

# **The Impact of Land Property Right on China's Rural-urban Migration**

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## **Abstract**

**This study explores how China's land property rights systems affect rural residents' migration decisions, using data from the China Health and Aging Tracking Survey (CHARLS) and a Probit model. It analyzes two core mechanisms: market-based land leasing and government-led land expropriation. Results show land leasing has a moderate, group-variant positive effect on migration (stronger for low-income groups), while land expropriation exerts a significant negative effect (more pronounced for non-agricultural hukou holders and party members). The findings highlight the need for targeted land system reforms to ease migration constraints.**

## **Keywords**

**Land property rights, rural-urban migration, market mechanism, government mechanism, China Health and Aging Tracking Survey (CHARLS), Probit model, hukou system, land expropriation, land leasing, heterogeneity analysis.**

## **1. Background and Literature Review**

### **1.1. China's Land System**

#### **1.1.1. China Land System: Urban and Rural**

In general, China's land system can be divided into two parts-State-owned Land System and Rural Land System. For the State-owned Land System, the land in urban areas belongs to the state. The state transfers the right to use land to units and individuals through means such as assignment and allocation.

As for the Rural Land System, rural land mainly includes agricultural land, construction land, and unused land. Rural land is collectively owned, and peasants enjoy the right to contract and operate the land.

#### **1.1.2. HRS (Household Responsibility System) Land Property Right Characteristic**

In China, people could have their own land, but they must follow the rules of the HRS (Household Responsibility System). The land tenure system for agricultural and forest land is unique. Officially, village collectives are the owners of the land. However, individual households are granted fixed-term contracts that allow them to utilize the land for their own production operations. As time goes by, the nature of these land use rights has become more similar to that of private property. The contracts have become longer, the frequency of land reallocations has decreased, and there are more opportunities for households to lease their land to others (Mullan & Grosjean & Kontoleon, 2010)[4].

### **1.2. Migration**

#### **1.2.1. Profits of Migration**

Because of the huge and rapid development in the society, more and more people choose to migrate to urban area to start a new life. This kind of migration has some good impacts. It can reduce the pressure on the rural environment, which can decline the land degradation and deforestation (Chang et al., 2023)[2]. Also, according to the findings of Mullan, Grosjean, and

Kontoleon, the regional inequality could be reduced and the economic productivity can be increased by the migration.

### **1.3. The Mechanism of Land Property Right Impacting Migration**

There are a lot of reasons that could influence the migration. The mainly reason is the development of land exchange rights. The growth of land exchange rights serves as an incentive for migration(Mullan & Grosjean & Kontoleon, 2010). Additionally, in the Chinese context, the way land is managed and arranged has an impact on people's decisions regarding migration(Besley, 1995)[1].

1) When the land property is well protected (rent your land out) - market mechanism Following the theoretical model of Mullan, Grosjean, and Kontoleon, we could find that the option to rent out land when one is away decreases the opportunity cost associated with the loss of agricultural labor. Shifting from the current property rights set - up to those typical of a market economy might actually have opposing influences on migration trends.

2) When the land property is not well protected (appropriation)--government mechanism

Migration comes with the risk of land expropriation. Because migration leads to a reduction in household size, within China's current rural land tenure system, this might trigger the redistribution of part of a household's land to ensure equal land - ownership among households (as noted by Rozelle & Li in 1998)[3]. This suggests that when a household's size changes as a result of migration, there is a likelihood that their land will be re - distributed. In the context of fluctuating land - holding scenarios, this re - distribution can be regarded as a form of appropriation. It is linked to China's existing rural land tenure system and its mechanism for reallocating land. In other words, the land tenure arrangements related to the government may result in situations where land is re - assigned when land property rights are inadequately safeguarded in response to changes in household size caused by migration (Mullan & Grosjean & Kontoleon, 2010).

