Impact of Tenure Security and Trust on Land Rental Market Development in Rural China

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Abstract: This paper examines the impact of actual and perceived land tenure security and trust on the leasing of land, using detailed household-level data collected in two different regions in China. Wirth regard to actual tenure security, we find that possession of land certificates increases the probability that a household rents in additional land, the size of the leased land, and the probability of using formal contracts; absence of land reallocations in recent years positively affects the likelihood of using informal contracts. Perceptions of tenure security matter for the land renting decisions of households with high actual tenure security. Higher perceived security positively affects the probability that a household rents in additional land as well as the size of the leased land. As regards trust, we find that higher kinship trust induces households to use informal contracts, while higher trust towards known people induces households to use formal contracts.

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1. Introduction

Well-functioning land rental markets can play an important role in enhancing productivity as well as equity in rural societies. A typical feature of agrarian economies is the tenacious persistence of credit and labor market imperfections. When credit requires land as a collateral and if it is tied to the amount of land owned, redistribution of land to more productive landholders via the land sale market is prevented (Deininger and Feder 2001). High costs of supervision frequently prohibit the hiring of labor up to the quantity that would equalize the marginal product across households (Binswanger *et al.* 1995). In cases of highly segmented credit markets and thin agricultural labor markets, the land rental market therefore plays an important role in enhancing overall productivity via transferring land to more productive producers (Deininger 2003).

In the process of rural structural transformation that China and many other developing countries experience, laborers leave the agricultural sector and become engaged in off-farm employment. China's agricultural employment share is estimated to have dropped from more than 70% in 1978 to less than 50% by 2000, and is expected to continue to drop in the future (Jin and Deininger 2009). Well-functioning land rental markets could allow households with higher agricultural ability who do not join the off-farm labor force to gain access to additional land, and thereby increase their operational farm size and income. The land rental market therefore has a considerable potential to enhance equity by permitting participation in the nonfarm economy for those with lower agricultural ability (Deininger and Jin 2005).

Despite the potential of the land rental market to enhance productivity and equity, it often develops less than expected. In many developing countries, it is characterized by a high degree of segmentation caused by the fact that rental transactions are limited to a close circle of relatives where social sanctions can be applied to ensure that land is returned at the end of the rental period. A survey held in China's nine agriculturally most important provinces, for example, showed that only 13% of rural households rented in land and 10% rented out land during the period 2002-2004 (Jin and Deininger 2009). Most rental transactions were based on informal, oral contracts instead of written, formal contracts. Sixty percent of the participating households reported to have a contract, but less than 10% of the contracts were in writing. Around 40% of

participating households rent in land from a relative. The limited use of land rental transactions clearly reduces the potential of the land rental market to enhance productivity and equity. Moreover, the informal nature of rental contracts may reduce tenants' incentives for making productivity-enhancing land investments (Deininger 2003).

What factors can explain the underdeveloped land transfer markets in China? The existing international literature stresses the role of land rental transaction costs in causing low levels of land market participation and contributing to land market segmentation (Holden and Yohannes 2002; Deininger and Jin 2005; Holden *et al.* 2007; Jin and Deininger 2009). Transaction costs in land rental markets consist in particular of costs involved in acquiring information on potential partners and costs of negotiating and enforcing contracts, including the risk of land loss. Two major factors contributing to high transaction costs in many developing countries, such as Vietnam, Ethiopia, China, are insecurity of land rights arising from existing laws and regulations (Deininger and Jin 2005; Holden *et al.* 2007; 2013) and lack of trust among partners (Holden and Ghebru 2005).

Since 1998, the Chinese government has implemented a number of land tenure reforms that are meant to improve tenure security and stimulate transferability of rural land. Relevant laws include the Land Administration Law of 1998, the Rural Land Contract Law of 2002, the Property Law of 2007, and the Mediation and Arbitration of Rural Land Contract Disputes Law of 2009. Although these reforms have contributed to improved formal tenure security, it is not clear to what extent they contribute to land rental market development. What matters for land renting decisions is actual tenure security and perceived tenure security, instead of legal tenure security[1]. Actual tenure security measures actual control of land property rights, and the perceived tenure situation forms the basis upon which the landholder can be expected to take decisions, whatever the legal situation of a piece of land (Jansen and Roquas 1998; Sjaastad and Bromley 2000; Broegaard 2005). Actual and perceived tenure security may differ from formal tenure security as it depends on the way land laws and land titling are being implemented, how information about these laws is being distributed among stakeholders, and on social norms and traditions (Ma *et al.* 2015). Some studies have examined the relationship between perceived

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[1] See Ma *et al.* (2015) detail discussion about legal, actual and perceived security of farmland tenure in China.

tenure security and housing improvement in South American countries, such as Argentina and Brazil (de Souza 1998; de Souza 2001; Van Gelder 2007; Van Gelder 2009), and the relationship between perceived tenure security and land investments and inputs in China and Ethiopia (Holden and Yohannes 2002; Jacoby *et al.* 2002). According to our knowledge, however, no study has examined the relationship between perceived tenure security and participation in the rural land rental market.

Trust is increasingly recognised as an important factor in farmers' behaviour regarding resource use and economic performance (Parks and Hulbert 1995; de Vos and Mol 2010). Only a few studies, however, examine the effect of trust on farmers' participation in land rental markets. Holden and Ghebru (2005) point out that higher trust inherent in kin relationships helps to reduce transaction costs in land rental markets. However, they do not differentiate between different types of trust (e.g. trust towards kinship, trust towards known people and trust towards strangers) that may affect participation in land rental markets.

The main objective of this paper is to examine the impact of two major factors affecting transaction costs, *i.e.* tenure security and trust, on farm household decisions to rent in land in China. We focus our analysis on the demand side of the land rental market. The supply side is usually under-enumerated in rural household surveys, including the survey that we use for this study, because households who are not found at home at the survey time are not interviewed. As a result, households that migrated elsewhere and rented out their land to other households – a common phenomenon in rural China –could not be included in the sample. The paper contributes to the literature on the effects of land tenure security and trust on land rental market development, (i) by testing the role of both actual and perceived tenure security, and by distinguishing different effects of perceived tenure security on household decisions to rent in land under different levels of actual security, and (ii) by differentiating between the role of trust towards kinship and trust towards known people.

The theoretical model that we use in this study divides a potential tenant's decisions to participate in the land rental market into three separate decisions: participation decision, contract choice, and intensity of participation. Each individual decision is affected by transaction costs. In the

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empirical analysis, we use Probit models to estimate determinants of participation decision and contract choice, and a Tobit model to examine the factors affecting participation intensity. A cross-section data set, containing data for 787 households on land market participation, tenure security, trust and other relevant factors, is used to estimate these models. The data were collected in 59 villages in Gansu province in northwest China and in Jiangxi province in central-south China and cover the years 2009 and 2010, respectively. Although this study is limited to two relatively small regions, it provides some novel insights of how higher land tenure security and trust act on household decisions to rent in land.

