Promoting written employment contracts: evidence from a randomised awareness campaign

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Abstract

Written employment contracts may improve the conditions of agricultural workers in developing countries, but farmers as employers often prefer less formal oral arrangements. We evaluate whether farmers' preferences, which are deeply rooted in traditional norms, can be influenced through a group awareness campaign. In a randomised experiment in Côte d'Ivoire, we show that such a campaign increases farmers' preferences for written contracts and for contract features involving social benefits for workers. The campaign also increases farmers' likelihood to initiate concrete steps towards signing a contract with their workers. We conclude that group-based interventions can change farmers' traditional views about employment relations.

Keywords: RCT, Côte d'Ivoire, farm workers, cacao

JEL classification: Q01, O13, O17, J43

1. Introduction

In developing countries, agriculture is typically the most important source of income and employment for the rural poor. A large body of literature focuses on smallholder farmers and the question how their situation can be improved. Much less focus is on farm workers, even though they also constitute a sizeable group, often belonging to the poorest of the poor (Christiaensen, Rutledge and Taylor, 2020; Meemken *et al.*, 2019). Many farm workers face

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precarious employment conditions, such as low wages, risky working environments and lack of social protection (Gansemans and D'Haese, 2020; Moyce and Schenker, 2018). Hence, one important question is how the employment conditions of farm workers can be improved.

Many farm workers are employed in the traditional small farm sector, where relational labour contracts prevail (Michler and Wu, 2020a). Relational contracts are informal agreements that often work well in stable environments characterised by mutual trust. However, in more dynamic situations, relational contracts can easily lead to conflict, unfair outcomes and break-up of relationships, simply because many important details are not clearly specified. In such situations, more formalised written contracts that clearly specify farmers' and workers' rights and obligations could improve the quality and stability of the relationship (Lavigne Delville, 2002). In principle, both parties may benefit from written contracts: workers may benefit from more clearly defined terms of payment, job security and social assistance, whereas farmers may benefit from higher worker motivation and lower fluctuation (Baland, Dreze and Leruth, 1999; Mahmud *et al.*, 2020).

Nevertheless, in many situations, farmers are hesitant to switch to written employment contracts, likely due to several reasons. First, the direct benefits for workers are probably more obvious than the indirect benefits for farmers, especially when the supply of labour is not particularly scarce. Second, existing informal contracts are deeply rooted in traditional social norms, which individual farmers are reluctant to break (Khurana, 2020). Third, farmers may not know exactly how to set up a written contract and may shy away from the high initial transactions costs, especially when formal institutions are not well developed (Dixit, 2011; Michler and Wu, 2020b). Here, we use a randomised controlled trial (RCT) to analyse whether farmers' hesitation to switch to written employment contracts can be reduced or overcome through a group-based awareness campaign that addresses information constraints and facilitates the exchange of ideas and experiences in local communities.

Recently, formal contracts have gained in importance in the developing-country small farm sector, but most of these contracts are production or marketing contracts between farmers and agribusiness companies (Bellemare, 2018; Ruml and Qaim, 2020). Various studies analysed farmers' preferences for such agribusiness contracts (Abebe *et al.*, 2013; Fischer and Wollni, 2018; Meemken, Veettil and Qaim, 2017; Ochieng, Veettil and Qaim, 2017; Van den Broeck *et al.*, 2017). There are also a few studies that examined employment contracts between agribusiness companies and workers, as well as workers' preferences for different features of such employment contracts (Schuster and Maertens, 2017; Schuster, Vranken and Maertens, 2020; Van den Broeck, Van Hoyweghen and Maertens, 2016). We are not aware of previous works that analysed farmers' preferences for employment contracts with their farm workers. Hence, our work contributes to the research direction and may help to better understand how constraints towards more formal work relationships between farmers and farm workers in traditional settings can be overcome.

Our experimental study focuses on cacao farmers in Côte d'Ivoire. The cacao sector is an interesting example, because cacao is a labour-intensive crop for which many farm workers are employed under relational contracts (Colin, 2017; Meemken *et al.*, 2019). Written employment contracts exist but are still rare. Recent survey data collected among farm workers in Côte d'Ivoire show that those with written contracts tend to have higher levels of work satisfaction (Meemken *et al.*, 2019). This suggests that written contracts are desirable from the workers' point of view. However, it is unclear whether farmers are also open and willing to adopt written employment contracts, especially because such contracts are still uncommon in the local context and not in line with prevailing social norms.

The treatment in our RCT is an awareness campaign for farmers that we designed and implemented in cooperation with World Agroforestry (ICRAF) and other local partners. The awareness campaign involved group workshops with randomly selected farmers. During these workshops, participating farmers were sensitised about employment issues, discussed potential benefits of written contracts, got familiar with different contract features and learned about the procedure of signing a contract in the local setting. The campaign and the procedure were facilitated by local lead farmers and cooperatives. The group discussions were considered particularly important so that farmers did not get the feeling of challenging social norms individually. Four weeks after the group workshops, we conducted a survey and a choice experiment with treatment and control farmers. The choice experiment helps to evaluate treatment effects on farmers' general attitudes towards written contracts and specific contract features. The survey data are used to evaluate effects of the campaign on farmers' actual contract adoption or the initiation of concrete procedural steps in this direction.

The rest of this article is organised as follows: in Section 2, we provide some background on the cacao sector in Côte d'Ivoire and existing contractual arrangements. A qualitative pilot study, which we conducted prior to the experiment, and the RCT itself are described in Section 3. The survey data and the estimation strategies are explained in Sections 4 and 5, and the results are presented and discussed in Section 6. Section 7 concludes.

