You Can('t) Always Get the Job You Want: Stated versus Revealed Employment Preferences in the Peruvian Agro-industry

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Abstract: Employment in high-value agro-export sectors has been recognised to entail the potential to contribute to poverty reduction in rural areas of developing countries. Concerns have yet been raised about the quality of the created employment and worker preferences have often been overlooked in the literature. We use a discrete choice experiment, in which we relate stated and revealed employment preference of agro-industry export workers in Peru. We explain employment (mis)matches as a function of personal and employer characteristics. Results suggest that employment preferences are heterogeneous, but that some groups of workers are systematically less likely to meet their ideal employment expectations. We formulate policy recommendations for both agro-industry employers to increase their workers' job satisfaction, and for development agencies concerned with employment quality in high-value export sectors.

Key Words: employment conditions, stated and revealed preferences, discrete choice experiment, horticultural exports, Peru

JEL Code: J24, J43, J81, O54

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You can(‘t) always get the job you want: Employment preferences in the Peruvian horticultural export chain.

1. Introduction

Employment in high-value agro-export sectors entails the potential to contribute to poverty reduction in rural areas of developing countries (Maertens, Colen & Swinnen, 2011; Mano, Yamano, Suzuki & Matsumoto, 2011; Van den Broeck, Van Hoyweghen & Maertens, 2016). A large number of jobs has been created in these sectors – e.g. an estimated 35,000 workers are employed in the fruit sector in Ghana; 85,000 in the Ethiopian flower industry; and 140,000 in the Peruvian horticultural sector (Jaffee, 2003; Schuster & Maertens, 2016; Staelens, Louche & D’Haese, 2014) – but the quality of this employment has been questioned. As the *International Labor Organization* (ILO) puts it, employment alone will not yield development unless accompanied by efforts to boost decent work opportunities and tackle worker poverty (ILO, 2014). Workers in high-value export sectors are mainly low-skilled and vulnerable laborers, often migrant workers and women, who work on temporary and part-time contracts (Barrientos, McGlenaghan & Orton, 2000; Maertens & Swinnen, 2012). These less empowered workers have a higher likelihood of being exposed to inferior employment conditions and to exploitation (Van den Broeck et al., 2016). Low empowerment and access to information can limit their ability to find the employment option where they can best use their productive skills.

There is a growing body of literature on employment conditions in high-value export sectors in developing countries (Barrientos, Mayer, Pickles & Posthuma, 2011; Colen, Maertens & Swinnen, 2012; Dolan & Sutherland, 2002; Ehlert, Mithöfer & Waibel, 2014; Kritzinger, Barrientos & Rossouw, 2004; Lockie, Travero & Tennent, 2015; Krumbiegel, Maertens & Wollni, 2018, 2019; Schuster & Maertens, 2016, 2017; Trifkovic, 2014; Van den Broeck, Swinnen & Maertens 2017). These studies analyze actual employment conditions of workers, often relying on ILO concepts of ‘decent work’ and without taking into account workers’ own employment preferences or their own understanding of ‘decent work’ (UN, 2015). In this paper, we take a different perspective. We analyze employment preferences of young workers, prior to entering a job in the horticultural export agro-industry in Peru, and compare these ex-ante preferences with actual employment conditions, after having entered a job. We use data from a two-round panel

survey among 17 to 21 year-old workers, carried out in August 2013 before the start of the main horticultural export season and in March 2014 at the end of the export season, and from a discrete choice experiment (DCE), carried out during the first survey round. We reveal workers' preferences for employment conditions from the DCE data, we explain the observed preference pattern using first-round survey data, and identify individual workers' preferred employment type. We then compare these stated preferences (SP) or workers' preferred employment with their revealed preferences (RP) or their actual employment at the end of the export season, using the second-round survey data. We finally identify employment (mis)matches, and explain these as a function of employer and worker characteristics. This approach allows us to elucidate workers' own understanding of employment quality or decent work; and to assess the capacity of workers to meet their employment expectations and of companies to meet workers' preferences.

Our focus on workers in the Peruvian horticultural export industry is particularly relevant. The sector is growing very rapidly, at an average annual rate of more than 8% over the past two decades, and employs some 140,000 workers in 2013 (Schuster & Maertens, 2016). There are specific concerns about job satisfaction of young workers and the quality of employment in the sector – particularly with regard to employment insecurity, absence of union rights, competition between employment and education choices for youngsters and absence of training and learning possibilities (Chacaltana, 2007, 2010). Our approach is innovative and highly complementary to previous studies on employment conditions in global food supply chains. We add a novel worker perspective by analyzing stated and revealed employment preferences. Only two recent studies analyze employment conditions in agro-export sectors from a worker perspective. Staelens, Desiere, Louche & D'Haese (2016) examine how workers perceive their own working conditions in the cut flower sector in Ethiopia and find an important role for wage, job security and healthy environment. Van den Broeck et al. (2016) use a DCE to analyze women's preferences for employment contracts in the Senegalese horticultural export sector and find that workers value health care, training and transport services, in addition to wage benefits. Our study is the first to analyze the (mis)match between workers' stated and reveal employment preferences, or between preferred and actual employment conditions. While previous studies investigate the mismatch between supply and demand for jobs and employment quality for young workers, and the consequences for job satisfaction and productivity (Abebe, Caria, Fafchamps, Falco, Franklin, Quinn & Shilpi, 2017; Beam, 2016; Blattman & Dercon, 2017; Franklin, 2015; Groh, McKenzie,

Shammout & Vishwanath, 2015; Jensen, 2012; Reynolds, 2003; Reynolds & Aletraris 2006; Stier & Lewin-Epstein 2003), no studies take into account workers' preferences for different job attributes in analyzing this mismatch – as we do in this paper.

The structure of this paper is as follows. In section 2 we put forward the theoretical concepts, empirical insights and hypotheses our study builds on. In section 3 we briefly describe the horticultural export sector in Peru and explain the data collection. In section 4 we present our methods to identify workers' revealed and stated employment preferences; and to analyze the (mis)match between workers' actual and preferred employment. In section 5 we report results, in section 6 we discuss the results and in section 7 we conclude.

2. Conceptual discussion

We combine concepts and insights from labor economics and choice modelling. We study the employment decisions of young workers in the Peruvian agro-export industry in order to understand employment (mis)matches and quality of employment from a worker perspective. In labor economics, quality of employment is usually investigated by benchmarking observed employment conditions against national labor laws, international labor standards such as the ILO Decent Work Agenda or researchers' own perceptions about decent work. Studies on employment conditions in high-value export sectors in developing countries, mainly use job quality measures that rely on objective concepts of decent work conditions, such as wage, working hours, contract schemes and job security or look at less tangible outcomes such as worker empowerment, cultural norms and association behavior (e.g., Barrientos & Smith, 2007; Krumbiegel et al., 2019; Riisgaards, 2009; Schuster & Maertens, 2017). They provide important insights into disparities between existing working practices in developing countries and an international benchmark.

Labor economists analyze workers' job choice and point to the existence of a mismatch. Due to missing information, unreasonable expectations and high search costs, young workers in developing countries often do not find their most suited employment while firms face difficulties to keep employees who are unhappy with their job choice (Franklin, 2015; Groh et al., 2015). These mismatches have negative repercussions on workers' job satisfaction and productivity (Reynolds, 2003). A specific stream of literature analyses the implications of reducing search costs, e.g. through job fairs and transport subsidies, on the likelihood of finding a job and/or remaining in a job, mainly using experimental approaches (Abebe et al., 2017; Beam, 2016;

Blattman & Dercon, 2017; Franklin, 2015; Groh et al., 2015). Failure to find a job is found to be related with unrealistic expectations about wages and non-wage job attributes (e.g. Groh et al., 2015; Abebe et al., 2017) while reducing search costs is found to more effectively circumvent this failure for men and for poorer individuals (e.g. Beam, 2016; Franklin, 2015). Another stream of literature compares actual working hours with preferred working hours, and analyzes the socio-economic determining factors of a (mis)match between the two (Kawata, 2015; Reynolds, 2003; Reynolds and Aletraris, 2006; Van Echtelt, Glebbeek & Lindenberg, 2006; Wooden, Warren & Drago, 2009), pointing to gender, marital and parental status to play a role in employment (mis)matches.

