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Contracts between Farmers and Farm Workers

Lisa Jäckering
Eva-Marie Meemken
Jorge Sellare
Matin Qaim

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Spoken Words Fly Away, Written Words Remain: Employment Contracts between Farmers and Farm Workers

Lisa Jäckering [a,b] *, Eva-Marie Meemken [c], Jorge Sellare [a], Matin Qaim [a]

[a] University of Goettingen, Germany

[b] International Fund for Agricultural Development (IFAD), Italy

[c] Cornell University, USA

* Corresponding author: Lisa Jäckering; International Fund for Agricultural Development (IFAD); Research and Impact Assessment Division (RIA); Via Paolo di Dono 44; 00142 Rome; Italy; Email: ljaeckering@gmail.com

Abstract

Farm workers in developing countries often belong to the poorest of the poor. They typically face low wages, 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 peasant environments. To address this question, we develop and implement a randomized controlled trial with farmers in Côte d'Ivoire. We evaluate whether an awareness campaign about possible features and benefits of employment contracts can influence farmers' preferences and willingness to sign a contract with their workers. Choice experimental results show that – in comparison to the control group – farmers who were randomly assigned to the awareness campaign have a stronger preference for written contracts and a higher willingness to include contractual features with social benefits for workers. We also analyze treatment effects on farmers' knowledge and behavior. Farmers in the treatment group are more informed about the procedure of initiating and signing a contract. They are also significantly more likely to have started this procedure by talking with their workers about a contract and making an appointment with the local authorities. Effects on actually signing a contract as the last step of this procedure are not significant, possibly because the time frame of the research was relatively short. Nevertheless, results suggest that information and awareness campaigns may help to improve farm workers' employment conditions in traditional peasant environments.

1. Introduction

The creation of decent employment is seen as a key strategy to reduce poverty, promote economic growth, and prevent social unrest and conflict, as reflected in Sustainable Development Goal #8 (UN 2016). According to the United Nations, more than 30 million new jobs will have to be created annually to provide sufficient employment for the world's growing population (UN 2016). Apart from increasing the number of jobs, another policy challenge is to enhance employment quality. Many workers face low wages, informal working arrangements, and inadequate social protection (FAO and ILO 2007). While this is true in all parts of the world, unskilled workers in developing countries are particularly affected. In recent decades, several developing countries have adopted or strengthened national labor regulations, but these regulations are often poorly enforced. This is especially true in the agricultural sector, where informal employment prevails. Unsurprisingly, informally employed agricultural workers often belong to the poorest of the poor. One potential policy to reduce working poverty and increase employment quality is the promotion of formalized employment contracts, which clearly specify farmers' and workers' rights and obligations.

Written contracts between farmers and workers may possibly reduce conflicts and improve employment quality for both parties. Workers may benefit because of more clearly defined terms of payment and social assistance. Farmers may benefit because of lower worker fluctuation and higher productivity. Studies have shown that appropriately designed contracts can increase workers' motivation, work efficiency, and work quality (Baland, Dreze, and Leruth 1999). While written employment contracts between farmers and farm workers in developing countries exist, they are rather uncommon (Meemken et al. 2019). Hence, one important question is how such contracts could be promoted in traditional peasant environments.

Theory suggests different possible reasons for the limited use of formal contracts in agricultural employment relationships in developing countries. First, developing, signing, and enforcing contracts can be associated with high transaction costs, especially when formal institutions are not well developed (North 1991). Second, informal arrangements without a written contract are more flexible and can be renegotiated any time (Fafchamps and Minten 2001; Levin 2003). Third, while contracts have recently become more common for production and sales transactions between farmers and agribusiness companies (Abebe et al. 2013; Meemken, Veettil, and Qaim 2017), most farmers are not used to employment contracts and may simply not be fully aware of their potential benefits. Fourth, and related to the previous point, information failure is a key obstacle for innovation adoption in smallholder environments (Aker 2011; Conley and Udry 2010), which may also be true for the adoption of employment contracts. Even in situations where some farmers have written contracts with their workers, other farmers may not know what is included in these contracts and how they are set up, simply because there is no forum or culture of discussing such details in the local context.