2. Background

Cacao is the backbone of Côte d'Ivoire's economy, with 800,000 farmers growing this crop (Pye-Smith, Kouame and Toledano, 2016). Cacao is a labour-intensive crop, so—beyond the farmers themselves—many farm workers also depend on this crop for their livelihoods. Most farm workers are employed informally without a written contract (Colin, 2017). In a recent study, Meemken *et al.* (2019) showed that cacao workers are not only much poorer than farmers on average, but are also in a weaker bargaining position due to low educational levels and few alternative employment opportunities. Many of the workers are migrants from neighbouring countries who come to work in Côte d'Ivoire's cacao sector, mostly on a long-term basis.

While finding workers is generally not an issue for cacao farmers, attracting and keeping reliable and highly motivated workers has recently become more challenging, especially in the traditional cacao-growing areas in the eastern and southeastern parts of Côte d'Ivoire. In these areas, cacao yields are declining due to pests, diseases and ageing plantations (Ruf, 2015). Therefore, workers sometimes prefer moving to the western parts of the country, where new cacao plantations were established more recently. Given these dynamics, written contracts—with clearly specified obligations, rights and benefits—could improve the situation for both farmers and workers.

Written employment contracts for workers in cacao farms exist in Côte d'Ivoire, but are not yet widely used. A common traditional institution is the aboussant arrangement, which is a relational contract between farmers and workers (Colin, 2017; Meemken *et al.*, 2019). In this arrangement, farm workers ('aboussants') offer their labour to farmers, but instead of a fixed wage they receive one-third of the production value of the harvested cacao. Unlike in typical sharecropping arrangements, the farmer remains in charge of most management decisions, including the purchase of inputs and the sale of the cacao harvested (Colin, 2017; Sellare, Meemken and Qaim, 2020a).

While written contracts are not (yet) common between cacao farmers and their aboussants, modern contracts have recently gained in importance in agricultural land and product markets in West Africa (Colin, 2013; Ruml and Qaim, 2020; Lavigne Delville, 2002). In Côte d'Ivoire, in particular, written land contracts were described as an institutional innovation that could reduce uncertainty for all parties involved (Lavigne Delville, 2002). While land contracts issued at the local level are not always fully enforced by higher-level authorities, they are seen as a necessary response to rapidly changing agricultural conditions and as an important milestone towards more formalised transactions also involving partners from outside the local community (Lavigne Delville, 2002). Similar arguments will likely apply to written employment contracts as well, even though the literature on formal agricultural employment contracts in West Africa is thin.

3. Randomised experiment

We carried out an RCT with cacao farmers in the southeastern parts of Côte d'Ivoire to evaluate whether an awareness campaign about written employment contracts can influence farmers' preferences for contracts and their willingness to sign a contract with their workers. In this section, we describe the RCT and a qualitative pilot study that helped to design the intervention.

3.1. Pilot study

Prior to implementing any RCT, it is useful to assess the feasibility and usefulness of the planned intervention in the local context with qualitative research approaches (O'Cathain, 2018). We did so by conducting a set of qualitative interviews in the research area in December 2018. We held six focus group discussions (FGDs) with cacao farmers and one FGD with farm

workers (aboussants), to learn more about employment relationships and potential problems. During these FGDs, we also discussed perceived advantages/disadvantages of written contracts in comparison to the more common oral aboussant arrangements. None of the farmers and workers in these FGDs were later included in the RCT.

In addition, we conducted individual interviews with different stakeholders in the cacao value chain (farmers, workers, cooperative leaders and extension agents) to learn more about local attitudes towards written employment contracts, suitable contract features and how oral and written contracts are currently developed and enforced. An overview of all FGDs and interviews is provided in the Appendix (Part B in supplementary data at ERAE online). The main lessons learned are summarised as follows.

3.1.1. Stakeholder attitudes towards written contracts

The FGDs revealed that workers are particularly interested in written employment contracts, as these could help avoid frequent misunderstandings. In particular, workers mentioned uncertainty about their concrete duties during the different seasons of the year, about bonus and prepayment options and about coverage of health expenses after work-related injuries. Cooperative leaders and extension officers had mostly positive attitudes towards written contracts as well.

Among farmers, attitudes towards written employment contracts were more mixed. At the beginning of the FGDs, farmers typically praised the traditional oral agreements and explained why written contracts were unnecessary. Farmers were also concerned that written contracts would only benefit workers in terms of additional social benefits but not themselves. However, after some more group discussion, farmers gradually identified certain problems with their workers and acknowledged that these problems could potentially be reduced through more explicit written contracts. Problems mentioned were often related to concrete duties of the workers and false expectations. Moreover, farmers mentioned that recruiting good and reliable workers had recently become more difficult with declining cacao yields.

The FGDs also revealed that most farmers were not aware of who of their colleagues actually had a written contract with their workers and what exactly was included in existing contracts. Evidently, farmers do not exchange information about their contracts, possibly because written contracts are considered as violating traditional social norms. Such lack of communication does not only complicate information access for the individuals but can also slow down the updating of collective beliefs.

When the FGDs turned to preferred contract features, farmers and workers mentioned that they would find it useful to specify the following details in writing: payment modalities (including bonus payments and prepayment options), social benefits (especially related to health expenses), duties of the worker and the provision and use of agricultural inputs. Based on these insights, and in cooperation with cooperative leaders and other local partners, we developed a

contract template for the RCT in French language, as shown in the Appendix (Part C in supplementary data at ERAE online).[1]

3.1.2. Contract signing and enforcement

A few farmers who already had written contracts described the contract development and enforcement procedures, mentioning the following steps. First, the farmer talks with his/her worker (or potential worker) about the option of signing a written contract. Second, if the two parties agree on the terms and conditions, both identify a witness who needs to be present for the contract conclusion. Third, the farmer makes an appointment with the local authorities for signing the contract. Fourth, the farmer, the worker, the two witnesses and the representative from the local authority meet to finally sign the contract.