The above-mentioned literature on employment (mis)matches analyzes a single discrete choice; i.e. to find a job or not, or to find a match for a single employment attribute (working hours). In this paper, we use more complex choice modelling[i] to understand employment (mis)matches on various employment attributes, as workers typically have preferences for multiple attributes of a job, including wage and non-wage attributes. In choice modelling, a distinction is drawn between stated preferences (SP) and revealed preferences (RP). The latter refers to actual choices made by individuals and how individuals value these choices while the former refers to choices made in an experimental set-up. In our framework, SP correspond to workers' preferred employment and how they value various employment attributes, ex ante to entering employment, while RP correspond to the value workers attribute to their actual employment, ex post to entering employment. A mismatch or a large value distance between workers' most preferred employment or SP and their actual employment or RP is interpreted as lower quality of employment.

Based on insights from the recent literature, we expect employment preferences of workers to be heterogeneous and to not necessarily align with objective concepts of decent employment, and employment mismatches to be most problematic among vulnerable workers, in particular female workers. The labor economics literature documents substantial heterogeneity in workers' preferences (e.g. Egger & Kreickemeier, 2010; Enlgmaier, Strasser & Winter, 2014; Kawata, 2015; Van den Broeck et al., 2016; von Siemens, 2011) but rarely takes workers' preferences and heterogeneity in these preferences into account to understand the quality of employment. As acknowledged in a recent UN report, a common understanding of the concept of decent work is often absent, and especially workers' own perspective on 'decent' working conditions is lacking (UN, 2015).

3. Background and data

Peru is a worldwide leader in horticultural exports. Peruvian exports expanded significantly since the mid-1990s and have since grown at an average annual rate of 8.56% (FAOSTAT). Asparagus, grapes, avocado and mango are the main export crops, accounting for an export volume of 450,000 ton and an export value of 872,364 thousand USD in 2011 (Schuster & Maertens, 2016). The two main horticultural production regions are *Ica*, 300 km south of Lima, and *La Libertad,* 600 km north of Lima along the Pacific coast. These two regions provide 90% of export produce and host 72% of the 400 horticultural export companies (Sunat, 2013). Export companies are either completely vertically integrated with production, post-harvest handling and exporting controlled by the company, or rely on external producers and/or processors to source produce (Schuster & Maertens, 2013). Products are mainly exported in a ready-to-consume form, implying that added-value from product sorting, handling and packing stays in the country.

The sector has created approximately 140,000 jobs (Schuster & Maertens, 2016). Workers are recruited from villages in the coastal valleys or from new settlements surrounding the plantations. Workers and their families mostly depend on the agro-industry as there are few alternative employment options in the area – these are limited to 'service and sales employment', such as the provision of transport or food within the community. Jobs in the agro-industry are abundant in the high season (September to March) when workers can easily shift employer but most workers are unemployed and rely on sporadic alternative income sources in the low season (April to August). Previous research reveals that employment conditions, such as wages, social services and working hours, vary substantially by employer (Schuster & Maertens, 2016, 2017).

We collected worker survey and discrete choice experiment (DCE) data in the two horticultural export regions, *Ica* and *La Libertad*. We used a non-probability purposive sampling method to sample young workers. Within the two regions, we sampled 78 villages in the vicinity of the agro-industrial companies, located in 9 different districts (see figure 1). We purposively sampled all villages identified as main residential area of agro-industry workers, which are villages with around 90% of the working-age population employed in the agro-industry. We relied on information from a report (Isat, 2005), stakeholder interviews and our own knowledge of the area and the sector from previous research[ii]. Within these villages, we targeted men and women in the age category 17 to 21 and purposively selected youngsters with no previous employment

experience in the sector but with the intention to start employment in the subsequent export season. Respondents were selected by knocking on villagers' doors, by stopping them on the street when getting on or off the transport to or from the agro-industrial companies, or by approaching them at the village football field or main square where youngsters hang around in the early evening. The initial sample includes 592 respondents.

Data were collected in two rounds. First, we collected baseline survey data and DCE data between July and September 2013 at the start of the main export season. A structured quantitative questionnaire with modules on socio-demographic background, education, and overall wellbeing was used. A DCE on employment preferences, described in the next section, was implemented at the same time. Respondents were interviewed in person by a team of 14 enumerators recruited from Lima and the two research regions, and supervised by the first author of this article. Interviews were done in isolation to rule out the influence of peer effects on preferences. Respondents were compensated for their time with an in-kind food gift. Second, follow-up survey data were collected between February and April 2014, at the end of the main export season. The questionnaire was extended with questions on workers' actual employment in the panel period, in particular questions on employment conditions related to employment contract, employment duration, remuneration, treatment on the work-floor, and training. Respondents were contacted through the contact information provided during the first round and were interviewed again face-to-face by (largely) the same team of enumerators. From the original sample of 592 respondents, 64 dropped out in the second round and 114 did not start agro-industrial employment in the panel period[iii]. For the analysis in this paper we use balanced panel data of 414 respondents. Over the panel period, these workers were employed in 116 different companies. Additional company level information on production and processing procedures, management structure and ownership was collected from company interviews. This information covers all potential agro-industry employers in the districts under analysis. In addition, we carried out qualitative interviews and focus group discussions with agro-industry workers in the regions in April 2013 to inform the design of the research and the DCE.

4. Analytical method

Figure 2 depicts the overall research design. First, we use a DCE to evaluate stated employment preferences (SP), to explore heterogeneity in these preferences, and to estimate Willingness to Pay

(WTP) values for different employment attributes. These WTP values represent workers' willingness to accept a lower wage for a specific job attributes (or willingness to accept an inferior job attribute for a higher wage). Second, we use data from the follow-up survey to determine revealed employment preferences (RP) and possible employment options. Based on estimated WTP values, we determine the total value of the employment the worker actually accepted in between the two survey rounds, and the total value of all employment options available to the individual workers. Third, we compare revealed and stated employment preferences, by comparing the WTP values of workers' actual employment and their most preferred employment among all available employment options, and analyze the (mis)match between the two. Each of these three steps are discussed in more detail in the three subsections below.

4.1. Stated employment preferences

Choice experiment attributes

We use a DCE to assess workers' stated preferences (SP) for a specific type of employment, ex-ante to taking up employment. Respondents were asked to repeatedly evaluate a choice set of different employment scenarios, and to choose the most preferred scenario from each choice set. Employment scenarios are described by attributes and associated attribute levels that vary over the scenarios in a choice set. The selection of attributes and attribute levels was based on a review of the literature on employment conditions in agro-export sectors, on insights from previous research on employment conditions in the Peruvian horticultural export industry, and on qualitative interviews and focus group discussions with workers. Five attributes were selected: 1) contract type 2) weekly wage 3) treatment, 4) training, and 5) duration of employment – and two or three levels for each attribute (table 1).

The first attribute, contract, describes whether the worker signs a formal employment contract with the company. Although the signature of a contract does not protect workers from short time employment, it provides the workers with additional benefits in terms of annual leave, social security and rights to overtime payments. The second attribute, weekly wage, is a monetary attribute and is expressed in the local currency, *Peruvian Nuevo Soles* (Soles). We chose three different wage levels, based on the 2013/2014 Peruvian national minimum wage of 750 Soles/month and the qualitative interviews. The third and fourth attribute describe the treatment and training the worker receives from the company. During focus group discussions, workers often

reported about hostile work environments and denigration by their supervisors. At the same time considerable variation was reported on the amount and type of training workers receive; training are either only technical task-specific or also include information on health and safety practices. Both attributes take on three levels: respectively, bad, fair and good treatment, and no, basic and a lot of training. The last attribute, employment duration, describes the months the person is working in the company with three levels: 1) two months; 2) four months (the entire export season), and 3) ten months (longer than the export season). A special law in Peru allows horticultural export companies a high flexibility in temporary hiring (Schuster & Maertens, 2016). This entails that a large share of the workers in the horticultural export sector are hired on a temporary basis, with no commitment on the minimum employment duration by the company. Two months corresponds to a normal length of employment in a company for a specific crop and activity; four months corresponds to an entire export season of a specific crop; and ten months goes way beyond the typical export season and is therefore considered as being a long period. Longer employment durations and a derogation of the special laws are advocated by NGOs and worker unions to increase job security.