The paper is organized as follows. Section 2 reviews the relevant literature on factors affecting land rental market development and discusses in more detail what this study contributes to this literature. Section 3 specifies the models that we use for the empirical analysis and discusses the strategy that we apply for estimating these models. Section 4 discusses data collection and presents the definitions and descriptive statistics of the variables used in the analysis. Section 5 reports and discusses the estimation results. The paper ends with concluding remarks in section 6.

2. Factors Affecting Land Rental Market Development

Failure to provide sufficient off-farm labour opportunities are a major factor explaining low levels of participation in rural land markets and land market segmentation (Kung 2002; Feng 2006). In the case of China, massive rural-urban labour migration since the start of the economic liberalization and opening up policy at the end of the 1970s has relaxed the constraints of off-farm labour markets on land rental market development. Yet, land leasing takes place at a limited scale only in many parts of rural China.

Transaction costs play an important role in land rental market development. High transaction costs in land rental markets originate in particular from insecure land rights and low levels of trust among landlords and tenants. Formal land laws and regulations may be an important factor. In Vietnam the provision of secure and long-term land rights increased the volume of rental transactions benefiting poor but productive households (Deininger and Jin 2003). In the Dominican Republic insecure property rights not only reduce the level of activity in the rental

market, but also induce market segmentation because rentals are restricted to pre-existing social networks (Macours and Swinnen 2002; Macours *et al.* 2004). In Nicaragua insecure tenure is found to reduce participation on the supply side of the land rental market (Deininger and Zegarra. 2003). In Ethiopia land certification has increased the level of participation in the land rental market (Holden *et al.* 2007) as well as the length of rental contracts (Bezabih and Holden 2006). In China village-level land reallocations greatly affect tenure security. Land use regulations that allow village leaders to confiscate land that has not been utilized for one season by households that have temporarily migrated and allocate the land to others, have a very significant and negative impact on the propensity to supply and demand land for renting; possession of land certificates that are meant to protect land use rights, on the other hand, has no significant impact on land rental market participation (Jin and Deininger 2009).

Concerning the role of trust among landlords and tenants, Holden and Ghebru (2005) point out that trust inherent in kin relations helps to reduce transaction costs in land rental markets as the costs of acquiring information and negotiating and enforcing contracts tend to be much lower. Access by tenants to land rental markets is therefore less constrained in communities where a large share of contracts consists of kinship contracts.

Although the available literature provides useful insights into factors explaining the level of land rental market development, two main issues have received insufficient attention so far. Firstly, studies examining tenure security mainly focus on the role of formal land rights derived from land laws and land titling and neglect tenure security perceptions of households. In the case of China, where rural land is formally owned by the village collective and allocated over longer periods by the village leader to households residing within the village, farmers' perceptions on the probability of future land reallocations is likely to play an important role. Because village leaders have the possibility of taking back land that was allocated to a household and has been rented out, and reallocating its use right to other households within the village[2], the perceived probability of future land reallocations is likely to affect land renting out decisions of farm households. The risk comes from the fact that formal laws and regulations that prohibit land

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[2] See *e.g.* Tan *et al.* (2006) and Wang *et al.* (2011) for a more detailed discussion of rural land allocation and land reallocations in China .

reallocations are not enforced effectively, because the seemingly vague and ambiguous formulations inherent in these laws and regulations allow local actors for a flexible interpretation and adaptations of the land laws and regulations to local conditions and changing situations (Piotrowski 2009; Ma *et al.* 2015).

Another legal rule that is not enforced effectively is the issuance of land certificates to all rural households. According to a survey held in the nine agriculturally most important provinces, about 80% of households possessed land certificates in 2004 (Jin and Deininger 2009). A survey held in northwest Jiangxi province in 2011 shows that only 30% of the interviewed households had land certificates in 2011 (Ma et al. 2015). And even when households do possess land certificates, perceptions about their role and importance in protecting land rights may affect land rental market participation decisions of such households.

Secondly, presence of trust is essential for cooperation within a group and thereby affects resource use and economic performance (Parks and Hulbert 1995; de Vos and Mol 2010; Tu and Bulte 2010). Different types of trust may have different effects on behaviour, resource use and economic performance. Fukuyama (1995) divides trust into two components: general (non-kinship or generalized) trust and kinship trust. Kinship trust refers to the trust among friends and family, and non-kinship trust refers to the trust toward the community more broadly defined. Generally speaking, high kinship trust may only make that people with kinship relations (a relatively small group) work easily together; while high general trust may make that people from the entire society cooperate easily (Tu *et al.* 2011). Different types of trust might have different effects on land rental market development, but this issue has been neglected so far in the literature on land markets.

High level of kinship trust helps to reduce the transaction costs of land rental transactions that occur among kinship members. The existence of relatively high levels of kinship trust and low levels of non-kinship trust may be an important explanatory factor of land rental market segmentation; landlords tend to worry less about losing land when their land is rented out to their own relatives. In China, land leases based on kinship often tend to be relatively short-term and based on oral contracts. Such contracts cannot ensure that land rental markets lead to optimal

outcomes, because they increase tenants' disincentives for making long-term land quality improvement investments (Deininger 2003).

High levels of non-kinship trust may reduce the transaction costs for those transactions that occur among non-kinship members and can thereby stimulate land rental transactions and reduce market segmentation. An important feature of land rental markets in rural China is that almost all land rental transactions occur among households living in the same village. The partner of a landlord is usually either a relative or a neighbour or another familiar person within the same village. We expect that kinship trust and trust towards neighbours and familiar people have different effects on participation in the land rental market. Hence, in this study we distinguish between two types of trust, namely (1) trust in parents, children and brothers/sisters (kinship trust), and (2) trust towards neighbours and familiar people. Trust towards strangers is not included in our empirical analysis because no land rental transactions occur with strangers in our research area.

3. Model Specification and Estimation Strategy

3.1. Model Specification

The standard model used in the literature specifies the impact of different transaction costs on the rented land area (Holden and Ghebru 2005). Other studies divide land leasing behaviour into two stages. In the first stage the landlord chooses whether to rent out land or not; in the second stage, given the decision to lease out land, the landlord either decides to which tenant the contract will be offered (Macours *et al.* 2004) or chooses the duration of the offered contract (Bezabih and Holden 2006). Transaction costs arising from insecure land rights, low trust and other factors can have different effects on the stages in these models.

