

# Land Reform and Farm Land Rental Market Operation in the Northern Uplands of Vietnam

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**Abstract.** This paper examines the factors affecting the participation of farm households in farm land rental markets with particular focus on the impact of the land reform. The operational outcomes of such market participation are also analysed. The study used a panel dataset of farm households surveyed before and after the land reform with Random Effect Tobit model. The analysis showed that the land reform have contributed to increased land rental participation. The operation of the market has both efficiency and equity outcomes. Therefore, constraints to functioning of land rental market are difficult to justify. In other words, farm land rental should be promoted to bring such desirable outcomes.

**Keywords:** land reform, land rental market participation, efficiency and equity in land use, northern uplands.

**JEL Code:** Q13, Q15, C00

## 1. Introduction

As one of the most important factors of production, farm land is central to the rural life and agricultural development. There are two critical issues in economics of resource use in general and in land use in particular, namely efficiency and equity. Economic theories and available evidence in many developing countries show that the social stability, economic development, and natural resource rehabilitation can only be successfully done with a sound land policy and land management mechanism which helps to bring a higher economic outcome and a better equity among land users. Besides administrative interventions, market mechanism is an important channel affecting the use and distribution of resources, including land. It is, therefore, of special interest to examine which factors determine the operation of land market and the consequences of such market operation regarding the issues of economic efficiency and equity in land use.

According to DEININGER ET AL (2003), well-functioning land markets can, in principle, contribute to broad-based rural development in several ways: (1) Where the ownership distribution of land differs from the optimum operational structure, land markets can transfer land from less to more productive producers and thus increase land productivity; (2) transferable land rights make it less costly for rural residents to take jobs in the non-farm economy, something that is likely to boost the off-farm sector; (3) transferability of land increases investment incentives because those who make such an investment can enjoy the benefits even if they are no longer able to personally use the land; and (4) the ability to transfer land at low cost will reduce the transaction cost of accessing credit and can, if there is effective demand for credit, increase credit supply.

However, it is also well-known that in situations where risk is high, credit markets are imperfect and non-agricultural uses drive land purchase demand, land market may not bring the ownership distribution of land closer to the optimum and may, in certain circumstances, lower overall productivity (BINSWANGER *ET AL.*, 1995). Fear of such efficiency-reducing outcomes and/or land distribution inequality has led a number of countries to impose restrictions on the operation of land markets (DEININGER *ET AL.*, 2003).

This kind of restrictions is actually what had been done in Vietnam before. The realisation of the disadvantages of centrally-planned economic mechanism and the stagnation of economic performance forced the government to move to market liberalization with its renovation policy package known as "Đổi mới". The major starting point of this structural adjustment policy was to privatise the main productive asset, in this case farm land, then to legalise its free exchange with the provision of land titles. Other renovations include the elimination of production and consumption subsidies, deregulation of agricultural input-output markets, and liberalization of trades (see NGUYEN, 2002).

It is therefore widely known that, on the one hand, free transaction of the factor of production can help producers to adjust their operational holding size to the level that is optimal to them. In this case, free transfer of land could have both efficiency and equity impact. On the other hand, some fear of the pre-mature of land market liberalization which could lead to the re-concentration of land by better-off households with more available capital and low agricultural productivity for other purposes rather than farming. This limits the opportunities for the poorly-endowed land households to access the land, even though they may be more efficient, especially in the context of insecure land property rights and imperfections in other markets of factors of production such as credit. These are usually the reasons for the government in some countries to put administration restrictions on the operation and functioning of the land transaction markets. This paper is aimed to provide a critical argument on the operational outcomes of land markets with the case study in the Northern Uplands of Vietnam.