Choice experiment design

We use choice sets with three alternatives. Two alternatives each represent an employment, differentiated by different levels for the five attributes described above. One additional alternative represents the 'status-quo' employment, described by the following attributes: contract, wage of 190 Soles per week, fair treatment, no training and two months of employment. This corresponds to the most commonly offered employment in the study regions, as perceived by workers during focus group discussions. Given that all respondents have the intention to start agro-industry employment in the subsequent export season, this experiment set-up resembles best the reality the future workers are confronted with: once they made the decision to be employed, they can choose between the status-quo employment or two alternative employment options.

The full factorial design of unique employments that can be created from all attributes and attribute levels includes 162 possible combinations (3^4x2) of jobs that could be created for each choice option. Because this is obviously too large to be evaluated by the respondents, we used Ngene software to reduce the choice set to a manageable level, through a D-efficient design. The efficient design is based on the minimization of the correlation between attribute levels of

alternatives, as well as the minimization of standard errors of parameter estimates (Bliemer and Rose, 2009). From the full factorial, 12 choice cards were created in two blocks of 6 cards (D-error=0.05104). Every respondent was asked to choose between 6 different hypothetical employment scenarios, where each scenario was made of two changing employment options and the status-quo. We made sure that no dominant choices were included in the choice sets (see figure A1 in the appendix for an example of the choice card). Choice cards were shown in a random order to account for possible order-effect biases (Day, Bateman, Carson, Dupont, Louviere, Morimoto & Wang, 2012). We carefully implemented the choice experiment by first explaining the objective of the study, as well as the different attributes and attribute levels to the respondent. We included a 'cheap talk' script to reduce the likelihood of the response to be influenced by the interviewer or hypothetical nature of the choice experiment (Norwood & Lusk, 2011).

Econometric models

We use a multinomial mixed logit model (MXL) and a latent class model (LCM) to analyze our choice data. The models allow us to control for and explore preference heterogeneity of workers from two different angles. The MXL is a generalization of the standard multinomial logit model that allows controlling for unobserved preference heterogeneity by attaching a random component to the model attributes (Greene & Hensher, 2003). The MXL model obviates limitations of the standard logit model by allowing for unrestricted substitution patterns and correlation in unobserved factors over time (Train, 2009). The utility U associated with each employment alternative j, as evaluated by each worker i in choice situation t (where T=6), is represented as follows:

$$U_{ijt} = V_{ijt} + \varepsilon_{ijt} = \begin{cases} \beta X_{ijt} + \sigma_i X_{ijt} + \varepsilon_{ijt} & if \quad j = 1,2 \\ ASC + \beta X_{ijt} + \sigma_i X_{ijt} + \varepsilon_{ijt} & if \quad j = status - quo \end{cases}$$

where X_{ijt} is a vector of explanatory variables. β is a vector of preference parameters associated with the attributes and σ_i is a vector of individual-specific standard deviation parameters. ε_{ijt} is a stochastic error term, independent and identically distributed over individuals, alternatives and time. We use effects coding to estimate the categorical attribute levels. Additionally, an alternative specific constant (ASC) is included in the model, coded as 1 for the status-quo and as 0 for the two employment alternatives. ASC conveys the change in utility from choosing an employment that differs from the most commonly offered employment in the area (the status-quo), with a negative

coefficient pointing to preferences for a different employment. The MXL model allows to estimate workers' individual preferences by deriving the conditional distribution based on known choices (Revelt & Train, 2000). To estimate the β-coefficients the MXL module by Hole (2007) is used. We estimate individual WTP values for each attribute by dividing the conditional mean of the attribute parameter for a specific worker over the conditional mean of the wage parameter (Hensher, Greene & Rose, 2006). This ratio corresponds to the wage a worker is willing to forego in order to get specific non-monetary employment conditions.

The LCM assumes a heterogeneous population that consists of a finite number of latent classes (Greene & Hensher, 2003). Within each latent class preferences are homogeneous, but are heterogeneous across classes. LCMs are complementary to MXLs as they are able to capture preference heterogeneity in case it follows complex, multimodal distributions (Scarpa & Thiene, 2005). Because they define groups of respondents, LCMs are also better able to link preference heterogeneity to sociodemographic indicators.

4.2. Revealed employment preferences and employment options

We use the information from the follow-up survey to determine individual workers' revealed employment preferences. We look at the actual employment (AE) of each worker in between the two survey rounds and derive the attribute levels that correspond to this employment. We use the estimated attribute WTP values (see section 4.1.) to calculate individual WTP values of the actual employment (WTP AE) of each worker. In addition, we estimate individual WTP values for all employment options (EO) in the worker's feasibility set (WTP EO). We define employment in a company to be within a worker's feasibility set when at least one worker from the same region is employed in that company. This corresponds to all employers within a region and includes 73 companies in *Ica* and 43 in *La Libertad*.

4.3. Employment (mis)match

We determine the match between workers' actual employment and their most preferred employment by comparing the workers' WTP AE with the maximum WTP for all employment options within their feasibility set (max(WTP EO)). This match between workers' actual and preferred employment reflects a subjective appraisal of employment quality (Clarkberg and Moen, 2001). We further analyze this match as a function of worker and employer characteristics in the following regression framework[iv]:

$$Match_i = \alpha + \beta_1 X_i + \beta_2 C_j + \tau_D + \varepsilon_{ij}$$

where $Match_i$ is either 1/ a dummy variable equal to one if WTP AE corresponds perfectly to max(WTP EO), or alternatively 2/ the absolute difference between WTP AE and max(WTP EO). The vector X_i is a set of observable characteristics of worker i and C_j a vector of characteristics of the company j worker i is actually employed in. The latter includes the number of workers, the number of months per year the company is active, the processing plant ownership and its formal registration with the national tax authority. District dummies τ_D are included to control for localized differences in labor market conditions. ε_{ij} is the random error term. We estimate logit and tobit models for the binary and left-censored dependent variable respectively, and report Ordinary Least Square (OLS) estimates as robustness check.

5. Results

5.1. Worker, company and employment characteristics

Table 2 shows worker characteristics at baseline (in 2013) and individual employment characteristics at follow-up (in 2016). In line with the selection criteria, the average age in our sample is 19.59. Exactly 50% of workers are female and the average worker has at least completed secondary school, which corresponds to 10 years of formal education. Over two thirds of surveyed workers are not yet married, nor cohabiting. Almost half of the sample is not born in the region of residence and has migrated to the Peruvian coast. The average household size is 4.29 and in 24% of the cases, the household head is female. One fifth of the households cultivates a piece of land and households own on average 4.69 assets. Twenty-four percent of respondents have a mother working in the agro-industry and 23% a father. Respondents were asked about their employment aspirations at the age of 40: 76% states to aspire employment outside the agro-industrial sector or to run an own business. This suggests that many workers see agro-industrial employment as a temporary activity and a stepping-stone towards other forms of employment. About two thirds of respondents have jobs in the field – including activities such as chemical application and harvesting – and about one third has jobs in a processing plant – including activities in sorting, labelling and packing produce. They work on different crops, mostly asparagus and grapes.

Table 3 gives characteristics of the companies. Companies produce on average two horticultural products on four different production sites during six months of the year. They employ on average 930 workers. One third of the companies are fully vertically integrated, cultivating land and running a processing plant. Around 40% of the employers sell directly to international buyers; while the remaining 60% sell to a national intermediary. Around two thirds are formal companies registered with the national tax authority and only a minority are run by a foreign management. Two thirds of the companies are located in *Ica* and one third in *La Libertad*.