In cases of contract violation, the witnesses are consulted and try to mediate. If the witnesses are not able to settle the problem, the village chief intervenes. The village governance and social networks in the local context provide sufficient contract enforcement mechanisms, as contract violations are associated with social sanctions and reputational risks. Similar enforcement procedures are also in place for traditional oral agreements and are generally effective for settling issues related to obvious misbehaviour. However, misunderstandings in terms of certain details are more difficult to settle, simply because many details are not specified in the traditional oral agreements. Written contracts can contribute to more effective enforcement. Nevertheless, it should be mentioned that full judicial enforceability of private contracts—beyond the local authorities—is not given in our setting, which is true for employment contracts and other types of contracts as well. This is also why Colin (2013) describes a switch from oral to written contracts as a 'semi-formalisation' step.

3.1.3. Feasibility of the planned intervention

Based on the pilot-study insights, we concluded that our planned RCT intervention of promoting written employment contracts through an awareness campaign was feasible and useful for farmers and workers alike. However, the interviews and FGDs also revealed that the limited use of written contracts is not only due to information constraints but also due to farmers' reluctances and prevailing social norms that favour traditional oral work arrangements. Hence, a simple information campaign that would just inform about the option of written employment contracts and how to develop and sign such contracts would likely be insufficient to change farmers' minds. We hypothesised that a group-based approach, in which several farmers discuss and exchange ideas together with a moderator, could be a useful mechanism to alter individual and group perceptions and behaviour. This central hypothesis is tested in the RCT.

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1 One question is whether a written contract is useful for people with relatively low educational levels that are sometimes hardly able to read. However, even illiterate farmers and workers usually have family members or friends who can help with reading and understanding the relatively short and simple contracts.

Following the pilot study, a research protocol for the RCT was developed, as shown in the Appendix (Part D in supplementary data at ERAE online). This protocol was reviewed by the Ethics Committee of the University of Goettingen and approved in February 2019.

3.2. Randomisation

Most cacao farmers in Côte d'Ivoire are organised in cooperatives. Cooperatives organise collective marketing and are central providers of agricultural inputs, extension and other services to cacao farmers (Sellare *et al.*, 2020b). Cooperatives have a clear structure with defined sections (geographical units that can comprise one or several villages), section lead farmers and up-to-date membership lists, which was an advantage for us to sample farmers and organise the RCT. We decided to carry out the research in the Department of Abengourou in the southeastern parts of Côte d'Ivoire.

Based on a complete list of cooperatives in Abengourou, we purposively selected two large cooperatives that are similar in terms of their structure and institutional characteristics. From the two cooperatives, we obtained complete lists of the 1,641 member farmers. For the RCT, we decided to only concentrate on those farmers who employed at least one aboussant worker on their farm, because farmers without an aboussant would not be able to adopt a written employment contract. These eligible farmers with one or more aboussants were identified together with the cooperative leaders, resulting in a total of 856 farmers in the two cooperatives. Based on power calculations (Appendix, Part E in supplementary data at ERAE online), we decided to include all 856 farmers in the RCT and randomly assigned them to treatment and control groups without differentiating between the two cooperatives. Differentiating by cooperative might have helped to avoid possible contamination and spillover effects but would have led to perfect correlation between the treatment variable and cooperative characteristics, which is statistically undesirable.

As mentioned, the cooperatives are organised in geographical sections, and these sections are the level at which many of the cooperative activities such as extension and training sessions are implemented. The 856 identified farmers in the two cooperatives belonged to 24 different sections. In each of these 24 sections, we randomly allocated 50 per cent of the eligible farmers to the treatment group and the other 50 per cent to the control group. This individual-level randomisation design allows us to control for section fixed effects when evaluating the impact of the awareness campaign (Duflo, Glennerster and Kremer, 2007).

3.3. Treatment

Our RCT treatment is an awareness campaign about written employment contracts that consisted of an intensive group workshop for farmers and a follow-up meeting to clarify any open questions or concerns. The awareness campaign was developed in close cooperation with ICRAF's regional centre

in Côte d'Ivoire, building on the insights from the pilot study. An ICRAF extension agent also carried out the farmer awareness workshops in the field.

The workshops were held in French with translations to local languages, when necessary. A training manual and presentation slides were developed to standardise the key messages. Flipcharts were also used during the workshops to capture key discussion points. The workshop design had been pre-tested and fine-tuned with different cooperatives outside of the actual research area. For the RCT, 22 workshops were carried out in March 2019, each designed for up to 20 participants and lasting for an average of two hours. Only farmers assigned to the treatment group were invited to these workshops. We had initially planned one workshop in each of the 24 cooperative sections but then decided to pool members in a few very small sections. Section lead farmers were always present during the workshops.

We designed the workshops with the aim to overcome information constraints and encourage exchange between farmers on working arrangements to also allow collective learning and updating of social norms. Each workshop was structured into four parts. The first part was a participatory module covering aspects such as the development of labour availability in the region, farmers' overall (dis-)satisfaction with their workers, pros and cons of written employment contracts and preferred features of such contracts. The rationale to start with this participatory module was to initiate an open exchange of information and opinions between farmers. The second part consisted of a teaching module, summarising key points from the preceding discussion and highlighting how farmers could potentially benefit from written contracts through reduced uncertainty and improved work performance. The third part involved the distribution and discussion of the written contract template with key features included and a few options for choice (Appendix, Part C in supplementary data at ERAE online). Particular emphasis was put on explaining the rationale for including certain social benefit options, such as bonus payments, interest-free prepayments and coverage of workers' health expenses. The fourth part featured explanations about the procedure of setting up and signing a contract, including talking to and agreeing with the worker and the involvement of witnesses and local authorities. The procedure was also depicted on flyers that farmers could keep. Farmers were informed that the template for written employment contracts could be obtained from the lead farmer of their cooperative section.

One week after the workshop, treatment group farmers were again invited to a follow-up meeting by the section lead farmer. These follow-up meetings were held as an additional reminder and to clarify any open questions or concerns.