## **2. Empirical Analysis**

### **2.1. Data**

The China Health and Aging Tracking Survey (CHARLS) is a nationwide longitudinal survey study designed to collect a representative sample of Chinese residents aged 45 and older. The baseline survey was conducted in 2011 and covered 150 counties/districts and 450 villages/residents' committees across the country, comprising 17,500 individuals from approximately 10,000 households. This survey, with follow-ups conducted every two years and all data made available to the public one year after the end of collection, provides a valuable data resource for studying the health and socioeconomic status of China's elderly population.

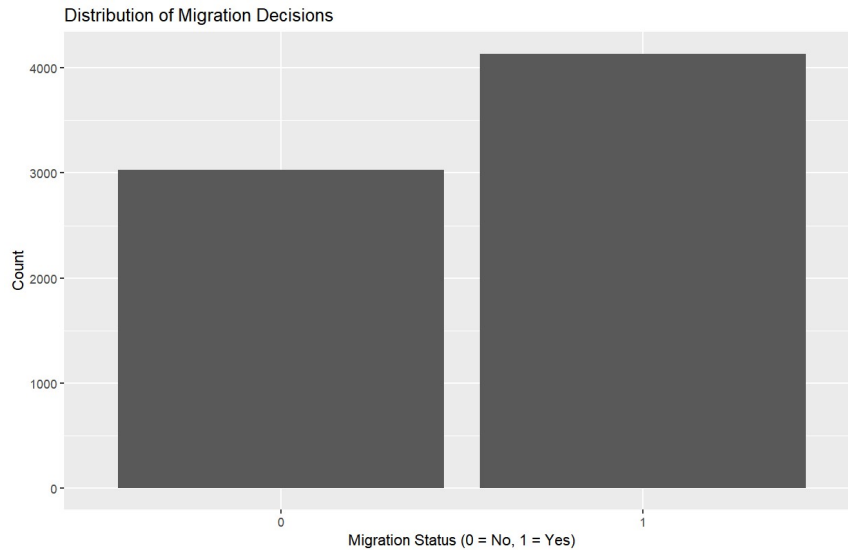
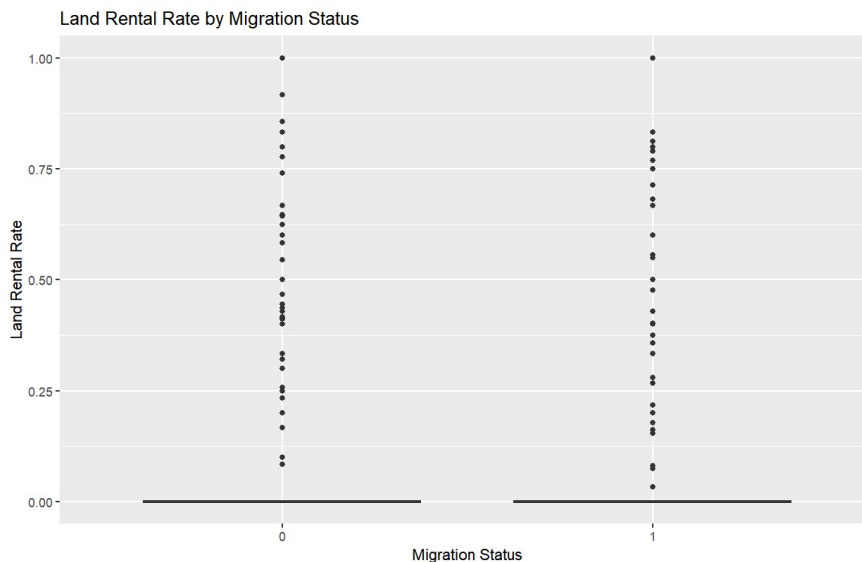
The sample for this study contained 7,163 valid respondents, of which 57.7% of the population chose to migrate. From the descriptive statistics, the age distribution of the respondents ranged from 19-99 years old, with a mean age of 58.82 years old, which reflects the CHARLS database's focus on the middle-aged and elderly population. The logarithmic mean monthly income of the sample is 6.169 (about RMB 479), and the distribution of income shows some unevenness, with the first quartile being 5.298 (about RMB 200) and the third quartile reaching 6.908 (about RMB 1,002).