## 2. Theoretical Setting and Study Design

### 2.1. Conceptual Model

This section presents the conceptual model on the linkage between land reform and land rental market. It is derived from the work of DEININGER *ET AL.* (2003). To formalize the conceptual model, let household  $i$  be endowed with fixed amount of labour ( $\bar{L}_i$ ) and land ( $\bar{A}_i$ ), and a given level of agricultural ability ( $\alpha_i$ ). Households can allocate their labour endowment between farming their own land and off-farm employment at an exogenous wage ( $w_i$ ). Renting incurs transaction costs ( $T$ ) proportional to the amount of land transferred and it is assumed that working capital is not binding. With this, household  $i$  will choose  $I^{a*}$ ,  $I^{o*}$  as well as  $A^*$  by solving the maximization problem:

$$\text{Max}_{I_i^a, I_i^o, A_i} p\alpha_i f(I_i^a, A_i) + w_i I_i^o - I_i^{\text{in}}(A_i - \bar{A}_i)(r + T) + I_i^{\text{out}}(\bar{A}_i - A_i)(r - T)$$

where  $p$  is the price of agricultural goods,  $I^o$  is the amount of time allocated to off-farm labor ( $= \bar{L}_i - I_i^a$ ),  $I^{\text{in}}$  is an indicator for rent-in ( $=1$  for rent-in, and  $0$  otherwise), similarly  $I^{\text{out}}$  is an indicator for rent-out ( $=1$  for rent-out, and  $0$  otherwise), and all other variables are as defined above. The optimal choices of  $I_i^a$ ,  $I_i^o$  and  $A_i$  will solve the first order conditions (FOC) of problem in (1). Farm production technology is assumed to display constant returns to scale and is described by a linearly homogenous and strictly concave function.

The first order conditions allow to derive three empirical propositions: (1) The amount of land rented in is increasing with agricultural ability,  $\alpha_i$ , and is decreasing with their land endowment,  $\bar{A}_i$ . Rental market will thus transfer land to poor but efficient farmers; (2) transaction costs drive a wedge between those renting in and those renting out. Reduction in transaction costs will increase social welfare; and (3) increases of the wage for off-farm employment will increase the amount of land transacted in land rental market. These propositions are the backbone of the empirical analysis on the operation of land markets in paper (for a more detail, see NGUYEN, 2008).

In summary, agricultural ability, off-farm development and land rights are identified as key elements affecting functioning of land rental market. The derived propositions from the conceptual model on the operation of land rental market are tested in this case study. This is to identify factors conducive to the development of land rental market and to assess the extent to which land transfers enhance productive efficiency and equity in land use. As noted, the extent to which households should be allowed to transfer their land in transition economies is of large policy interest which helps those countries in shaping out their land policy for higher efficiency and equity.

## 2.2. Estimation strategy

The decision of farmers to participate in land market can be seen as a binary outcome of whether they participate or not. Thus, the dependent variable is econometrically discrete with the value of one for participation and of zero for non-participation. In this case, the expected value of the dependent variable can be interpreted as the probability that a particular farmer with certain characteristics will participate in land markets. This probability can take the range of values between zero and one. Such kind of models is called binary models. However, binary models cannot capture the quantity differences in the degree of participation. This means that there is no difference between a farm household who transfers one hectare of land and another one who transfers dozens of hectares or more. They are simply classified as being among participant group of land transaction without any reference to the intensity of the transaction. This study examines not only the participation, but also the intensity of the participation of farm households in land rental market with the dependent variables as transacted land areas. They are thus not discrete, but continuous, positive and censored at zero value. These characteristics are suitable to apply Tobit econometric regression model. This model allows an analysis of not only the participation but also the intensity of the transaction in the land market (see GREENE, 2000 for more detail on Tobit model).