Table 4 provides information about the actual employment conditions in a specific company, derived from the follow-up worker survey. Worker responses on wage, training and employment duration were averaged within each company, and rounded down or up to the closest attribute levels used in the choice experiment. On average 45% of the companies offer a written contract. Weekly wages are closest to 220 Soles in almost 45% of the cases. On average, companies offer a 'normal' treatment; about one third of the companies offer 'bad' treatment and about one fifth 'good' treatment[v]. About half of the companies offer training, of which 28% offer at least one type of basic technical training and 21% at least two types of training (e.g. a technical and a health and safety training). Around 40% of the companies employ workers for only two months, 30% for four months and another 30% for 10 months.

5.2. Choice experiment results

The results of the MXL model are reported in table 5. Estimations are based on 7,347 observations (414 respondents times 18 choice options per respondent, with some missing responses). 'Wage' is the only fixed attribute; all other attributes are treated as random (Rabe-Hesketh & Skrondal, 2012). We report estimated means and standard deviations of the attribute coefficients. Results are consistent with expectations: workers prefer a higher wage and a written contract, value a good over a fair treatment and a fair over a bad treatment, and get a higher utility from training, as compared to no training. The most valued attribute is 'workplace treatment'. Only for 'duration of employment' there are no significant preferences. The negative (but insignificant) coefficient for the ASC signals respondents' willingness to enter into employment that is different from the most commonly offered employment. The standard deviations are highly significant, pointing to a high variability in workers' preferences.

The results of a three-class LCM model are reported in table 6a and the results of a mean comparison of socio-demographics characteristics across the three classes in table 6b. Goodness-of-fit statistics based on the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) support a model with three classes. Respondents with similar preferences are endogenously assigned to a latent class with the 'Expectation-Maximisation algorithm' (Pacifico, 2012). Respondents of class 1 (27.8 % of the sample) have a positive and significant preference for all employment attributes, as well as the ASC. These respondents are on average younger, are more likely to be single, have a higher education, are more likely to be enrolled in education, are less likely to be migrants, and own more assets than respondents in the other classes. We classify this class as 'student workers'. Respondents of class 2 (39.7% of the sample) value an employment contract and good treatment, but have a negative preference for the status-quo employment. Class 2 respondents are more likely to be male, to be older, own more land and are less likely to have a parent being employed in the agro-industry. We classify this class as 'land-holding workers'. Respondents of class 3 (32.5 % of the sample) have preferences that are in between the former two classes, as they value higher wages, contracts, training and good treatment, but dislike long employment durations. They have no strong preferences on either staying or leaving the status-quo employment options. Class 3 respondents are more likely to be migrants, less likely to be educated, and landless. We classify this class as 'migrant workers'.

5.3. Stated versus revealed preferences

The parameter estimates in table 5 are used to calculate individual WTP values for workers' actual employment (WTP AE) and the maximum WTP for all employment options (WTP EO)[vi]. Figure 3 plots the relationship between these estimates, as well as the distribution of the difference between WTP AE and max(WTP EO). The correlation coefficient of 0.71 suggests a relatively good match between the workers' WTP, i.e. willingness to forego some income, for their actual job conditions and the most preferred job conditions within their feasibility set. The absolute difference between the WTP AE and max(WTP EO) is less than 100 Soles in 89% of all cases, less than 50 Soles in 68% and less than 28 Soles in 50%; the mean difference is 48 Soles, which corresponds to approximately 25% of the average weekly wage. A perfect match is achieved in 60 out of 414 cases. The right-skewed distribution indicates that only for a very small share of the

respondents the actual employment conditions differ a lot from the feasible option they prefer most.

Table 7 shows results from OLS and logit models on the likelihood of a perfect match between the WTP AE and max(WTP EO) (model I and II), and results from OLS and tobit models on the difference between the two WTP estimates (model III and IV). Both worker and company characteristics affect the likelihood of a good match and the gap between workers' actual and preferred employment. Age and a larger number of household assets increase the workers' probability of actually entering their most preferred employment, and reduces the gap between WTP AE and max(WTP EO). For female workers and workers of female-headed households the probability of a match decreases while the gap increases. Mothers' and fathers' employment in the agro-industry have opposite signs: mothers' employment significantly decreases the likelihood of a job match and increases the difference between WTP AE and max(WTP EO) – and vice versa for fathers' employment. Against expectations, future employment aspirations do not play a role in explaining job match. Land cultivation improves workers' likelihood of a good job match. Also company characteristics determine workers' employment match. A formal company (i.e. a company registered with the national tax authority) increases the likelihood of a good match and reduces the gap. The number of workers in a company has a u-shaped effect on the likelihood of a match, with a turning point around 170 workers, and an inverse u-shaped effect on the gap. District dummies are not reported but are highly significant, indicating that there exist large variation in employment matches across locations.

6. Discussion

The results from the choice experiment suggest a large variability in workers' preferences for job attributes with both wage and non-wage attributes valued by workers. Written contracts, and good treatment are shown to increase workers' utility. Wage, job security and training are valued differently by 'student workers', 'land-holding workers', and 'migrant workers'. 'Student workers', who are younger and more enrolled in education, value all wage and non-wage job attributes most (as compared to 'land-holding' and 'migrant' workers) and draw a positive utility from the status-quo employment. 'Land-holding workers' draw a negative utility from the status-quo, and 'migrant workers' negatively value long employment durations. This might relate to 'land-holding' workers observing and experiencing employment conditions on their family land

that differ from the most common employment in larger agro-industrial companies. 'Migrant workers' are likely less familiar with the status-quo employment and thus place no specific value on this option while their temporary condition leads them to prefer shorter employment periods.

Our results corroborate findings in the literature on heterogeneity in workers' employment preferences. They imply that an employment with certain characteristics can represent a preferred job for one worker while being considered an inferior option by another worker. The observed heterogeneity in preferences and the explicit preference for 'good workplace treatment' highlight the importance to assess employment conditions from a worker perspective. Our findings are in line with Van den Broeck et al. (2016), who find that workers in the Senegalese horticultural export sector value health care, training and transport service in addition to wage benefits, and point to preference heterogeneity that is correlated with workers' empowerment status. Our finding that some agro-industry workers in Peru attach a negative value to job security is in line with the findings of Van den Broeck et al. (2016) in Senegal but contradict the findings of Staelens et al. (2016) in Ethiopia. This finding is surprising, given that the lack of job security and short employment durations are very often mentioned as important employment quality concerns in agro-industry sectors, in Peru and elsewhere. This implies that the focus on employment security in the Decent Work Agenda is not completely in line with workers' own perspective on decent employment conditions. Yet, results need be interpreted in light of the young cohort of respondents with still little work experience as preferences for job security might increase with age and experience. All other findings on the preferences of agro-industry workers in Peru are in line with the focus in the Decent Work Agenda, which validates the use of objective concepts and measurable indicators of worker wellbeing in research on employment conditions in agro-export chains (e.g. Ehlert et al., 2014; Krumbiegel et al. 2018, Schuster & Maertens, 2016; Van den Broeck et al., 2017).

The results from the comparison of stated and revealed employment preferences indicate that the hypothetical choices of future workers are close to their true future employment choices. We interpret this as evidence for a common underlying choice pattern in the SP and RP data. This suggests that workers in our sample often have the job they want, and that hence imperfections in the labor market might be small[vii]. Relatively small labor market imperfections could be due to information exchange within the villages of residence of the workers, and the seasonal nature of the employment. Most residents in the studied villages are employed in the agro-industry and often

shift between companies from one export season to the other. This implies a good knowledge about the sector and the employment offered by companies, which can be exchanged between workers informally. Such informal information exchange has been documented to be one of the most common mechanisms to search for jobs in developing countries (Banerji, Cunningham, Fiszbein, King, Patrinos, Robalino & Peng Tan, 2010; Heath, 2018). Job referrals from fellow workers likely reduce search costs of young Peruvian agro-industry workers, and improves effective targeting of employers that best match with workers' individual preferences. In addition, the likelihood of being hired by the targeted employer is very high at the start of the main export season due to the high demand for low-skilled labor in this period of the year.