In this study we use a three-stage decision model of a potential tenant's decision to participate in the land rental market.[3] In the first stage, a tenant chooses whether or not to rent in land based on the household's agricultural ability, the size of its land endowment, the off-farm opportunities

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[3] A landlord's behaviour can be analysed by a similar three-stage decision model. As discussed previously, the focus of our research is on the demand-side of the land market.

available, and fixed transaction costs associated with land rental market participation. In the second stage, the tenant decides to which landlord he offers the contract, whether the contract will be written or oral and what the duration of the contract will be, based on the transaction costs associated with alternative contract choices[4]. The choices in this stage may be closely related to each other. If a tenant offers the contract to a relative or brother/sister, an oral contract with a short duration or an open-ended duration is more likely than when the contract is offered a person without blood ties. Due to data limitations we focus our analysis in this stage on the choice between formal and informal contracts. A formal contract is a written contract that is signed between a tenant and a landlord, usually without involvement of a third person or institution. In the third stage, the tenant decides the area of land to be rented in, based on the size of its land endowment, the off-farm opportunities available, the available land supply in the village, and variable transaction costs. The three-stage decision model is shown schematically in Figure 1.

[Figure 1]

Assuming that high levels of tenure security and trust reduce the transaction costs of participation in land rental market for both potential tenants and landlords, we derive the following two hypotheses for the main variables of our interest: (1) a higher level of tenure security is expected to increase the probability and intensity of participation in the land rental market and the probability of choosing an informal contract, (2) a higher level of trust (towards kinship and known persons) is expected to increase the probability and intensity of participation in the land rental market and the probability of choosing an informal contract. These two hypotheses will be tested empirically below.

The basic model that we will use for estimating the factors affecting each stage in the land renting in decision making is specified as follows:

$$M_i = a_0 + a_1 AS_i + a_2 PS_i + a_3 AS_i \times PS_i + a_4 T_i + \sum a_{5j} X_{ji} + u_i \qquad (1)$$

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[4] The tenant also chooses a sharecropping contract or fixed rent contract in this stage. However, in our research area, the sharecropping contract is not preferred by tenants.

In market participation equation, M_i is a dummy variable that equals one if a household participates in land rental market, and zero otherwise, and in contract choice equation, M_i is a dummy variable that equals one if a tenant chooses an informal contract, and zero otherwise. In rented land area equation, M_i denotes the size of the rented land. AS_i and PS_i denote actual and perceived land tenure security, respectively. Actual tenure security is measured by household experience of land reallocations and possession of land certificates, while perceived security is measured by expectations on future land reallocations and perceptions on the importance of land certificates. The interaction between AS_i and PS_i is included in order to distinguish different effects of perceived security on households' participation in the land rental market under different levels of actual tenure security. T_i denotes trust (kinship trust and trust towards known people), X_{ji} is a set of control variables for household i, including village characteristics, household characteristics, land characteristics and regional characteristics, and u_i is the residual with standard properties.

3.2. Estimation Strategy

When estimating the three-stage econometric model, two issues need to be addressed. Firstly, the participation and contract choice decisions can be estimated jointly using a nested Logit model. It allows the alternatives within a nest to have mutually correlated error terms. However, our data set does not include alternative-specific variables that can be used for estimating a nested Logit model. For example, we have information on the contract type that has been chosen by a household, but not on the type that has not been chosen. We therefore estimate two standard Probit models.[5]

Secondly, there may be a selection bias because unobserved characteristics that influence the probability to rent in land could also influence the decision on the quantity of land that is rented (Teklu and Lemi 2004; Holden and Ghebru 2005). Neglecting this selectivity effect is likely to give biased estimates. We use the Heckman selection model to test for possible selection bias. If

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[5] We estimated probit models instead of standard logit models, because probit models do not exhibit the restrictive property of the Independence of Irrelevant Alternatives (IIA).

the null hypothesis that there is no selection bias is rejected, we apply a Heckman selection model for the rented land area decision. If the null hypothesis cannot be rejected, we estimate a Tobit model for the rented land area decision.

As will be explained in Section 4.1, a multi-level sample design was used for collecting the data, with county and townships as the top level, villages selected within townships, and households selected within villages. To take this specific data structure into account, we apply cluster-adjusted standard errors, adjusted for the 59 villages, in the first- and third-stage econometric models, and 54 villages in the second-stage model, because no household rented in land in five of 59 villages.

Probit and Tobit models may generate unreliable standard errors in small samples. As a robustness check, we therefore calculate bootstrapped standard errors for the first- and third-stage models[6].

4. Data Set

4.1. Data Collection

This study uses data from two household surveys held in Gansu province in northwest China and in Jiangxi province in central-south China. The survey in Gansu province was located in Minle County, Zhangye City, while the survey in Jiangxi province was located in Yanshan County in Shangrao City and in Yujiang and Guixi County in Yingtan City. These counties are located in economically less-developed areas, where the urbanization process is slow, and agriculture plays a relatively important role in the economy (Ma *et al.* 2015; Feng 2008).

The farm household survey in Gansu province was held in May 2010. It covered 315 households and 21 village leaders, living in 21 administrative villages and ten townships. Topics included in the household survey comprise farm production, off-farm employment, land rental market, land

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[6] We failed to calculate bootstrapped standard errors in the second stage model. The possible reason is that only 6% the tenants select a formal contract in one of two research areas, and this unbalanced data does not allow us to calculate bootstrapped standard errors.

and water use in the year 2009 as well as tenure security at the time of the survey[7]. The survey was the follow-up of a similar survey carried out, using a stratified random sampling technique, in May 2008. In each of the ten townships in Minle County, 10% of the villages were selected randomly for the survey in May 2008. Within each selected village, 15 households were randomly chosen to be interviewed[8]. If possible, the same households were also interviewed in May 2010. In 50 cases the same household could not be found, and was replaced by another, randomly selected, household in the same village (see Ma *et al.* 2013, 2014 for details on the stratified random sampling technique). Although 265 households were interviewed in both years, we cannot exploit the panel nature for our analysis. The reasons are that questions about subjective perceptions of land tenure were asked only in the May 2010 survey. We therefore use a sample of 312 households collected in Minle County[9] in our econometric analysis.

A similar farm household was held in Jiangxi province in August 2011. Included topics were similar to those in the survey held in Gansu province, but refer to the year 2010 instead of 2009. The survey covered 526 households living in 11 administrative villages (covering 38 natural villages[10]) and six townships. For 175 of the interviewed households, the survey was the follow-up of two similar surveys carried out in three administrative villages (covering 15 natural villages) for the years 2000 and 2005 (see Feng 2008 for details on the stratified random sampling technique used for the first survey). The earlier two surveys, however, did not contain information on land tenure security. The other 351 households were interviewed only in 2011. They were randomly selected within eight other administrative villages (covering 23 natural villages) in the same region. Due to miss some key information (e.g. land tenure situations), we use a cross-section data set of 475 households collected in Jiangxi province in our econometric analysis.