3.4. Possible contamination and spillovers

Our individual-level randomisation, with treatment and control group farmers in the same cooperative sections, has advantages from a statistical perspective but comes with the risk of contamination and spillovers, which can lead to certain bias (Ogutu *et al.*, 2020). Contamination occurs if farmers who were

assigned to the control group actually participated in the awareness workshops. We tried to reduce this risk through carefully monitoring and recording workshop attendance. Each participating farmer was asked to sign a participant list, which was verified by the section lead farmer. Farmers not invited were not allowed to attend.[2] Spillovers can occur when farmers in the treatment group talk to control group farmers, thus transferring some of the information obtained during the workshops. Spillovers cannot be ruled out in the same geographical setting. However, contamination and spillovers would both lead to underestimated treatment effects, meaning that our results can be interpreted as conservative estimates of the awareness campaign's effects.

4. Data collection

4.1. Household survey

Starting four weeks after completion of the awareness workshops, we conducted a household survey with all farmers in the treatment and control groups in April/May 2019. We managed to survey 814 of the 856 farmers with aboussant workers in the two cooperatives.

The interviews took place at the homestead of each farmer and were conducted by a team of experienced enumerators that were recruited, trained and monitored by the researchers. The questionnaire covered data on general socioeconomic characteristics of the farm, the farm household, the aboussant workers and more specific details of the farmer–worker relationship. Various questions also related to farmers' views about written contracts and their decision to adopt such contracts.

As explained, setting up and signing a contract involves a procedure that takes some time. If farmers decided to adopt a written contract and started the procedure right after the awareness workshop, they would have been able to complete the procedure and sign the contract together with their worker before the survey took place. However, the decision to adopt a written employment contract is a thought process itself that may require some time to reflect individually and collectively in discussions with others. Hence, in the survey, we were not only interested in who had actually signed a contract but also whether farmers had plans to do so and had already initiated concrete steps in this direction. Finally, a discrete choice experiment aimed at eliciting farmer's preferences for written contracts and specific contract features was also included. This choice experiment is explained in more detail below.

4.2. Choice experiment

Discrete choice experiments, in which respondents are asked to choose one out of several alternative versions of a good with variations in the good's attributes, are useful tools to analyse people's preferences for certain types of goods and their attributes (Hensher, Rose and Greene, 2005). Beyond goods,

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2 There are a few exceptions to this rule, as we will explain further below. However, due to the careful monitoring we know exactly who participated and who did not.

Table 1. Attributes (contract features) and attribute level for the choice experiment

Attribute		Attribute levels
Contract type	1	Written contract
	2	Oral contract
Coverage of work-related health expenses	1	Farmer does not cover any work-related health expenses
	2	Farmer pays 50% of work-related health expenses, no non-work related
	3	Farmer pays 100% of work-related health expenses, no non-work related
Prepayment without interest rate possible if worker urgently needs money	1	Yes
	2	No
Bonus payment (CFA/year/worker)	1	0
	2	10,000
	3	20,000
	4	30,000

Note: CFA 10,000 is equivalent to approximately USD 17 (May 2019).

choice experiments were also recently used to analyse farmers' preferences for production and marketing contracts (Fischer and Wollni, 2018; Meemken, Veettil and Qaim, 2017; Ochieng, Veettil and Qaim, 2017) or to elicit workers' willingness to pay for specific job benefits (Mahmud *et al.*, 2020). We are not aware of previous work that used choice experiments to analyse farmers' preferences for employment contracts, as we do here. In particular, we use a choice experiment to analyse farmers' preferences for specific features of employment contracts and how these preferences are influenced through our awareness campaign.

In the choice experiment, we asked farmers to imagine that they would agree with their worker to specify the employment terms for the following season, either orally or in a written contract. We explained that they would agree on the workers' general tasks and basic payment modalities as usual. In addition, we introduced a few key contract features related to additional social benefits for the worker. These contract features (attributes) and possible variations (attribute levels) are shown in Table 1.

Farmers were confronted with different contract options depicted graphically on choice cards. An example of a choice card is shown in Figure 1. Each choice card had three options, and farmers were asked to choose their most preferred one. Two of the options involved hypothetical contracts with certain variations in terms of the contract features. The third option was always the farmers' status quo, meaning the type of work arrangement that he/she had with their aboussant at the time of the choice experiment. The individual-specific status quo was specified based on farmers' responses during the survey. Descriptive statistics of the status quo responses are shown in Table A1 (Appendix in supplementary data at *ERAE* online).
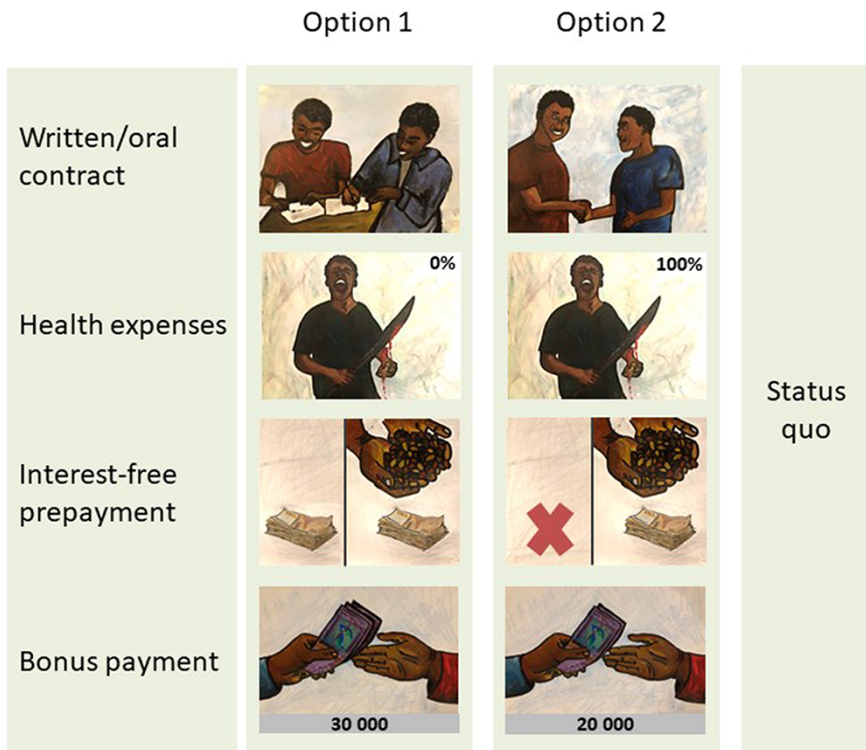
Fig. 1. Example of a choice card.