Yet, the good match we find between SP and RP needs to be understood in light of the design of the study. The sample of workers and the choice experiment design are restricted to one specific sector of employment. The observed SP of workers cover feasible employment options within the agro-industry, which contributes to explaining the good match. In addition, the choice experiment was conducted right before entering actual employment. On the one hand, this decreases the likelihood that preferences have changed in between observing SP and RP, again contributing to explaining a good match. On the other hand, this increases the likelihood that respondents' SP were influenced by their future employment, or that their employment expectations are adapted to the existing labor market conditions. Hence, we cannot rule out that the good match between SP and RP also points to workers preferring the job they can get, in addition to workers entering the job they prefer.

The comparison between the most preferred and the actual employment reveals that, despite the relatively good employment match, matches vary with worker and job characteristics. First, older and male workers are more likely to be close to their preferred job, while workers from more vulnerable households, with a lower number of assets and a female head, are less likely to be so. This can be due to less realistic employment expectation among poor, young and female workers (as also shown by results from the latent class analysis), affecting their stated preferences, or due to difficulties these workers face in entering a job of their preference (e.g. because of constraints related to access to information or search costs), affecting their actual employment or revealed preferences – or a combination of both. With our method, we cannot disentangle these two effects. Our results are in line with previous studies showing that gender and household wealth matter for

employment matches (e.g. Beam, 2016; Franklin, 2015; Reynolds, 2003; Reynolds & Aletraris, 2006; Van Echtelt, et al., 2006).

Second, we find that workers' employment match is influenced by their parents' employment, with mothers' agroindustry employment reducing the chance for a good employment match and fathers' employment increasing this chance. Parents' employment likely influences employment expectations and workers' stated preferences, with results implying that especially fathers' employment may result in more realistic employment expectations among young people. Parents' employment may also affect the chance of finding a good job that matches workers' preferences, with again only fathers' network fulfilling this role. The negative effect of mothers' employment might result from children not choosing their employer but following their mother's employment, which does not necessarily correspond to their ideal choice. Our results are in line with the literature on the prevalence of job referrals in developing countries, predicting that they reduce search costs, but do not necessarily lead to efficient job matching outcomes (e.g. Beaman & Magruder, 2012; Heath, 2018).

Third, medium-sized and formal companies are better able to match workers' preferences. Our results imply that, from a worker satisfaction perspective, the ideal company size is around 150 workers. The likelihood for workers to find a preferred job increases with the size of the company as larger companies hire more workers, but a too large company size increases the likelihood to find a job in that company due to job availability rather than individual preferences. In addition, formal and more stable companies may be better able to inform workers about employment conditions, who in turn can select the company according to their individual preferences.

Our data and approach entail some specific shortcomings. As mentioned above, the sample of young workers and the study design are restricted to one specific sector of employment and to an employment period of six months. This implies that we are not able to draw more general conclusions on all young workers but only on workers targeting the agro-industry as future employer, and that we are unable to assess if employment matches are long-lasting or change over time as employees gain more experience. We see this as a challenge to address in future research. In addition, to assess available employment options we rely on extrapolated information from the worker survey rather than on company-level data. This mathematically increases the likelihood of

a perfect match and might introduce some error related to recall or personal bias. Given the relatively large sample size, we deem these issues to be rather minor.

7. Conclusion

In this article we examine workers' employment preferences and employment (mis)matches in the Peruvian agro-export sector. We use a discrete choice experiment, in which we relate stated and revealed employment preferences on wage and non-wage attributes. We analyze how worker and employer characteristics affect employment (mis)matches in a multivariate regression framework. Employment preferences are found to be heterogeneous but largely in line with expectations, apart from low and even negative preferences for longer employment duration. We can conclude that workers' own perspective on decent employment largely overlaps with the common understanding of the decent work concept in ILO and the international community. We find that 14% of potential workers are able to actually enter their most preferred employment, which points to rather low labor market frictions in the Peruvian horticultural export regions. Yet, female workers and workers from poorer and more vulnerable households have more difficulties in realizing their employment preferences, which can be due to unrealistic expectations as well as to failure to enter the most preferred jobs.

Our results entail some important insights and implications for agro-industrial companies and policy-makers. We show that employment preferences differ significantly and that there is no type of employment that is considered superior by all workers. Non-monetary job characteristics as well as possibilities to offer worker-specific contracts should be taken into account by employers when designing labor contracts. Large retailers in industrialized countries often play an influential role in structuring horticultural export chains from developing countries and in demanding compliance with stringent private standards on labor (and other) issues (Beghin, Maertens & Swinnen, 2015). The compliance with buyer requirements in labor-intensive agricultural export industries heavily relies on an effective and reliable workforce. Meeting worker preferences and achieving a higher worker satisfaction is an important element in designing labor requirements in private standards and for companies' compliance to international demands.

From the perspective of development agencies, NGOs and governments in developing countries concerned with employment quality in export sectors, our findings call for better targeted employment services. To address problems of poor information and unreasonable employment

expectations, governments in developed and developing countries already seek to provide intermediation between workers and employers, and provide counseling to help individuals find better jobs. Our results suggest that younger and female workers, and workers from more vulnerable households (i.e. with less assets and with a female household head) are systematically less able to match their employment preferences. Employment services that specifically target female and more vulnerable workers would likely reduce theses mismatches and a have a positive repercussion on workers' job satisfaction. Finally, our results illustrate that employment matches are more likely in medium sized and formal companies. This calls for increasing investments in further formalizing horticultural export value chains, as well as for export promotion programs targeting medium sized companies.

While this research is limited to the horticultural export agro-industry in Peru, the sector is emblematic for the rapid expansion of high-value export sectors and associated expansion of low-skilled employment in these sectors in the developing world. Concerns exist worldwide about the quality of this employment, especially because a large share of hired workers are women and belong to the poorest part of the population (Colen et al., 2012; Maertens & Swinnen, 2012). It is likely that preference heterogeneity among workers and difficulties of the most vulnerable workers to find a good employment match are not limited to the Peruvian agro-industry context.