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[7] During our interview, we also asked households to estimate whether their land tenure security changes between the year 2009 and 2010, and found that land tenure security are very stable between two years. We thus use the tenure security at the time of the survey to approximate the tenure security in the year 2009 in our empirical analysis.

[8] In the first two villages, 16 instead of 15 households were interviewed.

[9] We left out three households who are missing information in 2009.

[10] The Jiangxi research area is located in the hilly area, and households reside in scattered location within an administrative village, and thus an administrative village consists of several natural villages within which households share similar culture, natural resource endowment, and self-governance rules (e.g. land reallocation rule).

Table 1 presents background information on the socio-economic situation in the two case study regions and compares it with the average values for rural China as a whole. We find that household net income per capita in the two study regions is 10-13 per cent lower than the average for rural China. Agriculture plays a relatively important role in the economy of the Gansu case study region. Per capita land resources are relatively large and the migration rate is relatively low in the Gansu case, while land resources are smaller and the migration rate is higher than the national average in the Jiangxi case study area.

[Table 1]

Table 2 summarizes actual and perceived tenure security in the two case study regions. We find that actual tenure security is much lower in the Jiangxi case than in the Gansu case. In the Jiangxi case, 70% of the households still experienced at least one land reallocation since 1998. In the Gansu case, on the other hand, only 6% of the households experienced a land reallocation since 1998. As much as 67% of the households in the Jiangxi research area stated that they do not have official land certificates, while only 3% of the interviewed households in the Gansu case said they do not have land certificates. The possession of land certificates in the Jiangxi case is much lower than was found by Jin and Deininger (2009) for central China between 2001 and 2004 (81%), while land certificates possession in the Gansu case is much higher than was found in that study for northern China (74%).

[Table 2]

With respect to perceived tenure security, our results show that it is weaker in both regions where we did our research, and perceived tenure security is lower in the Jiangxi case than in the Gansu case. Out of the interviewed households in the Gansu case, only 40% expect that no land reallocations will not take place in the next five years. In the Jiangxi research area, 32% of the interviewed households expect that no land reallocations will not take place in the next five years. The discrepancy is even larger for the confidence in land certificates. In the Gansu research area, 80 percent of the interviewed households that possess land certificates believe that land

certificates are important for protecting land rights, while only 58 percent of the interviewed households in the Jiangxi case hold a similar belief.

A disadvantage of the use of a cross-section data set is that unmeasured household characteristics (like production capacity or efficiency) may affect both the dependent and the independent variables in the analysis, and thereby lead to biased results. Since household characteristics tend to be relatively stable over time, panel data analysis may be used in future research in this field to reduce the potential bias caused by such omitted variables. In addition, the focus of our research is on two economically less-developed areas with low degrees of urbanization where land rental market is developing and most land rental transactions occur between kinship members. In order to further check the robustness of the main conclusions of our paper, similar studies may be carried out in other parts of China, like coastal regions where land rental market is more developed than in our case study region, and more land transfer transactions occur between households and village committees or between households and agricultural enterprises.

4.2. Definitions of Variables and Descriptive Statistics

Table 3 presents the definitions of the variables used in the regression analysis and their descriptive statistics as well as the signs of the expected effects.

[Table 3]

(1) Participation in land rental market
The three dependent variables in our analysis consist of a land renting in dummy, a contract choice (formal or informal contract) dummy and the area of land that is leased. In our two research cases, the land rental market is developing. In terms of the probability of renting in land and land area that is leased, land rental market develops better in Jiangxi case than Gansu case. The household surveys show that 16% of the households rented in land, with an average rented-in land area of 9.306 mu in Gansu case in 2009; while 37% of the households rented in land, with an average rented-in land area of 10.00 mu in Jiangxi case in 2010. However, more land rental transaction occurred between kinship members, and informal contracts are signed in Jiangxi case

than Gansu case. Almost 94% of the rental contracts in 2010 were informal contracts in Jiangxi case, while 58% of the rental contracts in 2009 were informal contracts in Gansu case. In their survey held in north and northeast China during 2002-2004, Jin and Deininger (2009) found that 11% of the households rented in land, with 18% of the contracts being formal contracts. Hence, the share of renting households was higher in our 2009-2010 survey, but the share of formal contracts was higher in Gansu case, but much lower in Jiangxi case.

(2) Land tenure security

In our econometric analysis, land reallocation experience takes the value 1 if a household did not experience land reallocation since 1998, and 0 otherwise. Possession of land certificates takes the value 1 if a household possessed an official land certificate, and 0 otherwise. Perceptions on future land redistribution takes the value 1 if a household does not expect a land redistribution within 5 years, and 0 if the household expects a redistribution to occur within 5 years, or does not have an idea. Perception on the importance of land certificates reflects a household's assessment of the significance of land certificates for protecting land rights. It is defined on a scale from 1 (= not important) to 5 (= very important).

A potential endogeneity problem arises from the fact that a household's participation in the land rental market may increase the risk of expropriation. To deal with this problem and also partially capture the effect of the transaction cost reduction of potential landlords to participate in land rental market on household decisions to rent in land[11], we use the perceived village-level land tenure security as an approximation[12]. It is defined as the average tenure security perception of the other respondents within the same village. In our sample only 35.6% of the households do not expect a land reallocation within 5 years, and the average value of land certificate perception variable equals 3.60, which shows that a relatively large number of households consider certificates to be important for protecting land rights.

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[11] High levels of tenure security will also reduce transaction costs for potential landlords to participate in land rental market. When land tenure is secure, a potential landlord increases the incentives to supply land in the land rental market. A larger amount of land supplied in the land rental market will reduce potential tenants' costs involved in acquiring information on potential partners and costs of negotiating and enforcing contracts, and increase the incentives for a potential tenant's decision to rent in land.

[12] We assume that the actual tenure security variables are exogenous, because both land reallocation experience and possession of land certificates depend on village-level management decisions that are usually not affected by a household's land renting decisions.

(3) Trust

One widely used method to measure trust is based on the World Values Survey (WVS). The standard question about trust is specified as "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people?" (Knack and Keefer 1997:1256). However this binary choice question is relatively simple, and it does not fully capture the essence of trust, in particular kinship trust. More comprehensive methods to measure the level of trust include trust games (Berg *et al.* 1995; Bouma *et al.* 2008) and comprehensive questions about trust rather than only using the WVS trust question (Leonard *et al.* 2010; Tu *et al.* 2011).