In terms of the core explanatory variables, the mean value of the proportion of land leased (rent\_per) is 0.094, indicating that about 9.4% of the land in the sample is leased. The mean value of land expropriation (appropriation) is 0.135, implying that about 13.5% of the sample experienced land expropriation. These two indicators reflect the degree of marketization of land transfer and the intensity of government intervention, respectively.

**Table 1.** Summary Statistics of Key Variables

| Variable        | Mean  | Std.Dev | Min    | Max    | N     |
|-----------------|-------|---------|--------|--------|-------|
| Age             | 58.82 | 10.92   | 19     | 99     | 20623 |
| Migration       | 0.577 | 0.494   | 0      | 1      | 7163  |
| Log Income      | 6.169 | 1.302   | -3.912 | 12.206 | 10871 |
| Rent Percentage | 0.094 | 0.275   | 0      | 1      | 6402  |
| Appropriation   | 0.135 | 0.341   | 0      | 1      | 10826 |

Using subgroup statistics, we observe significant differences between the migrated and non migrated populations: the average age of the migrated group (4,135) is lower (57.4 years) than that of the non-migrated group (3,028, 60.1 years); the logarithm of the average income of the migrated group (6.42) is higher than that of the non-migrated group (6.21); and in terms of land ownership, the proportion of land leases for the migrated group (11.5 percent) is slightly higher than that of the non-migrated group (10.6%), while the proportion of land expropriation (11.4%) is lower than that of the non-migrated group (13.9%).

**Figure 1.** Distribution of Migration Decisions**Figure 2.** Land Rental Rate by Migration Status

## 2.2. Regression Model

In order to study the effect of land property rights on the migration decision of rural residents, this study uses the Probit model for analysis. The reason for choosing Probit model is that the migration decision is a binary choice problem, which is suitable to be analyzed using discrete choice model. The basic regression equation is as follows:

$$P(\text{Migration}_i = 1) = \Phi(\beta_0 + \beta_1 \text{PropertyRights}_i + \beta_2 X_i + \varepsilon_i)$$

where Migration<sub>i</sub> is the migration decision of individual *i* (taking the value of 0 or 1); Property Rights<sub>i</sub> represents the land property rights related variables, using rent\_per (land lease percentage) in the market mechanism analysis and appropriation (land expropriation) in the government mechanism analysis; X<sub>i</sub> is a set of control variables, including personal characteristics (e.g., age, gender, education) and socioeconomic factors (e.g., income, party membership);  $\Phi(-)$  is the cumulative distribution function of the standard normal distribution; and  $\varepsilon_i$  is the random error term.

## 2.3. Market Mechanism of Land Property Right Change on Migration

### 2.3.1. Basic Regression

The regression analysis underlying the market mechanism focuses on the impact of land leasing on relocation decisions. The regression results show a coefficient of 0.206 for the proportion of land leasing (rent\_per), indicating a positive relationship between land leasing activities and migration decisions, but this relationship is not statistically significant. This implies that market-based land transfer may have facilitated labor mobility, but this facilitation is not strong. The effects of other control variables are significant: income (logincome) has a positive effect on migration (coefficient 0.051); gender shows that males are more inclined to migrate (coefficient 0.962\*\*\*); age has a significant negative effect on migration (coefficient -0.031\*\*\*); and the effect of education (edu) is negative (-0.063) but not significant.