## 2.3. The Data

This paper is based on a panel dataset of 133 farm households in the study area collected in three years of 1993, 1998, and 2006. The data in two years 1993 and 1998 were from the so-called Vietnam Living Standards Surveys (see SPC, 1994 and GSO, 2000). Since the land reform was started in 1994, the 1993 data was considered "before" data. Similarly, the 1998 and 2006 data were considered as "after" data. Panel data provides information on individual behavior both across time and across individuals (CAMERON *ET AL.*, 2005) and can enrich empirical analysis in ways that may not possible with cross-section or time series data (GUJARATI, 2003). It is thus clear that panel data help to avoid some disadvantages that other studies on this issue face with cross sectional or time series data (see BALTAGI, 1995 for more detail on panel data). Table 1 and 2 present some descriptive figures on the surveyed farm households in the study area (see Annex).

### 3. Empirical results and discussion

The result of the empirical analysis from the Tobit regression is presented in Table 3 (see Annex). On both sides of renting in and renting out land, the values of Wald- $\chi^2$  indicate that the models are significant and can be used to explain the variations of rented-in and rented-out land areas. The effects of the significant exogenous variables on the dependent variables are discussed as follows.

#### 3.1. Impact of the land reform on land rental market

Regarding those who rent in land, the coefficient of land title is significant and positive, indicating its positive impact on rented-in land area in land rental market. Comparing with households without land titles, a household with land titles would rent in more farm land for cultivation, *ceteris paribus*. Similarly, with those who rent out land, the statistically significant and positive coefficient of land title implies that it does have a positive impact on rented-out land area. Thus, the effect of land titles on land rental market is significant and positive.

The effect of privatised land share on both rented-in and rented-out land areas is non-significant. Thus, there is not enough statistical evidence on the linkage between privatised land share and land rental market. However, it should be stressed that land titles are provided only for privatised land. This means that it is impossible to state that land privatization does not have any effect on land rental market.

It is thus concluded that, the land reform has a positive impact on land rental market through the provision of land titles to farm households. This is logical since without land titles, transaction of land is allowed but it requires a complicated administrative procedure to complete the transaction. As mentioned, this is a room for local staff to make money from both sides of land rental. These all increase the transaction costs.

The finding verifies the hypothesis that the land reform does favour the operation of land rental market in terms of land titles. Regarding land privatization, its linkage to the functioning of land rental market is not statistically clear.

#### 3.2 Impact of other factors on land rental market

There are other factors affecting land rental market in the study area. These are land endowment, wealth status, non-farm income, crop production ability and dependency ratio of the households. As presented, efficiency and equity outcomes are major concerns regarding the distribution of scarce resources. They are analyzed as follows.

Regarding the efficiency outcome, it is shown that the effect of crop revenue cost ratio is significant and positive for those who rent in land and negative for those who rent out land. This suggests that, *ceteris paribus*, rental market indeed transfers land to those who are able to make more productive use of it. This finding is important in the sense that, free land rental market promotes the use of this factor of production in a more efficient way.

Regarding to the equity outcome, the coefficient of agricultural land area is significant and negative for those who rent in land and positive for those who rent out land, indicating that land is transferred from large landholders to small landholders. It means land rental actually increases the access to land for small landholders. In addition, the coefficient of real asset value is negative for those renting in land, suggesting that the poor is able to access land in land rental market. These findings imply that land rental positively affects the equity outcome.

In other words, poorly land-endowed and worse-off households are able to access farm land through land rental market.

Non-farm income has a statistically significant impact on both sides of land rental market. The effect of non-farm income is positive for those who renting out land and negative for those who renting in land. This implies that non-farm activity is more favoured by households rather than farming. If there are more non-farm opportunities to household members, the households would rent out land to others. The finding also shows that economic growth in non-farm sectors is actually a contributing factor to more active land rental market over years in Vietnam.

As far as the basic characteristics of the households are concerned, it is realized that, rented-in land area is significantly and positively affected by the dependency ratio of the households. This can be explained that, those with higher dependency need more land for cultivation to ensure a certain level of living standards. At the same time, due to the need to take care of their dependents, non-farm opportunities which are far from home may be limited to these households.