Our research uses comprehensive questions about trust. Apart from the standard WVS trust question, respondents were also asked to indicate their trust level to different groups (i.e. parents, brothers/sisters, children, other relatives, neighbours, familiar (known) people, local officials, strangers), using a scale from 0 (totally distrust) to 1 (fully trust). We use the factors of trust to parents, brothers/sisters and children to measure kinship trust, the trust towards neighbours and familiar (known) people to measure trust towards known people[13]. The observed average levels of trust in the Gansu case region equal 0.93 for kinship trust, and 0.84 for trust towards known people while the average levels of trust in the Jiangxi case region equal 0.93 for kinship trust, and 0.75 for trust towards known people. It indicates that trust towards known people is much lower in the Jiangxi case, and may provide a plausible explanation why more land rental transactions occurred between kinship members and informal contracts were preferred in the Jiangxi case.

Trust may be an endogenous variable in models explaining participation in the land market. By participating in land markets people may learn about the intentions and behaviour of others and as a result build up trust (or distrust)[14]. In order to avoid potential endogeneity and capture the effect of being trusted on household decisions to rent in land, we use (average) village-level trust as a control variable in our analysis. It is defined as the average trust of the other respondents within the same village.

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[13] Trust towards strangers is not included in our empirical analysis because no land rental transactions occur among strangers in our research area.
[14] Similar arguments can be found in Fischer (2008) and Tu and Bulte (2010).

(4) Other independent variables

The other independent variables used in the models explaining the decisions to rent in land include village characteristics, household characteristics, land characteristics and regional characteristics. Village characteristic that we use in our analysis is village migration, which serves as an indicator of the development of rural labour market. This indicator is an approximation of household migration because household migration may be an endogenous variable in models explaining participation in the land market (Feng, 2006). It is defined as the average number of the migrating members[15] of the other respondents living in the same village. Rural labour market is developing more in Jiangxi case than Gansu case. The average number of the migrating members in Jiangxi case is 1.40, almost double of Gansu case (0.75). We expect that it has a positive effect on the probability that a household rents additional land and on the quantity of land rented, and an ambiguous effect on choice of informal contract because on the one hand, informal contract is preferred if land rental transaction occurs between kinship members, formal contract, on the other hand, is preferred if land rental transaction occurs between non-kinship members in the village.

Household characteristics include household head's age, education, off-farm employment experience, leader or party member, risk aversion and household wealth. Age of household head is expected to have an ambiguous effect on the probability that a household rents additional land and on the quantity of land rented because on the one hand, the older household head might have more agricultural management experiences, and are more likely to rent in land, on the other hand, they are more likely to rent out land if they are too old to work effectively on agriculture. Age of household head may have a positive impact on the use of informal contracts for land rental transactions, because older household heads will usually have more social contacts and may be less familiar with the formal legal system than younger ones. Education of the household head is expected to have a negative effect on the decision to rent in land, because more educated households are more likely to participate in off-farm employment and therefore less likely to rent in additional land. Education of the household head is also expected to have a negative effect on

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[15] We also used the share of migrants to all workers (aged between 16 and 65) in a household to measure a household's degree of involvement in migration in our empirical analysis, and got the similar results.

the use of informal contracts. Because more educated households are more familiar with national laws and regulations, they tend to use formal contracts.

Off-farm employment experience of household head is expected to have a negative effect on the decision to rent in land, and the use of informal contracts. Households with past off-farm employment experience are more likely to engage more in off-farm employment and not rent in land. Furthermore, households with off-farm employment experience are more familiar with national laws and regulations, and prefer formal contracts. Village leader or party membership of the household head serves as a measure of access to political power (formal power), and we expect that it has an ambiguous effect on the decision to rent in land because on the one hand political power may provide more information on land transfer, and thus increase likelihood of participation in land rental market, on the other hand, it also provide more information on off-farm jobs, and accordingly reduce likelihood of participation in land rental market. We also expect that it has an ambiguous effect on choice of contract because households with access to political power have a better understanding of how to enforce a formal contract based on legal judicial systems, and thus have less enforcement costs of formal contracts, on the other hand, access to political power provides with stronger power to enforce informal contracts in the village. The household head's risk aversion is assessed by asking his opinion about the statement "I have never been the first to adopt new technology in my village, because I think that has a high risk", using a scale with values 1 (= disagree), 2 (=no opinion) and 3 (= agree). We expect that risk averse households are less likely to participate in the land rental market because it involves more risk than using contracted land for growing crops. However, the impact of risk aversion on contract choice is unclear. It depends on which contract type is considered to be more secure by the household in question.

Household wealth is used as an indicator of the economic and social power of a household within the village. It is expected to have an ambiguous effect on the decision to rent in land because on the one hand, wealthy households can afford to rent in (large scale of) land, and on the other hand, wealthy households are more likely to engage in off-farm employment as a result of less credit constraints of taking off-farm employment. Wealth can increase a household's power of

enforcement for both informal and formal contracts. Hence, its impact on contract choice is indeterminate.

Land characteristics include the contracted land (i.e. the land allocated to the household by the village leader) area per labour. Contracted land area per labour is introduced as a measure of a household's land endowment. Land resources per labour is expected to have a negative impact on the probability that a household rents additional land and on the quantity of land rented in. The impact of contracted land area per labour on contract choice is unclear.

Finally, Jiangxi province dummy is included to control for major unobserved differences between two provinces in factors such as land quality and informal environment which may affect land renting decisions. Furthermore, we use town fixed effect model by including 15 town dummies in the model. These town dummies are meant to control for major unobserved differences between towns in factors which may affect land renting decisions.

5. Estimation Results

5.1. Probability of Participation

The second column of Table 4 reports the regression results for the determinants of the probability that a household rents additional land. We find that (village level) perceptions on land reallocations have an insignificant effect, while the interaction term between land reallocation experience and perceptions on land reallocations has a significant positive impact. The sum of the estimated coefficients for perceptions on land reallocation and its interaction with the land reallocation experience variable is significantly different from zero. This result indicates that the tenure security derived from the expected absence of land reallocations tend to have a significant positive impact on the probability of participation in land rental market for households who did not experience land reallocation since 1998, but not for those who had land reallocations since 1998. Similarly, we find a higher importance attached to land certificates in protecting land rights positively affects participation decisions just for households who had a land certificate, but not for those who did not possess a land certificate.