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Figures

Figure 1: Map of the survey regions and districts

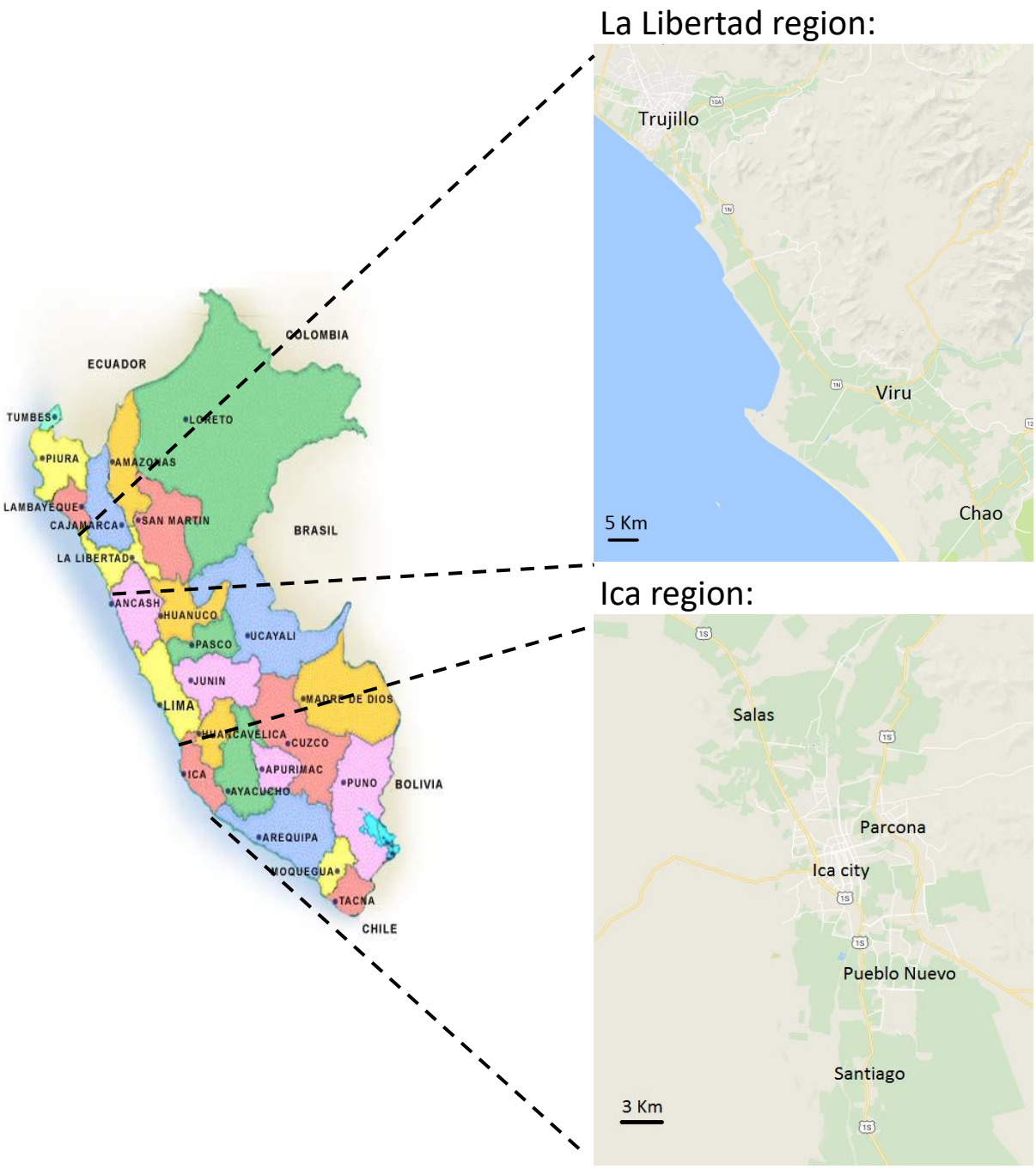


Figure 2: Research design and timeline

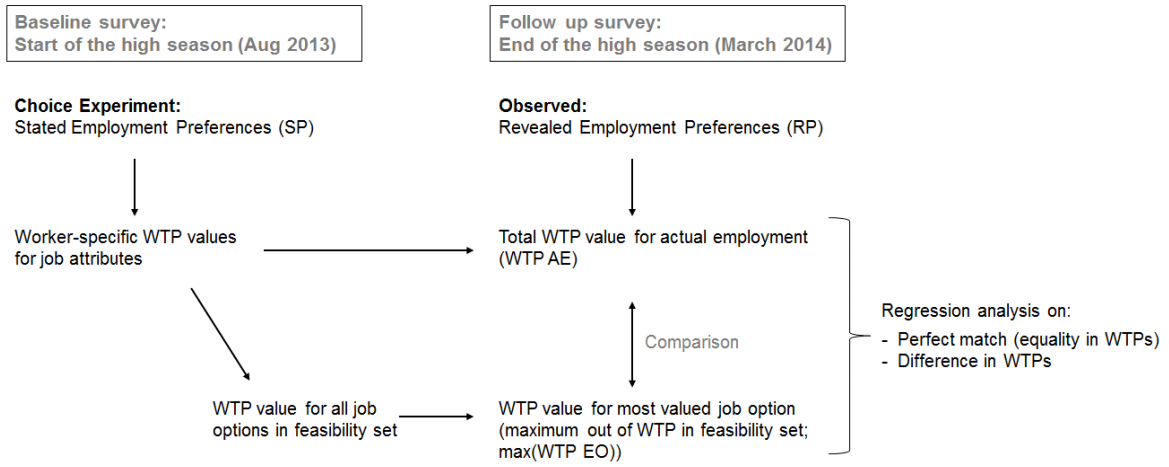
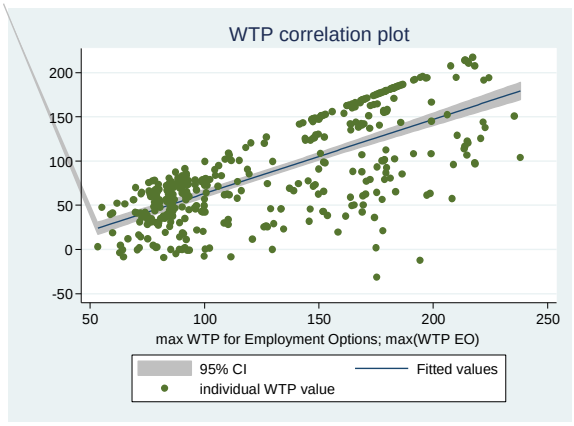
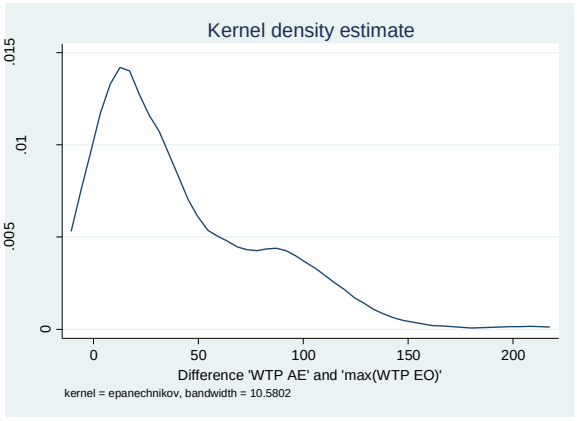


Figure 3: Relationship between WTP for actual employment (WTP AE) and maximum WTP for possible employment option (WTP EO) within the feasibility set





Tables

Table 1: Overview of attributes and levels

Attribute	Attribute levels
Contract	Written contract; No written contract
Wage	190 Soles/ week; 210 Soles/ week; 220 Soles/ week
Treatment	Poor; Fair; Good
Training	No training; Some training; A lot of training
Employment duration	2 months; 4 months; 10 months

Table 2: Worker and employment characteristics

	Mean (Std dev)	
Worker characteristics (baseline survey)		
Age	19.59	(1.78)
Female (=1 if female)	50%	
Education (0 - 17 years)	9.90	(2.36)
Currently enrolled in education	27%	
Single (versus cohabiting or married)	77%	
Migration (=1 if not born in region)	47%	
Female household head	24%	
Household size	4.29	(2.54)
Land (=1 if household cultivates land)	21%	
Number of assets of the household[(a)]	4.69	(2.21)
Mother in agroindustry	24%	
Father in agroindustry	23%	
Non-agroind employm at age 40	76%	
Employment characteristics (follow-up survey)		
Field work (vs processing plant)	71%	
Number of crops	1.41	(0.72)
Crop		
Asparagus	45%	
Grapes	23%	
Number of workers	414	

Standard deviation in parenthesis for continuous variables (a) Count variable for household assets: fixed telephone, mobile phone, TV, microwave, sofa, fridge, radio, computer, radio, motorbike, car, bicycle

Table 3: Company characteristics

	Mean (Std dev)	
Horticulture export company in 2013/ 2014	40%	
Number products produced/ exported in 2013	1.88	(1.93)
Number of production sites	4.26	(6.74)
Number of months active	6.08	(3.41)
Number of workers in Dec 2013	930	(247)
Owning field and plant	33%	
Owning field only	58%	
Owning plant only	9%	
Formal company ((=1 if registered with tax authority)	61%	
Foreign manager	8.70%	
Ica region	63%	
Number of companies	115	

Standard deviation in parenthesis for continuous variables

Table 4: Actual employment conditions (corresponding to DCE attributes)

	Mean (std dev)	Categories, corresponding to choice experiment attributes	
Contract dummy	0.44		44.35%
Weekly wage (Soles)	210 (47.80)	190 Soles	34.78%
		210 Soles	20.87%
		220 Soles	44.35%
Treatment (evaluation from 0-2)	0.82 (0.73)	Bad	37.39%
		Normal	43.48%
		Good	19.13%
Training (number of trainings)	0.74 (0.91)	No	52.17%
		Basic	26.96%
		A lot	20.87%
Duration (months)	2.91 (1.77)	2 months	42.61%
		4 months	28.70%
		10 months	28.70%

The average employment conditions in companies are derived from the worker follow-up survey. The wage, duration and training variable are transformed from continuous variables to categorical variables to fit the choice experiment categories.