Several of the possible reasons for the low use of formal employment contracts in traditional peasant environments involve information constraints and lack of opportunities for farmers to discuss related details. Against this background, we hypothesize that properly designed awareness campaigns can increase farmers' preferences for formal employment contracts and increase their willingness to adopt them. This hypothesis is tested through a randomized controlled trial (RCT) that we developed and implemented with cacao farmers in Côte d'Ivoire. The cacao sector in Côte d'Ivoire is an interesting example, because cacao is a labor-intensive crop for which many farm workers are informally employed under varied conditions (Colin 2017; Meemken et al. 2019). Côte d'Ivoire is the world's largest cacao producer and exporter. However, we expect that the findings from this study will also provide some more general lessons for other crops and countries.

The treatment in our RCT is an awareness campaign for farmers that we designed and implemented in Côte d'Ivoire in 2019 in close 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 sensitized about employment issues, discussed potential benefits of employment contracts, got familiar with different contract features, and learned about the procedure of signing a contract in the local setting. The campaign and the procedures were facilitated by local lead farmers and cooperatives. Four weeks after the group workshops were implemented, we conducted a survey and a choice experiment with treatment and control farmers. The choice experiment helps us to evaluate treatment effects on farmers' general attitudes towards employment 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.

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 labor-intensive, so – beyond the farmers themselves – many farm workers also depend on the cacao sector for their livelihoods. Most of these workers are employed informally without a written contract (Colin 2017).

While cacao production is still increasing in Côte d'Ivoire, this increase is mainly driven by a recent cacao boom in the western part of the country. This boom can be explained by the availability of large areas of forest in the western part, which have gradually been cleared to establish new cacao plantations. In contrast, the old cacao growing areas in the eastern and southeastern part of Côte d'Ivoire are facing a decline in yields due to pests, diseases, and aging plantations (Ruf 2015). These regional dynamics contribute to a certain shift of labor from the east to the west of Côte d'Ivoire, also because the remuneration of farm workers depends on

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the productivity of the plantation. Farmers in the eastern and southeastern parts find it increasingly challenging to recruit and keep motivated farm workers. Against this background, written contracts have the potential to improve the situation for both farmers and farm workers.

Traditional Work Arrangements

While diverse types of informal work arrangements exist in the cacao sector of Côte d'Ivoire, a common traditional institution is the aboussant arrangement (Colin 2017; Meemken et al. 2019). In this arrangement, farm workers (aboussants) offer their labor to farmers, but instead of a fixed wage they receive one-third of the production value of the harvested cacao. However, the farmer decides about the use of other inputs (fertilizer, pesticides etc.) and is also responsible for all purchase and sales transactions (Colin 2017). While receiving a share of the production value may incentivize higher worker effort than a fixed-wage arrangement, monitoring costs for the farmer remain substantial. Also, aboussants can quit the arrangement, which happens in particular when they are unsatisfied with the conditions and expect better opportunities elsewhere.

Recent research shows that many of the aboussants in the cacao sector of Côte d'Ivoire are landless migrants from neighboring countries, including Burkina Faso, Togo, and Mali (Meemken et al. 2019). More than half of the aboussants have incomes below the national poverty line and receive monthly payments below the minimum wage for rural areas (Meemken et al. 2019). A small fraction of the aboussants have written contracts with the farmers they work for, underlining that formal employment contracts are not common yet feasible in in the local context. We build on the aboussant arrangement in our RCT and focus on farmers in the southeastern part of Côte d'Ivoire.

Focus Group Discussions and Stakeholder Interviews

Prior to implementing the RCT in 2019, we visited the research area in the southeastern part of Côte d'Ivoire in December 2018 to assess the feasibility of promoting written contracts through an awareness campaign (O'Cathain 2018). We held six focus group discussions (FGDs) with cacao farmers and one FGD with aboussants, in order to learn more about the farmer-aboussant relationship and potential issues. During these FGDs, we also discussed perceived advantages/disadvantages of written contracts in comparison to the more common informal oral arrangements. None of the farmers and workers in these FGDs were later included in the treatment or control groups of the RCT, as these were randomly selected from different cooperatives.