We further calculate average marginal effects of the land tenure security variables (see Table 5). The main conclusion for the effect of perceived land tenure security variables on participation decisions can be drawn from these marginal effects. This conclusion is consistent with existing research findings that insecure property rights cause a low level of land rental market development (Macours *et al.* 2004; Bezabih and Holden 2006; Holden *et al.* 2007; Jin and Deininger 2009). The average marginal effects for the actual land tenure security variables show that land reallocation experience does not have a significant impact on participation decisions, and that households who possess land certificates are more likely to rent in additional land. Ma *et al.* (2015) provides a plausible explanation for the markedly different effects of the two tenure security variables. A ban on land reallocations protects against one source of expropriation, namely expropriation by the village group in the next round of land reallocations. But it does not protect against land expropriations by the local government for urban development or infrastructure construction purposes or by tenants who are not willing to return rented land. Land certificates, on the other hand, are meant to protect against all sources of expropriation. Moreover, rural households are more likely to receive appropriate compensation payments if they possess land certificates.

[Table 4]

[Table 5]

We find that both kinship trust and trust towards known people do not significantly affect participation decisions. This finding is not consistent with Holden and Ghebru (2005)'s conclusion that higher trust inherent in kin relationships helps to reduce transaction costs in land rental markets. A possible reason for the insignificant coefficient of trust towards known people is that about 90% of land rental transactions occurred among kinship members in our sample, and thus high degree of trust towards neighbours and familiar (known) people cannot simulate more households to rent in additional land. The very high degree of trust towards kinship and its limited variation among households (see Table 3) may explain why kinship trust does not significantly affect participation decisions of the households in our sample.

With respect to the other explanatory variables, we find that village migration has a positive and insignificant effect on the probability of participation, but this positive effect is significant on rented land area. It indicates that the development of rural labour market does not affect whether a household rents in land, but induces a tenant to rent in more land. The age of the household head is found to have a negative effect, suggesting that older households are less likely to rent in land. As expected, the level of education of the household head, risk aversion and contracted land-labour ratio are found to have a negative effect on rental market participation. The insignificant coefficient of off-farm employment experience of the household head may come from the fact this variable does not capture accurately the employment status of the household head in the survey year. Finally, leader or party member and family wealth do not have a significant effect on rental market participation decisions in our sample. It suggests that households who are access to more political power and economic power do not have larger probability of participation in land rental market than those households who are access to less power.

5.2. Formal / Informal Contract Choice

Regression results for the choice between informal (oral) and formal (written) contracts are reported in the third column of Table 4. Positive values of the estimated coefficients mean that households are more likely to choose an informal contract. Table 5 presents average marginal effects of the land tenure security variables and trust variables.

With respect to land tenure security variables, we find that households that did not experience land reallocations since 1998 are more likely to use informal contact, while households who possess land certificates are more likely to use formal contract. The tenure security derived from the expected absence of land reallocations tend to have a negative impact on the use of an informal contract for households who did not experience land reallocation since 1998, and a higher importance attached to land certificates in protecting land rights negatively affects the use of an informal contract just for households who had a land certificate.

Consistent with our theoretical expectations, informal contracts are preferred by households who did not experience land reallocations since 1998 because informal contracts are less costly than formal contracts. However, a surprising finding is that for households who did not experience land reallocations since 1998, perception on the absence of land reallocation within five years induces these households to use a formal contract. A possible reason is that these households are more likely to rent in land from the non-kinship members, and thus prefer a formal contract. The reason that formal contracts are preferred by households who possessed land certificates and considered relatively importance of land certificates is that land certificates function as legal documents in the formal juridical system, and can reduce the enforcement costs of formal contracts (Ma *et al.,* 2015).

With respect to trust, we find that kinship trust has a positive impact on the probability of choosing informal contracts, which suggests that higher trust among kinship induces households to choose informal contracts. The reason is that in villages with higher trust among kinship households are more likely to rent in land from kinship members, and informal contracts are preferred. Trust towards known people is found to have a negative effect on the probability of choosing informal contracts. This finding is inconsistent with our a priori expectations that households with higher trust are more inclined to use informal contracts for land transactions. A possible reason is that in villages with higher trust towards known people households are more likely to rent in land from known people than kinship members, and formal contracts are preferred when land transaction occur between non-kinship members.

With respect to the other explanatory variables, we find that village migration has a positive effect on the probability of using informal contracts. The possible reason is that the current rural labour market in China is characterized by temporary migration, and many rural migrants keep moving back and forth between their home villages and their urban destinations (see Mullan *et al.*, 2011; Ma *et al.*, 2014). In the villages with more temporary migrants, land rental transactions are more likely to occur between kinship members, and informal contracts are preferred. We find that household head's age, education and off-farm employment experience do not have a significant effect on the use of an informal contract in our research sample. As expected, leader or party member of the household head, household wealth, risk aversion and contracted land per

labour have an insignificant effect on the use of an informal contract. Finally, controlling the effect of the variables included in the model, on average, there is no difference in the choice of informal / formal contracts between Jiangxi and Gansu case study regions.

5.3. Rented Land Area

Our regression results for the rented land area are summarized in the fourth column of Table 5[16]. Table 5 presents average marginal effects of the land tenure security variables and trust variables. The results for the land tenure security variables are consistent with those for the rental market participation equation. We find that land reallocation experience has an insignificant impact and possession of land certificates positively affects land area that is rented in. The tenure security derived from the expected absence of land reallocations positively impacts on the rented land area only for households who did not experience land reallocation since 1998, and a higher importance attached to land certificates in protecting land rights positively affects the rented land area just for households who had a land certificate. Consistent with that for the rental market participation equation, we find two trust variables do not significantly affect the rented land area.

With respect to the other explanatory variables, consistent with what was found in the rental market participation equation, village migration and Jiangxi province dummy have a positive effect on the rented land area. The results for household characteristics indicate that the age of the household head, off-farm employment experience of the household head and risk-aversion have a negative effect, as expected. The education of the household head, leader or party member, and household wealth are found to have statistically insignificant impacts on the rented land area.

As a robustness check we calculate bootstrapped standard errors for the first- and third- stage models. The regression results for two models and the corresponding average marginal effects can be obtained upon request from the first author. As expected, bootstrapped standard errors for some variables in the models are larger than the asymptotic standard errors reported in Tables 4.

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[16] In the Heckman selection model, LR test of independent equations has a χ^2 statistic of 0.07 (P-value=0.79), we thus cannot reject the null hypothesis that there is no selection bias for our model, and report the results from Tobit model.

Yet, the main conclusions that we drew from the regression results presented in Table 4 and 5 still hold when we use bootstrapped, instead of asymptotic standard errors.

