their Fairtrade certified produce. It is likely – but remains unclear from our analysis – that the effect of Fairtrade on wages would be even higher if a higher share of Fairtrade certified produce would find an ultimate Fairtrade destination.

Apart from wages, other extrinsic rewards are found to be higher for workers in Fairtrade companies and may be equally important for higher job satisfaction. Almost 90% of Fairtrade workers are permanently employed, which results into longer duration of employment. The stability of working arrangements might be important for worker job satisfaction as it contributes to secure income generation and long-term planning options. Other extrinsic rewards that are found to be higher for workers in Fairtrade companies include more days of paid leave per year, improved access to on-site and off-site provision of medical care for the workers, and increased availability of loans. Some of these services, such as paid leave and access to medical care, follow directly from Fairtrade requirements. Improved access to loans follows from Fairtrade companies using the Fairtrade Premium, generated through selling produce in the Fairtrade market, to offer workers credit at more interesting conditions than credit from local banks.

Also intrinsic rewards may contribute to higher levels of job satisfaction. Descriptive statistics also show that almost 50% of the Fairtrade workers participated in at least one training within the past 12 months. On average they received 1.7 trainings in comparison to 0.4 of trainings received by Non-Fairtrade workers. More qualitative data shows that workers indeed appreciate trainings and the ability of knowledge gain even though they feel they are only able to use the information on the plantation and not necessarily at home or their own farm. Also worker empowerment fostered through labor unions and Fairtrade Premium Committees may contribute to higher job satisfaction scores. Fairtrade regulations stipulate the establishment of a labor union to promote collective bargaining of the workforce. The majority of Fairtrade workers are therefore also engaged in the labor union. Labor union membership potentially enables the individual workers to establish closer ties to co-workers and therefore feel as part of an entity. Labor unions represent the work force within a particular company and aim to improve wages, working conditions and employment factors for the workers. Contributing to this effort may increase the feeling of being empowered and able to direct wishes and demands of those employed. When it comes to the role of labor unions, our findings support the existing Fairtrade literature on implications for small-scale farmers. Studies have found Fairtrade to strengthen producer organizations and their ability for collective action and bargaining power (Jaffee, 2007; Bacon, 2005; Ronchi, 2002). We can see that this also plays a role for plantation workers, where labor union membership can contribute to strengthening workers' role in company decision-making. Reynolds (2012) confirms this also for flower workers in a quantitative study, identifying Fairtrade worker committees as a major pathway of empowerment. Also the process of fairly selecting and allocating the Fairtrade Premium towards village projects may be a pathway of empowering workers. For workers to take over responsibility regarding their community development strengthens their voice and decision-making ability.

Our findings further contribute to the understanding of what determines job satisfaction in labor-intensive agricultural sectors in developing countries. The empirical literature on job satisfaction in the context of developing countries is rather thin and is not directly linked to Fairtrade certification. Mulinge and Mueller (1998) assess job satisfaction of agricultural extension workers in Kenya and

find that intrinsic rewards (upward communication, job variation) are more important than extrinsic rewards (resource adequacy, job security and promotional opportunities) for job satisfaction. Staelens et al. (2014) conclude that job satisfaction in the floricultural sector in Ethiopia is mainly driven by organizational extrinsic rewards such as wages, job security and bonus payments. These findings are in line with the assumption that skilled workers – as in the extension sector in Kenya - pay more attention to intrinsic rewards at their workplace, such as responsibility, recognition and opportunities for advancement while for low skilled workers extrinsic rewards are more important than intrinsic rewards. Given that the sampled workers in the Ghana pineapple sector are low skilled workers, our findings on Fairtrade improving overall job satisfaction is likely driven to a large extent by the effect Fairtrade has on wages and other extrinsic rewards.