In addition to the FGDs, we also conducted individual interviews with different stakeholders in the cacao value chain (farmers, aboussants, cooperative leaders, researchers, and extension agents) to (i) learn about these stakeholders' attitudes towards written employment contracts, (ii) understand how employment contracts are currently developed and enforced, and (iii) identify important contractual features for the contract templates to be used in the RCT. We also reviewed existing written employment contracts that a few farmers had with their aboussants.

The FGDs and interviews revealed that farmers and workers consider written employment contracts as potentially useful to avoid conflicts. Especially social benefits, such as the coverage of workers' health expenses, bonus payments, or the option to receive interest-free prepayments, often lead to misunderstandings that can affect work productivity and satisfaction. Farmers in particular mentioned that it has become increasingly difficult to find good workers, as the demand is bigger than the supply and aboussants would choose farmers based on the expected productivity of the cacao plantation. In this situation, social benefits could act as an additional attraction point.

The FGDs also confirmed that most farmers were not well aware of who of their fellow farmers actually had written contracts with their aboussants and – if so – what was included in these contracts. After intensive discussions, both farmers and aboussants mentioned that they would find it useful to specify the following details in written contracts: payment modalities (including bonus payments and prepayment options), social benefits (especially related to health expenses), duties of the aboussant, and the provision and use of agricultural inputs.

In terms of procedures and enforcement, existing employment contracts involve the following steps. First, the farmer talks with his/her aboussant (or potential aboussant) 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 aboussant, the two witnesses, and the representative from the local authority meet to finally sign the contract. In case of contract violations, the witnesses are consulted and will try to mediate. If the witnesses are not able to settle the problem, the village chief will intervene. Informal social networks implicitly also contribute to contract enforcement, as contract violations are associated with reputational risks.

3. Randomized Experiment

We carried out an RCT with cacao farmers in Côte d'Ivoire to evaluate whether an awareness campaign about employment contracts can influence farmers' preferences for contracts and their willingness to sign a contract with their farm workers. In this section, we explain the randomization approach and the details of the awareness campaign treatment.

Randomization

Most cacao farmers in Côte d'Ivoire are organized in cooperatives (Foundjem-Tita et al. 2017). Cooperatives organize collective marketing and are central providers of agricultural inputs, extension, and other services to cacao farmers (Sellare et al. 2020). Cooperatives have a clear structure with defined sections (geographical units), section lead farmers, and up-to-date membership lists, which was an advantage for us to sample farmers and organize the RCT. We decided to carry out the research in the Department of Abengourou in the southeastern part of Côte d'Ivoire. Abengourou is one of the oldest cacao growing areas in the country that faces challenges of aging cacao plantations and declining yields.

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 1641 member farmers. For the RCT, we decided to only concentrate on those farmers who employed at least one aboussant on their farm, because farmers without an aboussant would not be able to adopt an employment contract. These farmers with one or more aboussants were identified together with the cooperative leaders, leading to a total of 857 farmers in the two cooperatives. These 857 farmers constitute the relevant population for the RCT. These farmers were randomly assigned to the treatment group and the control group without differentiating between the two cooperatives. Differentiating by cooperative might have helped to avoid possible contamination and spillover effects, but would have let to perfect correlation between the treatment variable and cooperative characteristics, which is statistically undesirable.

As mentioned, the cooperatives are organized 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 857 identified farmers in the two cooperatives belonged to 24 different sections. In each of these 24 sections, we randomly allocated 50% of the farmers with

aboussants to the treatment group and the other 50% to the control group. This individual-level randomization design allows us to control for section fixed effects when evaluating the impact of the awareness campaign (Duflo, Glennester, and Kremer 2007).

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 center in Côte d'Ivoire, building on the insights from the earlier FGDs and stakeholder interviews (see above). 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 standardize the key messages. Flipcharts were also used during the workshops to captured 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.

The workshops were structured into four parts. The first part was a participatory module covering aspects such as the development of labor availability in the region, farmers' overall (dis-)satisfaction with aboussants, 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 between farmers about their aboussant

arrangements and thus address previous information failures. The second part of the workshops consisted of a teaching module, summarizing key points from the preceding discussion and highlighting how farmers could potentially benefit from written contracts through reducing uncertainty and increasing transparency and work performance. The third part of the workshops involved the distribution and discussion of a written contract template with key features included and a few options for choice. 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 aboussant and the involvement of witnesses and local authorities. The procedure was depicted on flyers that were distributed to farmers at the end of the workshop. Farmers were also informed that templates for written employment contracts could be obtained from the lead farmer of their cooperative section.