6. Conclusion

The development of land rental markets may play an important role in enhancing productivity as well as equity among rural households, particularly when there are major imperfections in rural credit and labor markets. Using data collected in two household surveys in Minle County, Zhangye City, Gansu province in northwest China and in Yanshan County in Shangrao City and Yujiang County and Guixi County in Yingtan City, Jiangxi province in central-south China, we find that both actual and perceived tenure security matter for household decisions to rent in land. The tenure security derived from possession of land certificates increases the probability that a household rents in additional land and the size of the leased land, and induces a household to use a formal contract for land rental transactions, while the absence of past land reallocations induces a household to use an informal contract. The importance attached to land certificates in protecting land rights and expectations about the absence of land reallocations in the near future positively increase the probability that a household rents in additional land and the size of the leased land, and induce a household to use a formal contract. However, household perceptions on land certificates just matter for households who possessed a land certificate, while household expectations about the absence of land reallocations in the near future just matters for households who did not experience land reallocations since 1998.

With respect to trust, we find neither trust towards kinship nor trust towards known people increases the probability of leasing land and the size of the leased land. This finding may be explained from the fact that most land rental transactions occurred among kinship members, and the very high degree of trust towards kinship and its limited variation among households exist in our research sample. However, we find that higher kinship trust induces a household to use an informal contract, while higher trust towards known people induces a household to use a formal contract.

The results of our study have important policy implications. Despite the recent legal reforms that are meant to increase tenure security, we find that both actual control of land tenure and perceptions of tenure security among rural households are less developed than legal reforms, and such less level of tenure security affects land rental market development. Land rental market development may be stimulated through policies aimed at guaranteeing that every household has possessed land certificates, and land reallocations in response to demographic change have been banned, and that land certificates issued to rural households effectively protect the land rights of their holders. In addition, improving the enforcement system or conflict-resolution mechanisms associated with land tenure security can serve as important instruments to strengthen household perceptions on tenure security.

Land rental market segmentation, partially associated to the coexistence of high level of kinship trust and low level of non-kinship trust, constrains further development of land rental market in many regions of rural China. Measures that may be taken to improve trust towards known people and towards unknown people may focus on the enlargement of farmers' social network, such as provision of more collaboration opportunities among villagers or introducing participatory or community-based development projects in which farmers are involved in project design and project management.

Although our study is limited to two relatively small regions in rural China, the issues discussed are likely to be of relevance to other parts of rural China and a wider range of developing countries (e.g., Ethiopia, Vietnam) with similar tenure systems that aim to provide farmers with secure and long-term formal land rights. Formal land rights may become more secure through appropriate land laws and regulations, but persistent perceptions of land tenure insecurity and lack of trust among potential partners may limit the development of land rental markets. The focus on formal land rights in ongoing research on land rental markets may therefore need a re-orientation, and include also informal institutions like tenure security perceptions and trust.

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Table 1 Socio-economic indicators for two case study regions and for rural China, 2009-2010

Indicator	315 households in Gansu, 2009[a]	526 households in Jiangxi, 2010[a]	Rural China	
			2009[b]	2010[b]
Household net income per capita (RMB)	4,500	5,326	5,153	5,919
Share of agricultural income to total income (%)	70	44	47	46
Share of migrants to all workers (%)	22	46	33	36
Household land area per capita (mu)	4.28	1.58	2.26	2.28

[a] Source: Calculated from household and village leader surveys.

[b] Source: Calculated from NBS (2010a,b, 2011a,b, 2012)

Table 2 Definition of variables and descriptive statistics

Variable	Definition	Mean	S.D.	Exp. signs [c]	
				P, I	C
Participation in land market variables					
Renting in dummy	1= household rented in land, 0= otherwise	0.285	0.452		
Informal contract dummy	Contract type of renting household: 1= informal (oral) contract; 0= formal contract	0.862[a]	0.346		
Rented land	Total area of land rented in by renting household (mu)	9.846[a]	11.37		
Land tenure security variables					
Land reallocation experience	1=households did not experience land reallocation since the second round contracting, 0=otherwise	0.567	0.496	+	+
Possession of land certificates	1=households possess an official land certificate, 0=otherwise	0.559	0.497	+	+
Village perception on land reallocations	Average perception on land reallocations in the village based of the other sampled households that live in the same village as the surveyed household	0.356	0.208	+	+
Village perception on land certificates	Average perception on importance of land certificates in the village based of the other sampled households that live in the same village as the surveyed household	3.603	0.597	+	+
Trust variables					
Village trust towards kinship	Average trust towards kinship in the village based of the other sampled households that live in the same village as the surveyed household, calculated by comprehensive questions about trust	0.930	0.029	+	+
Village trust towards known people	Average trust towards known people in the village based of the other sampled households that live in the same village as the surveyed household, calculated by comprehensive questions about trust	0.785	0.101	+	+
Village characteristics					
Village migration	Average number of the migrating members in the village based of the other sampled households that live in the same village as the surveyed household	1.142	0.477	+	+/-
Household characteristics					
Age of household head	Age of the household head (years)	51.02	10.85	+/-	+
Education of household head	Years of formal education of the household head (years)	6.318	3.296	-	-
Off-farm employment experience	1= household head has off-farm employment experience in the past, 0= otherwise	0.484	0.500	-	-
Leader or party member	1= household head is a party member or village leader, 0= otherwise	0.194	0.396	+/-	+/-
Household Wealth	Value of agricultural devices, livestock, electronic instruments, house, furniture and transportation vehicle (RMB)	75896	328713	+	+/-
Risk aversion	Opinion about risk aversion statement, 1= disagree, 2=no opinion, 3= agree	1.956	0.963	-	+/-
Land characteristics					
Contracted land – labour ratio	Ratio of contracted (= allocated) land area to labourers[b] in household (mu)	3.980	4.582	-	+/-
Regional characteristics[d]					
Jiangxi province dummy	1= farmer resides in Jiangxi province; 0= otherwise	0.604	0.489	+/-	+

Source: Household survey.

a The mean is calculated based on the sub-sample of households that rent in land, instead of the full sample. b Number of labourers is standardized using the household' subjective evaluation (one person can be either a full labourer, half labourer or non-labour). c P and I indicate the probability of participation in land rental market and intensity of participation, respectively, and C indicates probability of choosing an informal contract. d For simplicity, the descriptive statistics of 15 township dummies included in the models are not reported here.

Table 3 Actual and perceived land tenure security in the two case study regions

Indicator	Survey answers	Share of households (%)	
		Gansu case	Jiangxi case
Actual tenure security			
Land reallocation experience	At least one land reallocation since 1998	6	70
	No land reallocation since 1998	94	30
Possession of land certificates	With land certificate	95	30
	Without land certificate	3	67
	No answer	2	3
Perceived tenure security			
Expectation on future land reallocations	Expect that land will be reallocated within five years	15	43
	Expect that land will not be reallocated within five years	40	32
	Do not know	45	25
Perception on importance of land certificates[a]	Important for protecting land rights	80	58
	Not important for protecting land rights	8	33.6
	Do not know	12	8.4

Source: Author's calculations. a The share of households is calculated based on the sub-sample of households that have land certificates, instead of the full sample.