8. Conclusion

The expansion of large-scale horticultural and floricultural estate farms in developing countries has led to structural changes in surrounding areas. As production is mainly export-oriented the demand for certification has led to significant adoption rates to be able to access particular markets. So far there is little research that deals with the potential implications of certification for hired laborers on these large-scale plantations. Fairtrade as a prominent sustainability standard is particularly interesting when assessing working conditions, worker empowerment and fair wages as Fairtrade focuses on these provisions while others often only incorporate minimum requirements. In line with the exchange theory on social behaviour, we use complimentary measures to acquire a more complete picture of Fairtrade's implications for workers' extrinsic and intrinsic employment factors. In this study, we find that Fairtrade can indeed have a positive effect on two measures that were evaluated here: hourly wages are higher for Fairtrade workers and they are more satisfied with their job.

In terms of comparability to other case studies, the set-up of the sector should be considered. The pineapple sector in Ghana is more established than other horticultural sectors in Kenya or Ethiopia for example. Ghana provides a suitable case for assessing the effects of Fairtrade certification as the sector has established in a way that allows for a balanced comparison between companies. In most countries only very few plantations take up Fairtrade certification and are therefore hardly representative for the developments in a sector. These findings may therefore be interesting to other horticultural sectors in other developing countries.

We conclude that Fairtrade is able to provide higher wages and comparably better working conditions for hired laborers on Ghanaian pineapple plantations beyond the GlobalGAP certification. While the latter also stipulates certain minimum requirements for employment and working conditions, the explicit labor requirements of Fairtrade certification lead to improved workplace provisions for workers. This shows that labor standards are crucial to generate qualitative employment in rural areas. While Fairtrade certification is unlikely to be a viable option for all export-oriented producers, we can hereby identify the positive effects of strict rules regarding worker welfare. Fairtrade certification may be one pathway of implementing better framework conditions for workers, but it is also the general attitude towards worker welfare that should be promoted. Fostering strategies in consideration of sufficient wages etc. could be a more long-term governmental strategy for quality employment generation that reduces the vulnerability of hired laborers. Particularly in rural areas, this enables a necessary development perspective where many people are drawn to cities to seek income generation opportunities.

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Annex 1 Overview of relevant Fairtrade regulations in the context of this study

<p>The Fairtrade Standard for Hired Labor has two different types of requirements:</p> <ol style="list-style-type: none"> 1) Core requirements which reflect Fairtrade principles and all of which must be complied with. 2) Development requirements which refer to the continuous improvements that you must make on average against a scoring system (also defining the minimum average thresholds) defined by the certification body. 	
Working hours	
Year 0 – core requirement	3.5.9 Your company must comply with applicable national and local legislation and industry standards regarding working hours and overtime regulations. Your company must not require workers to work in excess of 48 hours per week on a regular basis.
Year 0 – core requirement	3.5.10 Your company must allow workers at least one day of rest for every 6 consecutive days worked, unless exceptional circumstances apply. ... An exception is valid for a maximum of 12 weeks per calendar year. It will not allow workers to work more than 14 hours per day or more than 72 hours per week or more than 18 continuous working days without rest.
Overtime	
Year 0 – core requirement	3.5.11 Your company must not require its workers to work overtime. Overtime is allowable if it is voluntary and not used on a regular basis and does not extend over a period of more than 3 consecutive months. It must not exceed 12 hours per week, unless exceptional circumstances apply (see 3.5.10). In all cases overtime rates apply (see 3.5.12). National legislation must be complied with if it exceeds this requirement.
Year 0 – core requirement	3.5.12 Your company must compensate overtime at a premium rate. The premium rate must be paid at a factor of 1.5 for work performed on regular workdays, and for work performed on the regional day of rest public holidays and night work a premium at a factor of 2 must be paid , unless otherwise defined by national legislation, by CBA or by agreements with unions.
Remuneration	
Year 0 – Core requirement	3.5.1 Your company must set wages for workers and other conditions of employment according to legal or CBA regulations where they exist, or at regional average wages or at official minimum wages for similar occupations; whichever is the highest, with the intention of continually increasing salaries (see 3.5.4). Your company must specify wages for all employee functions and employment terms, such as piecework.
Year 0 – Core requirement	3.5.3 For work based on production, quotas and piecework, during normal working hours, your company must pay the equivalent to average hourly waged work based on a
Year 1 – core requirement	3.5.4 If remuneration (wages and benefits) is below living wage