One week after the workshop was implemented in each cooperative section, treatment 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 that farmers came up with until then.

Possible Contamination and Spillovers

The individual-level randomization that we chose, with treatment and control farmers in the same cooperative sections, has advantages from a statistical perspective, but comes with the risk of contamination and spillovers, which can both lead to certain bias. Contamination occurs if farmers who were assigned to the control group actually participated in the awareness workshops. We tried to reduce the risk of contamination 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.[1]

Spillovers can occur when farmers in the treatment group talk to control group farmers, thus transferring some of the information obtained during the workshops. Of course, this cannot be ruled out in the same geographical setting. However, the good news is that both contamination and spillovers would lead to underestimated treatment effects, meaning that our results can be interpreted as conservative estimates of the awareness campaign's effects.

4. Data Collection

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 857 farmers with aboussants in the two cooperatives; the remaining 5% of the farmers were unavailable.

The tablet-based 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 during the field work. The questionnaire covered data on general socioeconomic characteristics of the farm, the farm household, and the aboussants, and more specific details of the farmer-aboussant working arrangement. A series of questions related to farmers' views about written employment contracts and their actual decision to adopt such contracts was also included.

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 aboussant 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. Hence, in the survey we were not only interested in who has 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.

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 analyze people's preferences for certain types of goods and their attributes (Hensher, Rose, and Greene 2005). Beyond goods and their attributes, choice experiments have also recently been used to analyze farmers' preferences for production and marketing contracts and their features (Fischer and Wollni 2018; Meemken et al. 2017; Ochieng et al. 2017). We are not aware of previous work that has used choice experiments to analyze farmers' preferences for employment contracts, as we do here. In particular, we use a choice experiment to analyze farmers' preferences for specific features of employment contracts and how these preferences are influenced through the awareness campaign in the RCT.

In our choice experiment, we asked farmers to imagine that they would agree with their aboussant to specify the employment terms for the following season, either orally or in a written contract. We explained that they would agree on the aboussants' tasks and the basic payment modalities as usual. In addition, we introduced a few key contract features related to additional social benefits for the aboussants, as identified in the FGDs. 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

included, and farmers were asked to choose their most preferred option out of the three alternatives. 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 in the Appendix.

(Table 1 about here)

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; Uwera and Stage 2015). 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; Carson et al. 1994).

In order to design the choice cards and hypothetical combinations of contract features, a full factorial design would have been possible, but would have led to too many different options to realistically use in the choice experiment. Hence, 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 randomized.

(Figure 1 about here)

5. Estimation Strategy

Choice Experimental Models

As explained in the previous section, we carried out a discrete 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 1000 Halton draws) to evaluate farmers' preferences for the different contract features. RPL models are frequently used for estimation with choice experimental data, because these models account for possible preference heterogeneity and do not build on the independence of irrelevant alternatives assumption that standard logit models depend on (Fischer and Wollni 2018; Meemken et al. 2017; Ochieng et al. 2017).

Our model includes an alternative specific constant (ASC) coded with one for the status quo alternative. As discussed, we use an individual-specific status quo that reflects the farmer's actual working arrangement with the aboussant at the time of the choice experiment. A negative sign of the ASC would indicate a general willingness of farmers to move away from their status quo arrangement (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 of the RPL model. The base specification only includes the ASC and the contract features as explanatory variables. 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 treatment 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.

Contract Adoption Models

In addition to analyzing 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 contract adoption behavior. As mentioned above, contract adoption involves a procedure. In the survey, we captured the different steps of this procedure through a series of binary questions. Details are explained in the following.

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 aboussant 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 aboussant had already been *signed*.

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

$$Y_{isc} = \alpha + \beta T_{isc} + \vartheta_s + \varepsilon_{isc} \qquad (1)$$

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.[2] 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:

$$Y_{isc} = \alpha + \beta T_{isc} + \gamma X_{isc} + \vartheta_s + \varepsilon_{isc} \tag{2}$$

where we additionally control for any individual-level covariates, X_{isc}, that may differ between treatment and control groups in spite of the randomization process.