Table 5: Mixed logit estimates for stated preference data, full sample

Mean	**Coefficient**		**se**
Weekly wage	0.021	***	(0.005)
Contract	0.606	***	(0.055)
Duration '4 months'	0.029		(0.089)
Duration '10 months'	-0.038		(0.077)
Treatment 'normal'	1.012	***	(0.075)
Treatment 'good'	1.384	***	(0.081)
Training 'basic'	0.456	***	(0.079)
Training 'a lot'	0.443	***	(0.081)
ASC	-0.255		(0.169)
Standard Deviation			
Contract	0.572	***	(0.064)
Duration '4 months'	0.542	***	(0.133)
Duration '10 months'	-0.276	**	(0.107)
Treatment 'normal'	0.138		(0.128)
Treatment 'good'	-0.386	***	(0.076)
Training 'basic'	0.264	***	(0.090)
Training 'a lot'	0.360	***	(0.080)
ASC	0.311	***	(0.080)
No. of Obs.	7347		
No. of respondents	414		
Log-likelihood at convergence	-1975.31		

Significant coefficient estimates are indicated with * p<0.1, ** p<0.05 or *** p<0.01. ASC = Alternative Specific Constant; 1= Status-quo employment is chosen; =0 Non-status quo is chosen.

Table 6a: Latent class estimates for stated preference data, full sample

	Class 1		Class 2		Class 3	
Weekly wage	0.700	***	0.010		0.027	*
	(0.031)		(0.008)		(0.015)	
Contract	14.017	***	0.198	***	0.762	***
	(0.187)		(0.062)		(0.131)	
Duration '4 months'	8.469	***	-0.024		-0.362	**
	(0.567)		(0.136)		(0.161)	
Duration '10 months'	16.886	***	-0.035		-0.108	
	(0.424)		(0.115)		(0.180)	
Treatment 'fair'	13.931	***	0.521	***	1.248	***
	(0.347)		(0.112)		(0.220)	
Treatment 'good'	33.583	***	0.569	***	1.504	***
	(0.857)		(0.101)		(0.240)	
Training 'basic'	12.744	***	0.169		0.409	**
	(0.322)		(0.121)		(0.194)	
Training 'a lot'	22.286	***	0.192		0.428	**
	(0.579)		(0.120)		(0.179)	
ASC	16.229	***	-0.749	***	0.134	
	(0.871)		(0.261)		(0.405)	
Class Probability	27.80%		39.70%		32.50%	

Note: Significant coefficient estimates are indicated with * p<0.1, ** p<0.05 or *** p<0.01. ASC = Alternative Specific Constant (1= employment choice that is similar to most common employment; =0 employment choice that is different from most common employment)

Table 6b: Socio-economic characteristics of workers, by latent classes

	Class 1	Class 2	Class 3	1 vs 2	1 vs 3	2 vs 3
Female (vs male)	0.53	0.46	0.52	***	ns	**
Age	19.40	19.75	19.61	***	***	**
Migration (vs non migrant)	0.40	0.50	0.50	***	***	ns
Education (0 - 17 years)	10.30	9.8	9.62	***	***	**
Enrolled in education	0.32	0.21	0.29	***	**	ns
Land (=1 if HH cultivates land)	0.20	0.24	0.19	***	*	***
Single (vs cohabit. or married)	0.85	0.74	0.72	***	***	ns
Female headed HH (vs male)	0.23	0.23	0.25	ns	ns	ns
Household size	4.53	4.19	4.17	***	***	ns
Number of HH assets (1-13)	4.95	4.30	4.86	***	ns	***
Mother employed in agro-ind.	0.29	0.18	0.25	***	***	***
Father employed in agro-ind.	0.23	0.21	0.26	**	**	***
Work aspiration at age 40: non	0.73	0.77	0.79	***	***	*
Ica region (versus La Libertad)	0.52	0.48	0.49	**	**	ns
N	139	145	129			

Significant coefficient estimates are indicated with * p<0.1, ** p<0.05 or *** p<0.01. Test for differences in means: Class 1 versus the comparison groups Class2, Class3; Class 2 versus Class 1, Class 3; Class 3 versus Class 1, Class 2

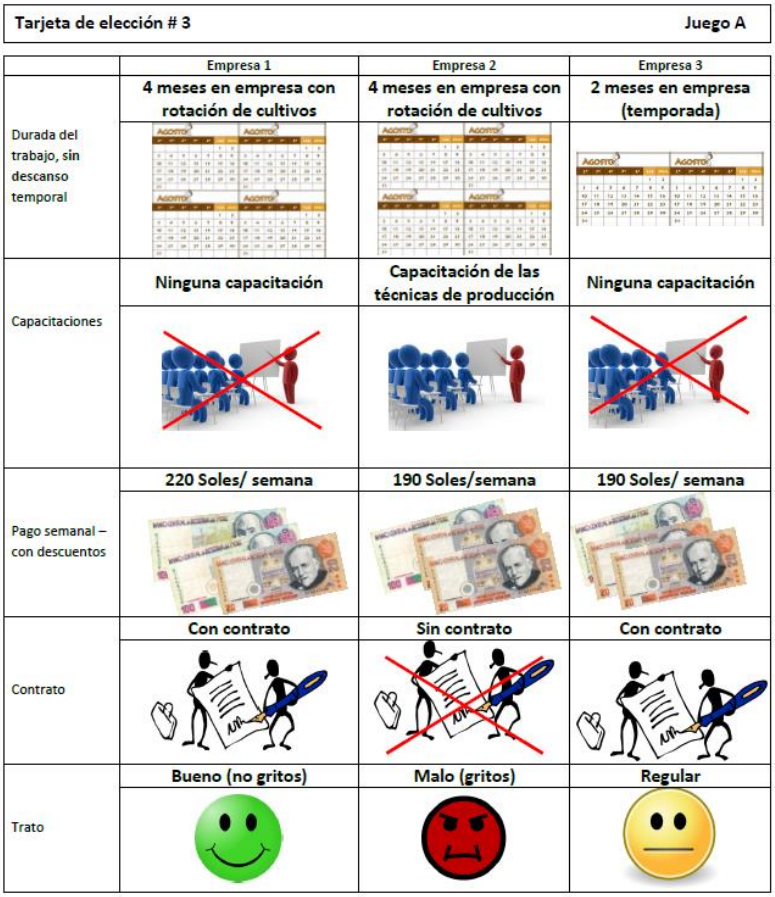
Table 7: Regressions on the match between revealed preferences (WTP AE) and stated preferences (max WTP EO)