The level of education, ethnicity and gender of the household heads do not have any statistically significant impact on land rental. The insignificant coefficients of these variables reject the hypothesis that female-headed and minority ethnic households are disadvantaged in access to land rental opportunities.

In summary, participation and its intensity in land rental market is driven by the land reform, crop production ability, land endowment, wealth status, non-farm income opportunities and dependency ratio of the households. The provision of land titles promotes the operation of land rental market. Households with high crop production ability are those who rent in land meanwhile low crop production ability households are those who rent out land. Wealth status of the households does have a certain impact on the markets. Worse-off households are those who are in need of land for cultivation. In terms of non-farm income, it also enhances the operation of land rental market. The higher the non-farm income is, the more likely that the households will rent out land and the less likely that they will rent in land. Similarly, dependency ratio of the households has a positive impact on rented-in land area. These findings show that, the operational outcomes of land rental market has both efficiency and equity effects regarding land use, implying that administrative restrictions on the functioning of land rental market are difficult to justify in the case of Vietnam.

#### **4. Conclusions and Policy Implications**

The motivation for this chapter was that, although many transition countries have taken measures to establish individual land rights, restrictions on the functioning of land markets may negatively affect equity and efficiency. The empirical analysis, which is built on a framework where agricultural ability, non-farm development, and secure land rights drive the operation of land markets, allows to derive the following findings:

First, land reform has an important impact on land rental market operation. A variable that is consistently significant in the regressions on land rental market is the security of land property rights represented by the land title. This supports the hypothesis that the provision of clear, enforceable, and secure long-term rights is an essentially pre-condition for the operation of land rental market.

Second, it is found that land rental market has a positive impact on productivity and equity. The market provides opportunities for households with higher agricultural ability to access land. It is also found that land rental market has allowed producers with smaller land endowment to gain access to more land. These suggest that, in the study area, free land transfer

actually favours poor land-endowed households with higher agricultural ability. Additionally, worse-off households also have opportunities to access land through land rental. In other words, the operation of land markets in Vietnam has both efficiency and equity outcomes. These indicate that free mobility of land in the study area actually promote both economic growth and equity.

Third, it is found that non-farm development is one of the determining factors in the development of land rental market. Rapid growth of off-farm sectors has contributed to the more active operation of the land market. Off-farm employment is one of the key reasons for the households to supply land to rental. Moreover, the increase in non-farm opportunities over the last more than ten years can also go a long way towards explaining the increase in rental activities. It is found that the households with higher non-farm income, larger landholding and low agricultural ability are those offering land.

These findings are also relevant for other transition and developing economies. The example of the Northern Uplands of Vietnam illustrates that, in transition economies where, because the initial land endowments were distributed in an egalitarian fashion irrespective of individual ability, the scope for increasing allocative efficiency through adjustment in operational landholding size is likely to be large. It also highlights that it is not the functioning of land rental market which can give rise to undesirable outcomes in this case. Therefore, restrictions on the functioning of land markets are difficult to justify in the study area.

The above analysis also implies that in the long-run, the development of non-farm sectors will create jobs for rural people to promote the structural change process. As it is known, structural change from agriculture to other sectors as well as within the agricultural sector is an indispensable process if the economy is to develop. Free land transaction market is very meaningful in this aspect as it promotes the structural change. It also helps to accumulate land in hands of farmers with high agricultural ability, which can pave the way for the application of mechanisation in production, increase the economy of scales and thus reduce production cost and increase overall productivity and efficiency of agricultural production. The final consequence of these all is the progress of the economy, which is the aim of any development policy intervention. As it is empirically proven above, free land transaction does not lead to any unwanted phenomenon that reduces the production efficiency and the equity within the rural communities.