6. Results and Discussion

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 before the RCT was implemented, we show variables as captured during the survey that took place 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 normalized differences in column (5) of Table 2. The normalized differences indicate that the sample is balanced, meaning that the randomization worked out well (Imbens and Rubin 2015). However, the *t*-test for one of the variables shown, namely the number of aboussants employed, indicates a

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statistically significant difference at the 5% level. This is not of particular concern, as a statistically significant difference in one out of 14 variables can certainly happen randomly (Bruhn and McKenzie 2009). Nevertheless, we control for the number of aboussants employed in a robustness check.

(Table 2 about here)

Compliance and Contamination

Table 3 shows that 73% of the farmers randomly assigned to the treatment group actually also participated in the awareness workshops. This is a relatively high compliance rate, especially also given that we did not provide any incentives to farmers to participate in the workshops, except for mentioning in the invitation that the workshops would deal with farmer-aboussant relationships and the option of written employment contracts. We interpret this high compliance rate as an indication of farmers' general interest in the topics.

However, Table 3 also reveals that some contamination occurred; 4% 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.

(Table 3 about here)

Choice Experimental Results

The base specifications of the RPL models are shown in Table 4. We start the interpretation with the full sample results shown in column (1). The significant negative coefficient of the

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ASC means that farmers are generally willing to move away from their status quo work arrangement with aboussants, suggesting that the current work arrangements are not fully satisfactory for many of the farmers. Written contracts are clearly preferred over oral arrangements, as indicated by the positive and significant coefficients for the contract type variable. This is a very interesting result, as only 4% of the sample farmers actually had a written contract (see Table A1 in the Appendix). Obviously, the low adoption of written contracts in this traditional setting cannot be explained by a general aversion of farmers towards written contracts, a finding that bodes well for policy interventions to promote written contracts through awareness and information campaigns.

(Table 4 about here)

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% 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). 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 higher potential for conflicts. 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% 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 analyzed 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% of the aboussants' work-related health expenses.[3] These findings confirm that the workshops were effective in influencing farmers' preferences and making them more receptive for employment contracts with more social benefits for aboussant workers.

(Table 5 about here)

Contract Adoption Results

Table 6 shows the estimated effects of the awareness campaign treatments on farmers' awareness of written employment contracts, their intention to adopt, and the initiation of concrete steps in the contract adoption procedure.[4] The estimates from the linear probability models can be interpreted as marginal effects. Results suggest that the 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 aboussants 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 the 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.

(Table 6 about here)

In a robustness check, we ran the same models as those shown in Table 6 only that we additionally controlled for the number of aboussants that the farmer employed, as this was the only socioeconomic covariate for which we found a significant difference between the treatment and control groups in the balance test. These additional estimates are shown in Table A3 in the Appendix. The estimated treatment effects are almost identical to those shown in Table 6.

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 group. This points at information spillovers from treated farmers, who participated in the awareness workshops, to untreated farmers in the same local setting. While such spillovers can bias the results, the good thing is that the direction of the bias is clear: information spillovers would lead to underestimated treatment effects. Hence, our results can be interpreted as conservative estimates of the true effects of the awareness campaign on farmers' adoption of written employment contracts.

7. Conclusion

Farm workers in developing countries often belong to the poorest population segments in rural areas. They typically face low wages, 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 peasant environments. In this study, we have 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 confirmed in the empirical analysis.

Results showed that treatment group farmers have a significantly higher preference than control group farmers for written contracts and for certain contract features that involve social benefits for workers, such as covering 100% of work-related health expenses. Furthermore, the analysis revealed positive treatment effects on farmers' knowledge about the contract adoption procedure and their actual behavior in terms of starting this procedure with concrete steps. The treatment effect on actually signing a contract with farm workers was not statistically significant, probably because this is the last step in the procedure, which was not fully completed by the time that we had collected the survey data.

Written employment contracts are not (yet) common in rural Côte d'Ivoire and other peasant settings in developing countries. Informal oral agreements between farmers and farm workers' are the traditional norm. However, our findings suggest that changing farmers' traditional attitudes and behavioral patterns is possible through appropriately designed awareness workshops. Farmers' behavior 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 kickstart a thought

process towards behavioral change, as our results demonstrate. Lessons from the innovation adoption literature also suggest that more farmers are likely to follow after a few innovators have successfully adopted.