	Dep Var=1 if perfect match between 'WTP AE' and 'max(WTP EO)'		Dep Var: difference between 'WTP AE' and 'max(WTP EO)'	
	(I)	(II)	(III)	(IV)
	OLS	Logit	OLS	Tobit
Female (vs male)	-0.068**	-0.080**	5.486*	7.078**
	(0.031)	(0.034)	(2.991)	(3.305)
Age	0.185	0.246	-21.967*	-26.531*
	(0.159)	(0.200)	(11.758)	(13.977)
Age2	-0.005	-0.006	0.516*	0.636*
	(0.004)	(0.005)	(0.288)	(0.348)
Migration (vs non migrant)	0.062*	0.072**	-4.35	-6.045*
	(0.037)	(0.036)	(2.962)	(3.430)
Education (0 - 17 years)	-0.004	-0.004	0.455	0.682
	(0.007)	(0.006)	(0.662)	(0.744)
Enrolled in education	0.010	0.027	-3.498	-3.367
	(0.042)	(0.043)	(3.875)	(4.272)
Land (=1 if HH cultivates land)	-0.006	-0.01	-6.766*	-6.911*
	(0.038)	(0.038)	(3.942)	(4.199)
Single (vs cohabitant or married)	-0.029	-0.015	1.885	2.812
	(0.041)	(0.042)	(3.406)	(3.923)
Female headed HH (vs male head)	-0.019	-0.009	7.383**	8.149**
	(0.033)	(0.047)	(3.627)	(3.812)
Household size	0.008	0.009*	-0.407	-0.581
	(0.007)	(0.005)	(0.661)	(0.776)
Number of HH assets (1-13)	0.015*	0.015**	-1.432**	-1.966***
	(0.009)	(0.008)	(0.623)	(0.751)
Mother employed in agroindustry	-0.051	-0.078*	7.405**	8.380**
	(0.035)	(0.041)	(3.678)	(3.979)
Father employed in agroindustry	0.065*	0.069*	-8.527**	-10.721***
	(0.036)	(0.041)	(3.440)	(3.865)
Work aspiration at age 40: employment in non-agroindustry job (versus agrobusiness job)	0.035	0.043	0.159	-0.916
	(0.037)	(0.036)	(3.654)	(3.960)
Number of workers in 2013 (in 10 workers)	0.077***	0.076***	-11.879**	-13.970***
	(0.015)	(0.012)	(1.356)	(1.581)
Number of workers in 2013 ^2	-0.004***	-0.004***	0.715***	0.831***
	(0.001)	(0.001)	(0.075)	(0.087)
Company own a processing plant (versus only	-0.007	-0.009	-0.918	-0.737
	(0.006)	(0.016)	(0.700)	(0.716)
Number of months actively producing	-0.072	-0.103	3.296	5.2
	(0.047)	(0.139)	(6.505)	(6.605)
Formal company (=1 if registered with tax	0.051*	0	-12.035*	-12.848*
	(0.030)	.	(6.724)	(6.636)
Constant	-38.503		296.102*	
	(25.055)		(117.777)	
District FE	yes	yes	yes	yes
R2 / Pseudo-R2	0.35	0.39	0.54	0.08
No. of Obs.	410	410	410	410

Average marginal effects are reported for the logit and tobit models; Robust standard errors clustered at the village level in parenthesis; Significant coefficient estimates are indicated with * p<0.1, ** p<0.05 or *** p<0.01; (a) in 10 workers; 'Formal company' predicts failure perfectly in model II

Appendix

Figure A1: Example of a choice card, as shown to respondents



Tarjeta de elección= choice card.
Durada del trabajo, sin descanso temporal = work duration, without temporary breaks. *4 meses en empresa con rotacion de cultivos* = 4 months in the company with crop rotation; *2 meses en empresa (temporada)* = 2 months in the company (season);
Capacitaciones = training. *Ninguna capacitacion*= no training; *Capacitacion de las tecnicas productivas* = training on production techniques;
Pago seminal, con descuentos = weekly wage, with 'discounts', i.e. wage from which the workers' contribution for their benefits are deducted (e.g. their food, schooling of their children etc).
Contrato = contract. *Con contracto* = with contract; *sin contrato*= without contract
Trato = treatment. *Bueno (no gritos)* = good (no yelling); *bad (gritos)*= bad (with yelling); regular = fair

Table A1: Individual WTP values, by region

Region of Ica

Variable	Obs	Mean	Std.Dev.	Min	Max
WTPind contract	3,639	17.42	10.06	-7.275	40.07
WTPind Duration4m	3,639	-0.998	6.192	-17.78	15.36
WTPind Duration10m	3,639	-0.0916	2.169	-6.099	7.464
WTPind TreatmentFair	3,639	30.97	1.968	24.36	36.37
WTPind TreatmentGood	3,639	44.92	6.110	27.94	60.04
WTPind TrainingBasic	3,639	19.23	4.554	5.612	36.26
WTPind TrainingAlot	3,639	18.52	4.750	5.653	30.33
WTPind ASC	3,639	-0.612	6.594	-12.97	19.84

Region of La Libertad

Variable	Obs	Mean	Std.Dev.	Min	Max
WTPind contract	3,735	51.50	29.96	-35.04	108.8
WTPind Duration4m	3,735	4.958	21.78	-50.31	60.72
WTPind Duration10m	3,735	-3.352	14.39	-31.70	47.00
WTPind TreatmentFair	3,735	80.52	9.419	52.17	115.7
WTPind TreatmentGood	3,735	107.7	4.548	96.32	118.3
WTPind TrainingBasic	3,735	27.87	2.931	20.00	36.62
WTPind TrainingAlot	3,735	24.66	25.77	-51.39	89.67
WTPind ASC	3,735	-31.38	3.565	-39.45	-11.28

Table A2: Distance between actual employment and individual WTP values, by attribute

Variable	Obs	Mean	Std. Dev.	Min	Max
DiffSPRP_contract	414	6.23	17.00	-3.74	98.39
DiffSPRP_Duration4m	414	2.20	15.65	-50.31	60.72
DiffSPRP_Duration10m	414	-0.42	4.39	-30.76	30.91
DiffSPRP_TreatmentFair	414	20.24	31.01	0.00	98.74
DiffSPRP_TreatementGood	414	72.25	36.50	0.00	118.28
DiffSPRP_TrainingBasic	414	13.47	12.59	0.00	36.62
DiffSPRP_TrainingAlot	414	12.76	17.06	-51.39	81.29

[i] We use a choice experiment to analyze workers' preferences. Older studies on employment choices, have used a 'direct estimate methods' by asking workers to rank attributes (see Bartol & Manhardt, 1979; Wiersma, 1990) or a 'policy-capturing method' by providing suitability judgments based on attribute description (see Einhorn, 1971; Zedeck, 1977). Both methods have been criticized for excessive subjectivity, participants fatigue, and inconsistency of results across studies (Slaughter, Richard & Martin, 2006).

[ii] We have carried out previous research on private standards, employment conditions, worker empowerment, sourcing strategies and export performance in the Peruvian horticultural export sector. In light of this, we have implemented multiple rounds of interviews with companies, workers and stakeholders in the sector since 2010. The first author of this paper has written a PhD dissertation on various aspects of the horticultural export sector in Peru.

[iii] Attrition is 11% and is due to migration of respondents and incorrect contact information. Mean comparison tests do not reveal differences in observable characteristics between re-surveyed and dropout respondents. Reasons of the 114 respondents to not enter employment are: no serious intention to start employment (27%), pregnancy (14%), under age 18 (16%), illness (19%), found other work (9%) or studying (15%). Reasons are largely exogenous to employment conditions and ex-ante employment preferences of these respondents (results not reported) are similar to those of the other respondents.

[iv] We follow a similar approach as Reynolds (2003). In a multivariate regression framework, they identify the socio-economic and job determinants for the gap between workers' actual and ideal working hours. Our choice experiment set-up allows us to take into account more than one employment attribute. Individual, instead of average, WTPs account for personal characteristics in shaping work preferences.

[v] Respondents were asked to rate how employers treat them on a scale from 1 to 5: if within company average values range between 1 and 2.49 the company was classified as 'bad treatment'; between 2.5 and 3.49 as 'fair treatment'; and above 3.5 as 'good treatment'.

[vi] Individual WTP values by region are reported in table A1 of the appendix.

[vii] In table A2 of the appendix we report distances between WTP values in the preferred versus the actual employment, separately for each employment attribute. The positive values reveal that on average workers' too high expectations are not fulfilled (i.e. respondents are willing to give up some salary to receive the attribute level of the preferred employment).