	<p>benchmarks as established by Fairtrade International, your company must ensure that real wages are increased annually to continuously close the gap with living wage.</p> <p>Wage increments must be negotiated with elected worker representatives considering the living wage.</p>
<i>Contract arrangements regarding employment status</i>	
Year 0 –core requirement	<p>3.5.22 All regular work must be undertaken by permanent workers. Time-limited contracts and subcontracting are permitted during peak periods, in the case of special tasks and under special circumstances.</p> <p>Your company must not use production, quotas and piecework employment as a means to avoid time-bound contracts.</p>
<i>Paid leave</i>	
Year 0 – core requirement	<p>3.5.13 Your company must grant workers at least 2 weeks of paid leave per year at minimum, not including sick and casual leave. Periods of annual leave must be in line with national legislation and/or with agreements detailed in a specific or sectorial CBA, if either of these exceeds 2 weeks.</p>
<i>Provisions of trainings</i>	
Year 3 – Development requirement	<p>2.2.4. Your company must provide opportunities to workers and staff to develop their skills and qualifications whenever feasible.</p>
Year 0 –core requirement	<p>3.6.6 Your company must regularly train workers and their representatives in the basic requirements of occupational health and safety, relevant health protection and first aid, at least once per year.</p> <p>...</p>
<i>Labor unions/ collective bargaining</i>	
Year 0 – Core requirement	<p>3.1.9. All workers, regardless of nationality or residency status, including seasonal/temporary and migrant workers, must have the right to be elected as a worker representative and/or a member of the Fairtrade Premium Committee</p>
(Core requirement: Your company must not deny these rights in practice, and your company must not have opposed any of these rights in the last 2 years prior to application for certification.)	<p>3.4.2 Your company must:</p> <ul style="list-style-type: none"> • Respect the right of all workers to form or join trade unions; • Respect the right of workers to bargain collectively in practice; • Not engage in any acts of anti-union discrimination or in any acts of interference; • Not deny access rights for trade unions; • Accept that it has a duty to bargain in good faith with unions; • Inform the workforce about the local point of contact and posts relevant contact information in the workplace for workers to see and understand.
Year 0 – Core requirement	<p>3.4.5 In situations where workers are not represented by a trade union recognized for collective bargaining with the company, management must allow representatives of trade union organizations that represent workers in the sector or region to meet with workers on company premises at agreed times so that the trade union representatives can inform the workers about trade unions. Workers may also choose to meet with these trade union representatives at any other location. Times and locations</p>

	of these agreed meetings must be reasonable and management must not interfere in any way with, nor conduct any surveillance of these meetings.
Year 0 – Core requirement	<p>3.4.6 There must be some form of democratically elected and independent workers’ organization established to represent workers in the company and negotiate with management. Workers must take the initiative themselves and must be allowed to organize independently of management. Management is expected to provide the opportunity to workers to organize, but they must not interfere in the process nor directly or indirectly conduct elections related to the formation, recognition or governance of this organization.</p> <p>Your company must respect the self-organization of workers by engaging with representatives of these organizations through regular dialogue.</p>
Year 0 – Core requirement	<p>3.4.7 Your company must allow access to trade union representatives in order to communicate about unionisation and/or to carry out their representative functions at an agreed time and place. These meetings must take place without management interference or surveillance.</p>
Year 0 – Core requirement	<p>3.4.8 Your company must not interfere in any way with the freedom of association by controlling or obstructing trade unions or elected worker representatives or supporting one workers’ organization over another.</p>
Year 0 – Core requirement	<p>3.4.9 Your company must ensure that elected worker representatives:</p> <ul style="list-style-type: none"> • Have access to all workers in the workplace during working time without interference or the presence of management representatives and at agreed times, on average every three months; • Can meet among themselves during regular working hours, at least once a month for one hour; • Meet representatives of senior management during working hours at least once every 3 months. These meetings must be scheduled on a regular basis and must be documented.
Year 1 – Core requirement	<p>3.4.12 If there is no Collective Bargaining Agreements (CBA) in place, your company must proactively engage in a process to enter into a collective agreement with elected worker representatives. Your company should not refuse any genuine opportunity to bargain collectively with workers.</p> <p>Negotiations can take place with a recognized trade union or with elected worker representatives in the absence of a trade union, but only where such elected worker representatives are provided for by law and are legally authorized to bargain (see 3.4.6).</p> <p>In cases where workers have freely and specifically decided to not form or join a trade union and are not otherwise legally authorized to collectively bargain, then the collective bargaining requirement is waived. In these situations the certification body will determine whether there was any intimidation or coercion involved in this decision (see 3.4.4). The decision cannot be the result of any vote in which management was in any way involved.</p>