Our awareness workshops only involved farmers, not workers, because we assumed farmers are the ones who need to be convinced first that formalizing farmer-worker relationships may be useful. The benefits of written employment contracts for workers may be more obvious, even without much additional explanation, than the benefits for farmers. However, also involving workers in the workshops may be a good idea to better account for their views and preferences too. Our intention was not to design a perfect awareness campaign, which may also require more than just one workshop session, but to test whether such a campaign can help to induce preference shifts and behavioral changes at all. 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 organizations 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.

One limitation of our study is that we collected the data for the impact evaluation already soon after the treatment, with only four weeks in-between the awareness workshops and the farmer survey. This means that the contract adoption procedure was not yet fully completed, even for those farmers who had already initiated concrete steps. Another limitation is that information spillovers from the treatment group to the control group likely occurred in our RCT. Both issues mean that our data probably underestimate the true treatments effects of

the awareness campaign. Follow-up research should try to reduce spillovers to the extent possible and also capture longer-term effects. Reducing spillovers will likely require a cluster randomization approach with a sufficiently large number of clusters that are geographically separated. When analyzing longer-term effects, it would be of interest to not only analyze the adoption of employment contracts, but also the effects of contract adoption on productivity and the welfare of both farmers and workers.

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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	10000
	3	20000
	4	30000

Note: 10000 CFA are equivalent to ca. 17 US Dollars (May 2019).
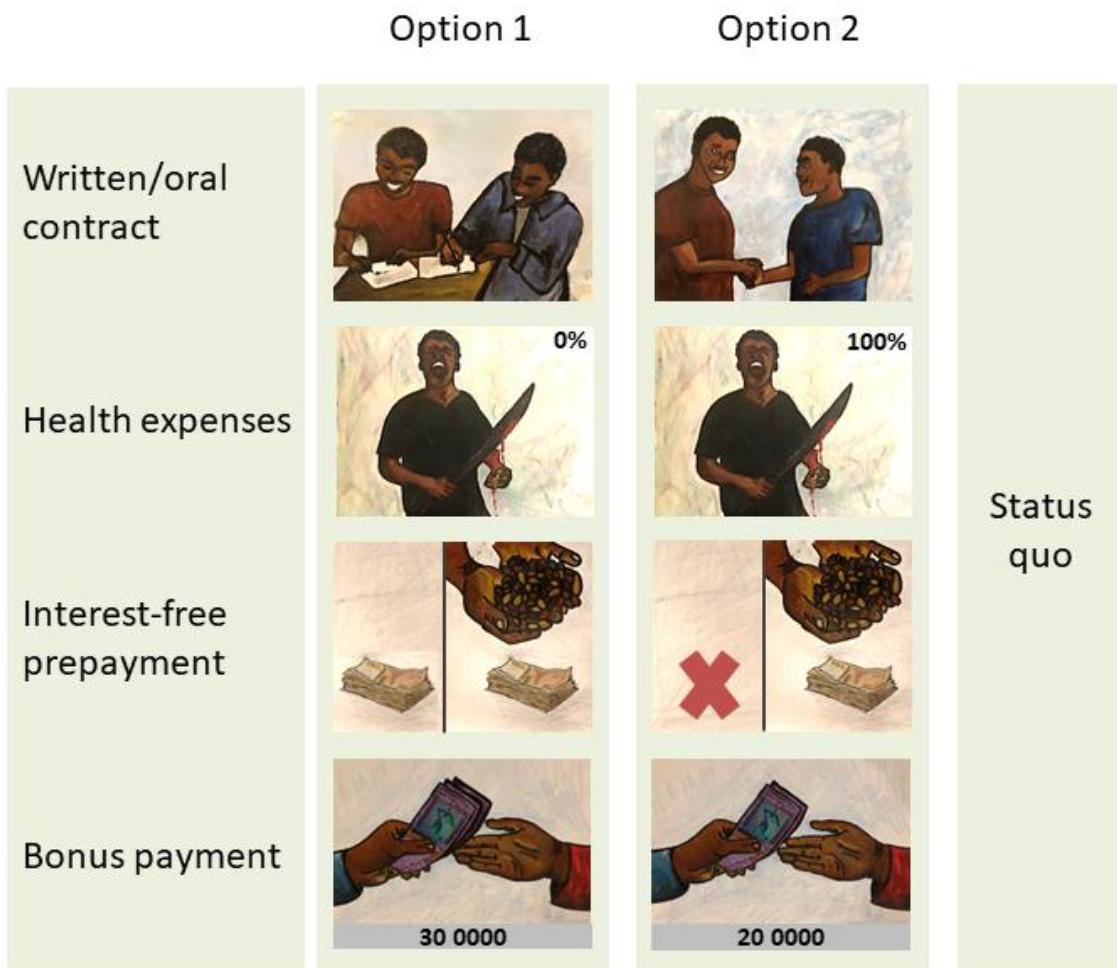
Figure 1. Example of a choice card used in the choice experiment