Using an individual-specific status quo as one of the choice card options can improve statistical efficiency over the more common practice of using a fixed-base option with predefined attributes that do not vary across respondents (Barton and Bergland, 2010). Furthermore, existing working arrangements differ across farmers, meaning that a specification with an individual-specific status quo makes the choice task more realistic for the respondents (Ahtiainen, Pouta and Artell, 2015). We used a D-optimal design to reduce the number of alternatives. The different alternatives thus generated were divided into three blocks, each with four choice cards. Farmers were randomly assigned to one block, so they had to make four choices, and the order in which the four choice cards were presented was also randomised.

5. Estimation strategies

5.1. Choice experimental models

As explained, we carried out a choice experiment to learn more about farmers' preferences for employment contracts. We use the choice experimental data and estimate random parameter logit (RPL) models (using 1,000 Halton draws)

to evaluate farmers' preferences for the different contract features. RPL models account for possible preference heterogeneity and, unlike standard logit models, do not depend on the independence of irrelevant alternatives assumption (Fischer and Wollni, 2018; Meemken, Veettil and Qaim, 2017; Ochieng, Veettil and Qaim, 2017).

Our model includes an alternative specific constant, *ASC,* coded with one for the status quo contract. Hence, a negative sign of the *ASC* would indicate a general willingness of farmers to move away from the status quo (Ahtiainen, Pouta and Artell, 2015). In our RPL models, the *ASC* and also the different contract features are treated as random parameters that can pick up heterogeneity in preferences. Only the feature of bonus payments is specified as a fixed parameter, as preference heterogeneity for this cost parameter is not expected. The bonus payment is specified as a variable with four different categories (0, 1, 2, 3) representing the monetary options shown in Table 1. All other contract features and attribute levels are represented through dummy variables. We run different specifications. Equation (1) shows the base specification:

$$D_{ijk} = \pi_0 ASC + \pi_1 CT_{jk} + \pi_2 HE_{jk} + \pi_3 PP_{jk} + \pi_4 B_{jk} + e_{ijk} \qquad (1)$$

where D is the binary choice made by farmer i for alternative j and choice set k. D is a function of the *ASC* and the choice attributes, namely contract type *CT,* work-related health expenses *HE*, pre-payments *PP*, and bonus payment B. e_{ijk} represents the error term.

This base specification is estimated for the full sample and also for the two subsamples of farmers in the treatment and control groups. In addition, we use a full-sample specification with interaction terms to evaluate the impact of the awareness campaign on farmers' preferences. In particular, we interact the treatment variable with the ASC and with the different contract features. Significant interaction terms would indicate that the awareness campaign has influenced farmers' attitudes towards employment contracts.

5.2. Contract adoption models

In addition to analysing effects of the awareness campaign on farmers' stated preferences for employment contracts, we also want to know whether the treatment has any effect on farmers' actual behaviour in terms of adopting a written contract. As mentioned, adopting a written employment contract involves a procedure. In the survey, we captured the different steps of this procedure through a series of binary questions.

A precondition for adoption is being aware of the option to sign a written contract and the related procedure. We capture farmers' *awareness* through two variables, namely knowing the procedure in general, and knowing where to obtain a contract template more specifically. Next, the farmer has to decide on his/her *intention* to sign a contract, which we specifically asked for during the survey. Conditional on a positive response to this intention question, we further asked whether *concrete steps* to initiate the procedure had already been made. This is captured through three variables, namely (i) whether or not

the farmer had already talked with the worker about signing an employment contract, (ii) whether witnesses had already been identified and asked, and (iii) whether an appointment for signing the contract had already been made with the local authorities. Finally, we asked farmers whether or not a contract with the worker had already been *signed*.

Using these binary responses as outcome variables, we estimate a set of linear probability models as follows:

$$Y_{isc} = \alpha + \beta T_{isc} + \vartheta_s + \varepsilon_{isc} \qquad (2)$$

where Y_{isc} is the respective outcome variable for farmer i in section s of cooperative c, and T_{isc} is the treatment dummy variable, which takes a value of one for farmers assigned to the treatment group, and zero for farmers assigned to the control group. Thus, the coefficient β is the estimated treatment effect, which tells us whether or not the awareness campaign had significant effects on the different outcome variables.[3] As we have treated and control farmers in all of the cooperative sections, we can also control for unobserved heterogeneity between the sections through inclusion of section-level fixed effects, ϑ_s. Finally, ε_{isc} is a random error term, which we cluster at the section level to control for possible heteroscedasticity.

As a robustness check, we use a second specification:

$$Y_{isc} = \alpha + \beta T_{isc} + \gamma X_{isc} + \vartheta_s + \varepsilon_{isc} \qquad (3)$$

where we additionally control for any individual-level covariates, X_{isc}, which may possibly differ between treatment and control groups to some extent in spite of randomisation.

6. Results and discussion

6.1. Descriptive statistics

Table 2 shows descriptive statistics of our sample of farmers as a whole, as well as separately for the treatment and control groups. As we did not collect baseline data, we show variables as captured during the survey several weeks after the awareness treatment. We do not expect the treatment to have any short-run effect on the socioeconomic variables shown in Table 2 so that the comparison between the treatment and control groups can be used to test for possible group imbalances.