Table 4 Regression results for participation in land rental market

Variable (Model)	Rent in dummy (Probit)	Informal contract dummy (Probit)	Rented land area (Tobit)
Variable	Coef. (Std. Err.)	Coef. (Std. Err.)	Coef. (Std. Err.)
Land tenure security variables			
Land reallocation experience	-0.485*(0.262)	1.670**(0.773)	-6.190(4.865)
Village perception on land reallocation	0.428(0.341)	-0.083(1.156)	0.348(5.074)
Land reallocation experience × Village perception on land reallocation	1.245**(0.561)	-2.151(1.500)	17.086*(9.506)
Possession of land certificates	-1.518*(0.916)	1.581(2.812)	-25.107*(14.557)
Village perception on land certificates	-0.074(0.226)	-0.534(0.547)	-0.148(2.897)
Possession of land certificates × Village perception on land certificates	0.564**(0.284)	-0.904(0.871)	9.420**(4.581)
Trust variables			
Village trust towards kinship	2.170(2.462)	27.302***(9.383)	11.608(36.086)
Village trust towards known people	-0.479(0.924)	-18.998***(5.814)	3.582(13.147)
Village characteristics			
Village migration prevalence	0.189(0.148)	1.412***(0.509)	3.583*(1.980)
Household characteristics			
Age of household head	-0.021***(0.006)	0.015(0.023)	-0.376***(0.109)
Education of household head	-0.035**(0.017)	-0.123(0.084)	-0.284(0.237)
Off-farm employment experience	-0.157(0.110)	0.256(0.338)	-4.213*(2.193)
Leader or party member	0.084(0.142)	0.225(0.449)	1.561(2.287)
Ln(Household Wealth)	-0.041(0.040)	0.015(0.164)	-0.104(0.583)
Risk aversion	-0.133**(0.054)	0.194(0.191)	-2.452***(0.829)
Land characteristics			
Contracted land – labour ratio	-0.035*(0.020)	0.070(0.095)	-0.175(0.355)
Regional characteristics			
Jiangxi Province	1.576***(0.471)	-0.985(1.486)	25.228***(8.261)
Observations	787	223	787
Mean VIF [a]	8.14	11.01	8.14
Log pseudolikelihood	-414.28	-48.84	-1164.80
% correct prediction	74.08	90.58	_
χ^2- statistic (p-value) [b]	11.07***(0.001)	3.77**(0.052)	6.11**(0.014)
χ^2- statistic (p-value) [c]	4.62**(0.031)	3.41*(0.065)	5.70**(0.017)

Notes: 15 town dummies are included in the model to control town fixed effects, but not reported in the table. Standard errors are adjusted for 59 clusters (villages), and *,**, *** indicate statistical significance at the 10%, 5%, and 1% levels respectively. [a] Mean VIF tests the degree of multicollinearity among the independent variables, including all interactions. [b] For sum of coefficients of village perception on land reallocation and village perception on land reallocation × land reallocation experience. [c] For sum of coefficients of village perception on land certificates and village perception on land certificates × possession of land certificates.

Table 5 Average marginal effects for tenure security and trust

Model: Variable	Rent in dummy (Probit)[a]		Informal contract dummy (Probit)[a]		Rented land area (Tobit)[b]	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Actual land tenure security						
Land reallocation experience=1 (without reallocation)	-0.119	0.040	0.087**	0.046	-0.004	0.040
Possession of land certificates = 1 (with land certificates)	0.116***	0.033	-0.189***	0.051	0.119***	0.031
Land tenure security perceptions						
Village perception on land reallocations[c]						
Land reallocation experience=1 (without reallocation)	0.498***	0.142	-0.270**	0.134	0.309***	0.106
Land reallocation experience=0 (with reallocation)	0.127	0.102	-0.010	0.140	0.006	0.090
Village perception on land certificates[d]						
Possession of land certificates = 1 (with land certificates)	0.146**	0.068	-0.174*	0.098	0.164***	0.065
Possession of land certificates = 0 (without land certificates)	-0.022	0.067	-0.065	0.067	-0.003	0.051
Village Trust						
Village trust towards kinship	0.646	0.733	3.304***	1.169	0.205	0.642
Village trust towards known people	-0.143	0.277	-2.300***	0.675	0.063	0.232

Notes: Standard errors is adjusted for 59 clusters (villages). *,** and *** indicate statistical significance at the 10%, 5%, and 1% levels respectively. [a] In Probit model, the predictive marginal probability of renting in are reported for each variable. [b] In Tobit model, the marginal effects on the unconditional expected value of the (censored and uncensored) observed dependent variable are reported for each variable. [c] Marginal effects are reported for village perception on land reallocations for households without land reallocations (land reallocation experience=1) and with land reallocations (land reallocation experience=0). [d] Marginal effects are reported for village perception on land certificates for households with land reallocations (possession of land certificates = 1) and without land reallocations (possession of land certificates = 0).
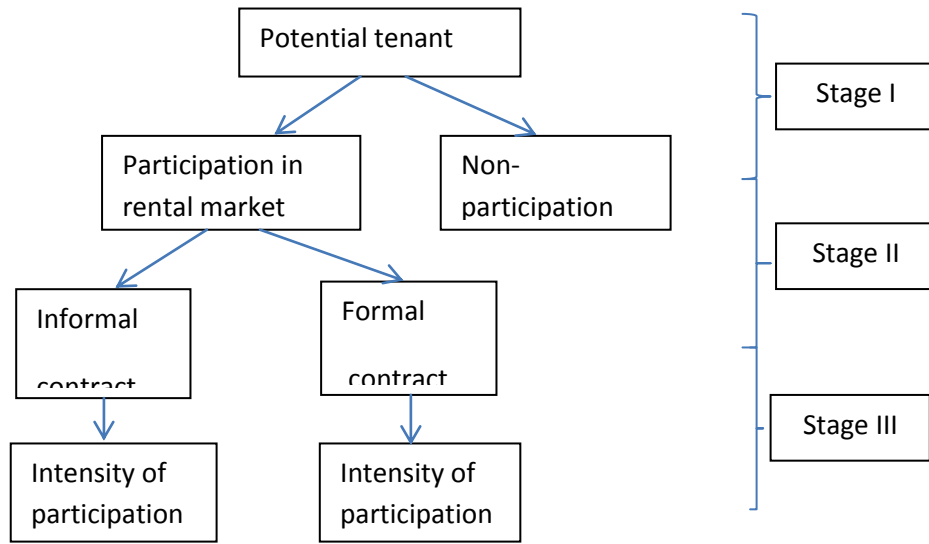
Figure 1 Structure of potential tenant's decision to participate in land rental market