Table 2. Sample Descriptive Statistics and Mean Difference Tests

	(1)	(2)	(3)	(4)	(5)
	Full sample	Treated	Control	Treated-Control Difference (t-stat)	Treated-Control Normalized difference
	Mean (SD)	Mean (SD)	Mean (SD)		
Female (1=yes)	0.22	0.23	0.21	0.0190	0.046
	(0.42)	(0.42)	(0.41)	(0.65)	
Age in years	52.40	52.49	52.30	0.191	0.018
	(10.47)	(10.33)	(10.63)	(0.26)	
Education (years)	8.66	8.98	8.32	0.660	0.088
	(7.47)	(7.55)	(7.38)	(1.26)	
Official position in	0.05	0.06	0.03	0.031	0.148
cooperative (1=yes)	(0.21)	(0.24)	(0.17)	(2.11)	
Number of	5.39	5.47	5.30	0.170	0.073
household members	(2.34)	(2.42)	(2.25)	(1.04)	
Number of contacts	3.40	3.50	3.30	0.201	0.132
in cooperative	(1.52)	(1.59)	(1.43)	(1.89)	
Cacao yield (kg/ha)	519.19	516.93	521.61	-4.682	-0.028
	(165.25)	(170.26)	(159.89)	(-0.40)	
Land owned (ha)	11.26	10.79	11.76	-0.976	-0.094
	(10.43)	(8.11)	(12.43)	(-1.34)	
Land under cacao (ha)	5.29	5.19	5.39	-0.197	-0.050
	(3.94)	(3.38)	(4.46)	(-0.71)	

Cacao cultivated by aboussant (ha)	4.71	4.65	4.78	-0.130	-0.036
	(3.63)	(3.02)	(4.18)	(-0.51)	
Number of aboussants employed	1.28	1.31	1.24	0.0718**	0.107
	(0.67)	(0.67)	(0.66)	(1.53)	
Household has electricity (1=yes)	0.93	0.93	0.93	0.007	0.029
	(0.26)	(0.25)	(0.26)	(0.41)	
Bank account (1=yes)	0.25	0.24	0.26	-0.025	-0.057
	(0.43)	(0.43)	(0.44)	(-0.81)	
Farmer owns a bicycle (1=yes)	0.60	0.62	0.59	0.032	0.066
	(0.49)	(0.49)	(0.49)	(0.94)	
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)	(2)	(3)
	Mean	Standard deviation	Observations
Treatment group attended workshop	0.73	0.46	421
Control group attended workshop	0.04	0.20	393

Table 4. Farmers' Preferences for Employment Contracts (Base Specifications)

	(1)	(2)	(3)
	Full sample	Treatment group	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	-0.359***	-0.412***	-0.312***
(CFA/year/worker)			
	(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-	0.350***	0.339***	0.357***
related health expenses	(0.0768)	(0.111)	(0.107)
(1=yes)			
Farmer pays 100% of work-	-0.168*	-0.0216	-0.328**
related health expenses	(0.0906)	(0.130)	(0.129)
(1=yes)			
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	-2751.05	-1382.96	-1360.06
Chi squared	432.93***	231.36***	197.55***
Observations	9768	5052	4716

Note: Coefficient estimates from random parameter logit models are shown with standard errors in parentheses. ASC, alternative specific constant. *** p<0.01, ** p<0.05, * p<0.1

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	-2745.08
Chi squared	426.84***
Observations	9768