We show mean differences and *t*-statistics in column (4) and normalised differences in column (5) of Table 2. The normalised differences indicate that the sample is balanced, meaning that the randomisation worked out well (Imbens and Rubin, 2015). However, the *t*-test for one of the variables, namely the number of aboussant workers employed, indicates a statistically significant

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3 The coefficient β is the so-called intent-to-treat effect, as we use assignment to the treatment group as the treatment variable. As is shown below, the majority of the farmers assigned to the treatment group actually also participated in the awareness workshops.

Table 2. Sample descriptive statistics and mean difference tests

	(1) Full sample Mean (SD)	(2) Treated Mean (SD)	(3) Control Mean (SD)	(4) Treated–control Difference (t-stat)	(5) Treated–control Normalised difference
Female (1 = yes)	0.22 (0.42)	0.23 (0.42)	0.21 (0.41)	0.0190 (0.65)	0.046
Age in years	52.40 (10.47)	52.49 (10.33)	52.30 (10.63)	0.191 (0.26)	0.018
Education (years)	8.66 (7.47)	8.98 (7.55)	8.32 (7.38)	0.660 (1.26)	0.088
Official position in cooperative (1 = yes)	0.05 (0.21)	0.06 (0.24)	0.03 (0.17)	0.031 (2.11)	0.148
Number of household members	5.39 (2.34)	5.47 (2.42)	5.30 (2.25)	0.170 (1.04)	0.073
Number of contacts in cooperative	3.40 (1.52)	3.50 (1.59)	3.30 (1.43)	0.201 (1.89)	0.132
Cacao yield (kg/ha)	519.19 (165.25)	516.93 (170.26)	521.61 (159.89)	−4.682 (−0.40)	−0.028
Land owned (ha)	11.26 (10.43)	10.79 (8.11)	11.76 (12.43)	−0.976 (−1.34)	−0.094
Land under cacao (ha)	5.29 (3.94)	5.19 (3.38)	5.39 (4.46)	−0.197 (−0.71)	−0.050
Cacao cultivated by aboussant worker (ha)	4.71 (3.63)	4.65 (3.02)	4.78 (4.18)	−0.130 (−0.51)	−0.036
Number of aboussant workers employed	1.28 (0.67)	1.31 (0.67)	1.24 (0.66)	0.0718** (1.53)	0.107
Household has electricity (1 = yes)	0.93 (0.26)	0.93 (0.25)	0.93 (0.26)	0.007 (0.41)	0.029
Bank account (1 = yes)	0.25 (0.43)	0.24 (0.43)	0.26 (0.44)	−0.025 (−0.81)	−0.057
Farmer owns a bicycle (1 = yes)	0.60 (0.49)	0.62 (0.49)	0.59 (0.49)	0.032 (0.94)	0.066
Observations	814	421	393	814	814

Note: t-tests were used to test for statistical significance of the difference between treatment and control groups. $**p < 0.05$.

Table 3. Workshop attendance

	(1) Mean	(2) Standard deviation	(3) Observations
Treatment group attended workshop	0.73	0.46	421
Control group attended workshop	0.04	0.20	393

difference at the 5 per cent level. This is not of particular concern, as a statistically significant difference in one out of fourteen variables can certainly happen randomly (Bruhn and McKenzie, 2009). Nevertheless, we control for the number of workers employed in a robustness check.

Table A2 (Appendix in supplementary data at *ERAE* online) shows a few details on worker characteristics and farmers' satisfaction with the relationship. Many of the workers are migrants from other West African countries, including Burkina Faso and Togo. However, these workers typically come with their families and stay with the same farmer for longer periods of time, 4.6 years on average. The majority of the workers live in plantation camps under poor conditions, without electricity and piped water. Around 96 per cent of the employment arrangements are oral. Most farmers are not fully satisfied with their workers in terms of reliability and performance, but also stated that finding reliable workers is not very easy.

6.2. Compliance and contamination

Table 3 shows that 73 per cent of the farmers randomly assigned to the treatment group actually participated in the awareness workshops. This is a relatively high compliance rate, given that we did not provide any participation incentives. We only mentioned in the invitation that the workshops would deal with farmer–aboussant relationships and the option of written employment contracts. However, Table 3 also reveals that some contamination occurred; 4 per cent of the control group farmers, who were not invited, actually attended a workshop. Even though attendance was usually not allowed for uninvited persons, these farmers were close relatives of farmers in the treatment group and had been asked by treatment group farmers to attend the workshop as a replacement. In these cases, we found it unethical to send the farmers away.

6.3. Choice experimental results

The results of the base specifications of the RPL models are shown in Table 4. We start interpretation with the full sample results shown in column (1). The significant negative coefficient of the ASC means that farmers are generally willing to move away from their status quo, suggesting that the current work arrangements are not fully satisfactory. Written contracts are preferred over oral arrangements, as indicated by the positive and significant coefficients for the contract-type variable. This is an interesting result, as only 4 per cent of the sample farmers actually had a written contract.

Table 4. Farmers' preferences for employment contracts (base specifications)

	(1) Full sample	(2) Treatment group	(3) Control group
Mean parameters			
ASC	−0.480***	−0.483***	−0.485***
	(0.108)	(0.157)	(0.149)
Contract type (1 = written)	1.798***	2.006***	1.598***
	(0.109)	(0.167)	(0.144)
Bonus payment (CFA/year/worker)	−0.359***	−0.412***	−0.312***
	(0.0347)	(0.0517)	(0.0474)
Prepayment (1 = yes)	0.934***	0.876***	1.004***
	(0.0906)	(0.129)	(0.129)
Farmer pays 50% of work-related health expenses (1 = yes)	0.350***	0.339***	0.357***
	(0.0768)	(0.111)	(0.107)
Farmer pays 100% of work-related health expenses (1 = yes)	−0.168*	−0.0216	−0.328**
	(0.0906)	(0.130)	(0.129)
Standard deviation parameters			
ASC	1.633***	1.729***	1.566***
	(0.126)	(0.187)	(0.172)
Contract type (1 = written)	1.376***	1.481***	1.263***
	(0.122)	(0.178)	(0.170)
Prepayment (1 = yes)	1.182***	1.161***	1.208***
	(0.131)	(0.190)	(0.184)
Farmer pays 50% of work-related health expenses (1 = yes)	−0.0169	0.0790	0.0028
	(0.300)	(0.479)	(0.389)
Farmer pays 100% of work-related health expenses (1 = yes)	0.871***	0.977***	−0.764***
	(0.184)	(0.250)	(0.279)
Log-likelihood	−2,751.05	−1,382.96	−1,360.06
Chi squared	432.93***	231.36***	197.55***
Observations	9,768	5,052	4,716

Note: Coefficient estimates from RPL models are shown with standard errors in parentheses. ASC. ***$p<0.01$, **$p<0.05$, *$p<0.1$.