<i>Company service provisions</i>	
Year 6 – Development requirement	2.2.9. Your company must provide support for crèche facilities for your workers’ children either inside or outside your premises. (Development requirement from year 6 of certification onwards)
Year 0 – core requirement	3.5.19 Your company must provide legal social security for all workers.
Year 3 – development requirement	3.5.20 Your company must work towards all permanent workers having a provident fund or pension scheme.
Year 0 –core requirement	3.6.18 Your company must provide access to appropriate healthcare in case of work-related illness or injury.
Year 1 –core requirement	3.6.29 Your company must offer regular examinations and check-ups by a medical doctor to all workers on a voluntary basis at least every three years. Any findings must be communicated to the worker confidentially and in a readily understandable form. ...

Annex 2 Overview of individual companies in the Ghanaian pineapple sector

	Selected Fairtrade certified companies (FT comp) for survey						Non-selected Fairtrade certified companies (FT comp) for survey				Selected Non-Fairtrade certified companies for survey					Non-selected Non-Fairtrade certified companies for survey				
	FT comp 1	FT comp 2	FT comp 3	FT comp 4	FT comp 5	FT comp 6	Non-FT comp 1	Non-FT comp 2	Non-FT comp 3	Non-FT comp 4	Non-FT comp 5	Non-FT comp 6	Non-FT comp 7	Non-FT comp 8	Non-FT comp 9					
Size of the company in hectares	400	242	480	230	640	650	200	110	200	250	800	8	400	350	200					
Size of the company in worker numbers	190	350	450	400	200	250	184	80	180	150	75	12	110	75	45					
Productivity level in metric tons per week	60	100	200	300	150	60	150	40	96	30	60	4	30	30	20					
Foreign involvement in company management	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes	No	No	No	No	No					
Years of Fairtrade certification	7	14	6	2	10	17	-	-	-	-	-	-	-	-	-					

Annex 3 Defining questions in overall job satisfaction score

	Statement
Job satisfaction	How do you feel about your job?
	How do you feel about the people you work with – your co-workers?
	How do you feel about the work you do in your job – the work itself?
	What is it like where you work – the physical surroundings, the hours, the amount of work you are asked to do?
	How do you feel about what you have available for doing your job – I mean equipment, information, good supervision, and so on?
Answers ranked via a 5-point Likert scale 1 = Very dissatisfied 2 = Dissatisfied 3 = Indifferent 4 = Satisfied 5 = Very satisfied	
Organizational Identification	I am proud to be an employee of this company.
	I am glad I chose to work for this company rather than another company.
Answers ranked via a 5-point Likert scale 1 = Strongly disagree 2 = Don't Agree 3 = Indifferent 4 = Agree 5 = Strongly agree	

Annex 4 First stage results for IV regressions

Variables	First stage IV regression	
	Coefficient	Standard error
Distance from village to Fairtrade company ²	1.499***	(0.170)
Female worker	-0.216	(0.179)
Education	-0.0817	(0.174)
Age	0.0201**	(0.00823)
Job experience	0.366	(0.278)
Pineapple experience	0.485	(0.302)
Constant	-1.385***	(0.404)

² Dummy = 1 if the next Fairtrade company is located within a 5km radius of the village