Note: Coefficient estimates from random parameter logit models are shown with standard errors in parentheses. ASC, alternative specific constant. *** p<0.01, ** p<0.05, * p<0.1

Table 6. Effects of Awareness Campaign on Contract Adoption Procedure

	Awareness		Intention	Concrete steps			Signing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Knows contract procedure (1=yes)	Knows where to get template (1=yes)	Plans to sign a contract (1=yes)	Talked with aboussant (1=yes)	Asked witness (1=yes)	Made official appointment (1=yes)	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)
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

Note: 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. *** p<0.01, ** p<0.05, * p<0.1

Appendix

Table A1. Status Quo of Working Arrangements between Farmers and Aboussants

	(1)	(2)
	Mean	Standard deviation
Contract type (1=written)	0.04	0.19
Prepayment without interest rate (1=yes)	0.94	0.28
Farmer does not cover any work-related health expenses (1=yes)	0.51	0.50
Farmer pays 50% of work-related expenses (1=yes)	0.36	0.48
Farmer pays 100% of work-related expenses related (1=yes)	0.13	0.33
Bonus payment (CFA/year/worker) (1=yes)	0.21	0.41
10000 (CFA/year/worker)	0.12	0.33
20000 (CFA/year/worker)	0.05	0.22
30000 (CFA/year/worker)	0.04	0.19
Observations	814	

Note: 10000 CFA are equivalent to ca. 17 US Dollars (May 2019).

Table A2. Mean Difference Tests for Outcome Variables: Treated vs. Control

	(1)	(2)	(3)	(4)
	Full sample	Treated	Control	Treated-Control
	Mean (SD)	Mean (SD)	Mean (SD)	Difference (*t*-statistic)
Written contract with	0.04	0.04	0.03	0.00730
aboussant (1=yes)	(0.19)	(0.20)	(0.18)	(0.55)
Planning to sign a	0.61	0.68	0.54	0.138***
contract (1=yes)	(0.48)	(0.46)	(0.49)	(4.14)
Talked with aboussant	0.40	0.46	0.34	0.122***
about written contract	(0.48)	(0.49)	(0.46)	(3.63)
(1=yes)				
Asked witness (1=yes)	0.18	0.19	0.16	0.0350
	(0.37)	(0.39)	(0.36)	(1.34)
Ade official	0.12	0.14	0.10	0.0380
appointment (1=yes)	(0.32)	(0.34)	(0.30)	(1.68)
Knows contract	0.50	0.57	0.42	0.145***
procedure (1=yes)	(0.50)	(0.50)	(0.49)	(4.18)
Knows where to get	0.71	0.76	0.64	0.121***
template (1=yes)	(0.46)	(0.42)	(0.48)	(3.82)
Observations	814	421	393	814

Table A3. Effect of Awareness Campaign on Contract Adoption Procedure (with control)

	Awareness		Intention	Concrete steps			Signing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Knows contract procedure (1=yes)	Knows where to get template (1=yes)	Plans to sign a contract (1=yes)	Talked with aboussant (1=yes)	Asked witness (1=yes)	Made official appointment (1=yes)	Written contract (1=yes)
Treated (1=yes)	0.140***	0.119***	0.140***	0.120***	0.0336**	0.0376*	0.00485
	(0.0282)	(0.0294)	(0.0252)	(0.0297)	(0.0150)	(0.0182)	(0.0198)
Number of aboussants employed	0.0830***	0.0290	-0.00617	0.0536**	0.0287	0.0302*	0.0475***
	(0.0250)	(0.0260)	(0.0212)	(0.0223)	(0.0167)	(0.0175)	(0.0123)
Constant	0.319***	0.608***	0.548***	0.273***	0.122***	0.0634**	-0.0264
	(0.0334)	(0.0302)	(0.0304)	(0.0332)	(0.0219)	(0.0236)	(0.0167)
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	0.034	0.020	0.022	0.023	0.005	0.008	0.030

Note: 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. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Footnotes

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[1] 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.

[2] The coefficient β is the so-called intent-to-treat (ITT) 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.

[3] The mean parameter coefficient for the 100% 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.

[4] Simple mean difference tests between treatment and control groups are shown in Table A2 in the Appendix.