**Table 1. Some descriptive figures on surveyed households**

Parameters	1993	1998	2006
<b>Household size (person)</b>	<b>5.14</b>	<b>5.16</b>	<b>4.72</b>
<b>Household labour (labour)</b>	<b>2.35</b>	<b>2.65</b>	<b>2.92</b>
<b>Dependency ratio</b>	<b>1.31</b>	<b>1.08</b>	<b>0.77</b>
<b>Age of household head (year)</b>	<b>40.70</b>	<b>43.40</b>	<b>49.36</b>
<b>Education of household heads (year)</b>	<b>5.92</b>	<b>6.12</b>	<b>6.19</b>
<b>Household landholding (ha)</b>	<b>1.08</b>	<b>1.50</b>	<b>1.60</b>
<b>Per capita household land holding (ha)</b>	<b>0.2</b>	<b>0.29</b>	<b>0.36</b>
<b>Real household income (thousand VND)</b>	<b>3,993.38</b>	<b>6,004.22</b>	<b>8,763.45</b>

**Table 2. Agricultural land rental of the households**

Year	Renting in land			Renting out land		
	No. of HHs	% of HHs	Area (m <sup>2</sup> )	No. of HHs	% of HHs	Area (m <sup>2</sup> )
<b>1993</b>	<b>3</b>	<b>2.26</b>	<b>349</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>1998</b>	<b>12</b>	<b>9.02</b>	<b>705</b>	<b>13</b>	<b>9.70</b>	<b>681</b>
<b>2006</b>	<b>25</b>	<b>18.80</b>	<b>776</b>	<b>24</b>	<b>18.05</b>	<b>883</b>

**Table 3. Determinants of land rental market**

Random Effect Tobit Regression	Rent-in land		Rent-out land	
	No. of obs.: 399		No. of obs.: 399	
	Uncensored obs.: 40		Uncensored obs.: 37	
	Log likelihood: -325.53		Log likelihood: -333.02	
	Wald chi <sup>2</sup> : 46.89		Wald chi <sup>2</sup> : 55.89	
	Prob. > chi <sup>2</sup> : 0.000		Prob. > chi <sup>2</sup> : 0.000	
	Rented-in land area (m <sup>2</sup> ) of the household		Rented-out land area (m <sup>2</sup> ) of the household	
	Coefficients	Z value	Coefficients	Z value
Ln of age (year)	315.811	0.73	15.791	0.04
Ln of education (year)	216.001	1.09	-352.607	-1.59
Ln of dependency ratio	308.560** (6.893)	2.02	-149.789	-1.01
Ethnic dummy (dominant = 1)	51.024	0.23	217.365	1.05
Dummy for gender (male = 1)	-295.332	-1.02	122.531	0.40
Ln of agricultural land area (ha)	-499.993** (-11.170)	-1.98	375.919* (8.921)	1.82
Ln of asset value (1,000 VND)	-1158.608*** (-25.883)	-3.21	-318.751	-0.91
Ln of nonfarm income (1,000VND)	-82.535** (-1.844)	-2.26	1000.474*** (23.743)	3.91
Permanent nonfarm dummy (yes = 1)	-4201.255	0.00	53.226	0.20
Ln of crop revenue cost ratio	2197.019*** (49.080)	5.05	-775.964*** (-18.415)	-3.00
Privatized land share (%)	8.453	1.59	-4.295	-0.84
Land title dummy (yes = 1)	972.762** (21.640)	2.01	1272.599*** (30.141)	3.01
Dummy for 1998	5313.629	0.07	2679.217	0.03
Dummy for 2006	6886.289	0.09	2546.093	0.03
Dummy for Commune 2	-338.447	-1.18	-106.332	-0.34
Dummy for Commune 3	-137.959	-0.44	-121.526	-0.38
Dummy for Commune 4	-3146.779	-0.01	-594.788	-1.52
Dummy for Commune 5	-225.746	-0.49	-374.382	-0.97
Constant	-3777.465	-0.05	-7210.767	-0.09

(\* =  $P < 0.1$ ; \*\* =  $P < 0.05$ ; \*\*\* =  $P < 0.01$ ; marginal effects of significant factors in parentheses)

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