In terms of other contract features, farmers seem to prefer contracts that include no bonus payments, that allow interest-free prepayments, and that cover 50 per cent of the aboussants' work-related health expenses. These preference patterns are realistic, as they reflect the status quo for the majority of the farmers (Table A1 in supplementary data at *ERAE* online). The only main difference is that in the status quo these contractual details are mostly not fixed in writing, which contributes to uncertainty and thus high potential for conflict. The significant standard deviation parameters shown in the lower part of Table 4 indicate that preference heterogeneity exists.

Separate specifications of the RPL models for the treatment group and the control group are shown in columns (2) and (3) of Table 4. The results for both groups are quite similar, with more notable differences only in terms of two variables. First, treatment group farmers seem to have a higher preference for written contracts than control group farmers. Second, control group farmers have a significantly negative preference for 100 per cent health expense coverage, whereas this coefficient is not statistically significant for treatment group farmers. These differences provide a first indication that the awareness campaign may have had an influence on farmers' preferences at least in terms of some of the contract features.

The effects of the awareness campaign on farmers' preferences for specific contract features are analysed more formally in Table 5. The treatment interaction terms confirm that the campaign has led to significant increases in treatment group farmers' preferences for written employment contracts and for the option to pay 100 per cent of the work-related health expenses.[4] These findings confirm that the workshops were effective in influencing farmers' preferences, making farmers more receptive for contracts with added social benefits for aboussant workers.

6.4. Contract adoption results

Table 6 shows effects of the campaign on farmers' awareness of written employment contracts, their intention to adopt, and the initiation of concrete steps in the contract adoption procedure.[5] Results suggest that the group workshops had significantly positive effects on farmers' awareness of and knowledge about written employment contracts. The workshops increased farmers' intention to adopt a written contract by 14 percentage points (column 3 of Table 6).

Columns (4) to (6) of Table 6 reveal that the awareness campaign also significantly increased the probability of farmers making concrete steps in the contract adoption procedure. Treatment group farmers are 12 percentage points more likely than control group farmers to have talked with the aboussant workers about a written contract, and around 4 percentage points more likely to have asked witnesses and to have made an appointment with the local authorities for the contract signature.

In contrast, we do not find a significant treatment effect on the probability of actually signing a contract. In informal discussions, many farmers mentioned that the four-week period between the workshops and the survey was too short to fully complete the adoption procedure. In other words, the adoption effects might further increase over time. Unfortunately, we were not able to collect additional data at a later point in time.

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4 The mean parameter coefficient for the 100 per cent health expense attribute and the related treatment interaction term coefficient equal out, so the preference for this attribute among treatment farmers is around zero. The important finding is that the preference for this attribute changed from significantly negative to more tolerable through the awareness campaign.

5 Simple mean difference tests between treatment and control groups are shown in Table A3 (Appendix in supplementary data at *ERAE* online).

Table 5. Treatment effects on farmers' preferences for employment contracts

	(1) Full sample
Mean parameters	
ASC	−0.548***
	(0.145)
Contract type (1 = written)	1.644***
	(0.134)
Bonus payment (CFA/year/worker)	−0.359***
	(0.0346)
Prepayment (1 = yes)	1.019***
	(0.121)
Farmer pays 50% of work-related health expenses (1 = yes)	0.362***
	(0.108)
Farmer pays 100% of work-related health expenses (1 = yes)	−0.354***
	(0.129)
Treatment interaction terms	
ASC × treatment	0.132
	(0.193)
Contract type × treatment	0.299*
	(0.164)
Prepayment × treatment	−0.168
	(0.156)
Farmer pays 50% of work-related health expenses × treatment	−0.0288
	(0.152)
Farmer pays 100% of work-related health expenses × treatment	0.353**
	(0.175)
Standard deviation parameters	
ASC	1.634***
	(0.127)
Contract type (1 = written)	1.362***
	(0.121)
Prepayment (1 = yes)	1.172***
	(0.131)
Farmer pays 50% of work-related health expenses (1 = yes)	−0.0350
	(0.303)
Farmer pays 100% of work-related health expenses (1 = yes)	−0.867***
	(0.180)
Log likelihood	−2,745.08
Chi squared	426.84***
Observations	9,768

Note: Coefficient estimates from RPL models are shown with standard errors in parentheses. ASC. ***$p<0.01$, **$p<0.05$, *$p<0.1$.

The sample mean values for the outcome variables, which are shown in the lower part of Table 6, reveal that contract awareness and intention to adopt are quite high for the full sample of farmers, including those in the control

Table 6. Effects of awareness campaign on contract adoption procedure

	Awareness		Intention		Concrete steps		Signing
	(1) Knows contract procedure (1 = yes)	(2) Knows where to get template (1 = yes)	(3) Plans to sign a contract (1 = yes)	(4) Talked with worker (1 = yes)	(5) Asked witness (1 = yes)	(6) Made official appointment (1 = yes)	(7) Written contract (1 = yes)
Treated (1 = yes)	0.146***	0.121***	0.139***	0.124***	0.0357**	0.0398**	0.00832
	(0.0285)	(0.0288)	(0.0253)	(0.0303)	(0.0149)	(0.0183)	(0.0197)
Constant	0.422***	0.644***	0.540***	0.340***	0.157***	0.101***	0.0325***
	(0.0147)	(0.0149)	(0.0131)	(0.0157)	(0.00773)	(0.00948)	(0.0102)
p-values	0.000	0.000	0.000	0.000	0.026	0.041	0.677
q-values	0.001	0.001	0.001	0.001	0.037	0.048	0.677
Observations	814	814	814	814	814	814	814
Sample mean	0.50	0.71	0.61	0.37	0.14	0.09	0.04
R-squared	0.022	0.018	0.022	0.017	0.002	0.004	0.001

Notes: Coefficient estimates of linear probability models are shown with robust standard errors clustered at section level in parentheses. Section-level fixed effects were included in estimation. As we test multiple hypotheses (multiple outcome variables), we calculated sharpened false discovery rate *q*-values, as proposed by Anderson (2008), in addition to regular *p*-values. ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.

group. This points at information spillovers from treated to untreated farmers in the same local setting, which would mean that the treatment effects are underestimated. Hence, our results can be interpreted as conservative estimates of the true effects of the awareness campaign on farmers' adoption of written employment contracts.

6.5. Robustness checks

In a first robustness check, we ran the same models as those in Table 6, only that we additionally controlled for the number of aboussant workers that the farmer employed, as this was the only covariate for which we found a significant difference between treatment and control groups in the balance test. These estimated effects, which are shown in Table A4 (Appendix in supplementary data at *ERAE* online), are almost identical to those in Table 6.

In a second robustness check, we computed Lee (2009) bounds to account for attrition, as not all treated and control farmers were available for the survey interviews. The results, which are shown in Table A5 (Appendix in supplementary data at *ERAE* online), confirm the original findings from Table 6, with the only exceptions that the effects on 'asked witness' and 'made appointment' are no longer statistically significant. Estimating these relatively small treatment effects of 3–4 percentage points with more statistical power would require a larger sample size.

However, the effect sizes for these concrete steps of contract adoption increase remarkably when we consider the adoption steps as a sequential procedure, using the intention to adopt as a treatment variable and the random assignment to the treatment group as an instrument. The local average treatment effects obtained from such instrumental variable estimation are shown in Table A6 (Appendix in supplementary data at *ERAE* online). The intention to adopt a written contract increases the likelihood of already having asked a witness by 26 percentage points and of already having made an appointment with the local authorities for the signature by 29 percentage points. The estimate for actual adoption (signature) increases as well but remains statistically insignificant.

7. Conclusion

Farm workers in developing countries often belong to the poorest population segments in rural areas. They typically face low wages and have informal working arrangements and inadequate social protection. Written employment contracts with clearly defined rights and obligations could possibly help, but it is not clear how such contracts could be introduced and promoted in traditional farming communities, where farmers as employers often prefer less formalised oral arrangements. In this study, we developed and implemented an RCT in Côte d'Ivoire to test the hypothesis that an awareness campaign with group workshops for farmers can increase farmers' preferences for written employment contracts and their willingness to actually adopt such contracts. This hypothesis was largely confirmed in the empirical analysis.

Results showed that treatment group farmers have a significantly higher preference for written contracts and for certain contract features that involve social benefits for workers, such as full coverage of work-related health expenses. Furthermore, the analysis revealed positive treatment effects on farmers' knowledge about the contract adoption procedure and their actual behaviour in terms of starting this procedure with concrete steps. The treatment effect on actually signing a contract with farm workers was not statistically significant; this is the last step in the procedure, which was probably not fully completed by the time the survey data were collected.

Written employment contracts between farmers and farm workers are not (yet) common in Côte d'Ivoire and other developing countries. Informal oral agreements are the traditional norm. However, our findings suggest that changing farmers' traditional attitudes and behavioural patterns is possible through group-based awareness campaigns. Individual and collective views will not change overnight, but exchanging experiences about farmer–worker relationships with peers and discussing new ideas about how certain problems in these relationships could possibly be reduced can kick-start a thought process towards behavioural change, as our results demonstrate. The innovation adoption literature also suggests that more farmers are likely to follow after a few innovators have successfully adopted. Future research should test in more detail which parts of the awareness campaign are particularly effective.

Our awareness workshops only involved farmers, not workers, because our pilot study revealed that farmers are much more critical towards written employment contracts and potential benefits for themselves. Also, involving workers in the workshops in a second step is certainly important. Our intention was not to design a perfect awareness campaign, which will likely require more than just one workshop session, but to test whether a group-based campaign can help to induce shifts in preferences and behaviour, even when the intervention challenges traditional norms and is not considered as needed initially. This clearly seems to be the case. And this general result may also hold beyond the concrete example of Côte d'Ivoire.

Our findings may be of immediate practical relevance for organisations concerned with rural development and the livelihoods of people involved in agrifood value chains, such as national and international development agencies, farmer cooperatives and certification schemes for sustainability standards, among others. We also hope that our results can stimulate additional research on how to appropriately design information and awareness campaigns to promote fair and transparent employment contracts to improve farmer–worker relationships.

Our study has a few limitations that should be discussed for proper interpretation. First, we collected the data for the impact evaluation already four weeks after the RCT treatment. This means that the contract adoption procedure was not yet fully completed, even for those farmers who had already initiated concrete steps. Second, information spillovers from the treatment group to the control group likely occurred in our RCT. Both these issues mean that we probably underestimate the true effects of the awareness campaign. Third, the

choice experiment and the intention-related outcome variables might suffer from desirability bias, meaning that the respondents might over-report good intentions. However, we also found significant treatment effects on actual behaviour in terms of initiating concrete steps of the adoption procedure. For these concrete steps, we can rule out desirability bias, because farmers' responses could be verified with workers, witnesses and local authorities.

Supplementary data

Supplementary data are available at *ERAE* online.

Acknowledgements

Funding

Conflict of Interest

The authors declare that they have no conflicts of interest.

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