**Table 2.** Market Mechanism Regression Results

| Variables             | Basic Regression (1) | Basic Regression SE (1) | Robustness Check (2) | Robustness Check SE (2) |
|-----------------------|----------------------|-------------------------|----------------------|-------------------------|
| Land Rental Rate      | 0.206                | 0.147                   | 0.218                | 0.147                   |
| Log Income            | 0.051                | 0.031                   | 0.05                 | 0.032                   |
| Gender (Male)         | 0.962                | 0.088                   | 0.963                | 0.089                   |
| Age                   | -0.031               | 0.005                   | -0.03                | 0.005                   |
| Education             | -0.063               | 0.066                   | -0.061               | 0.066                   |
| Parents (Deceased)    | -                    | -                       | -0.078               | 0.121                   |
| Constant              | 1.084                | 0.386                   | 1.087                | 0.387                   |
| Observations          | 1046                 |                         | 1043                 |                         |
| Log Likelihood        | -649.817             |                         | -648.148             |                         |
| Akaike Inf. Criterion | 1311.633             |                         | 1310.295             |                         |

### 2.3.2. Robustness Checks

To test the robustness of the results, we added the control variable of parental status (parents) to the base model. The results of the robustness test show a slight increase in the coefficient on

the proportion of land leases (0.218), but it remains statistically insignificant. The direction of influence and significance of the other control variables remain largely unchanged, indicating the robustness of our basic findings.

The coefficient on the parental status variable is -0.078, but is not significant, suggesting that parental survival has a limited impact on children's migration decisions. This finding is consistent with the expectation that the ease of land transfer under the market mechanism may have reduced the impact of family constraints on migration decisions.

## 2.4. Government Mechanisms of Land Property Right Change on Migration

### 2.4.1. Basic Regression

The government mechanism analysis focuses on the impact of land expropriation on the relocation decision. The results of the basic regression show that land expropriation has a significant negative effect on migration decisions, with a coefficient of -0.247\*\*. This indicates that farmers who have experienced land expropriation have significantly lower willingness to migrate, which may reflect that the insecurity associated with land expropriation reduces farmers' willingness to migrate.

In terms of control variables, income (logincome) has a significant positive effect on migration (coefficient 0.078\*\*\*); party membership (party) significantly reduces the propensity to migrate (coefficient -0.757\*\*\*); and Han (han) has a higher propensity to migrate compared to ethnic minorities (coefficient 0.243\*\*). These results reveal the important influence of socioeconomic status and identity characteristics on migration decisions.

**Table 3.** Government Mechanism Regression Results

| Variables             | Basic Regression (3) | Basic Regression SE (3) | Robustness Check (4) | Robustness Check SE (4) |
|-----------------------|----------------------|-------------------------|----------------------|-------------------------|
| Land Appropriation    | -0.247               | 0.102                   | -0.304               | 0.122                   |
| Log Income            | 0.078                | 0.026                   | 0.08                 | 0.031                   |
| Gender (Male)         | 0.92                 | 0.072                   | 0.803                | 0.086                   |
| Party Member          | -0.757               | 0.119                   | -0.787               | 0.14                    |
| Han Ethnicity         | 0.243                | 0.121                   | 0.11                 | 0.144                   |
| Parents (Deceased)    | -                    | -                       | -0.282               | 0.124                   |
| Constant              | -1.06                | 0.207                   | -0.676               | 0.262                   |
| Observations          | 1425                 |                         | 1000                 |                         |
| Log Likelihood        | -886.346             |                         | -634.355             |                         |
| Akaike Inf. Criterion | 1784.692             |                         | 1282.71              |                         |

### 2.4.2. Robustness Checks

In the robustness test, we similarly included the control variable of parental status. The results show that the negative effect of land expropriation becomes more significant (coefficient -0.304\*\*). The coefficient on the parental status variable is -0.282\*\*, indicating that parental survival has a significant effect on children's migration decisions. This finding implies that in an environment with strong government intervention, family factors may form a superimposed effect with institutional factors, which together influence individuals' migration decisions.

The direction of the effects of the other control variables remains largely stable: the positive effect of income (0.080\*\*) and the negative effect of party membership (-0.787\*\*\*) are still significant, while the effect of Han status (0.110) becomes insignificant with the addition of the

new control variables. These results further confirm the inhibitory effect of government mechanisms on rural labor mobility.

### 3. Analysis

#### 3.1. Market Channel

The influence of market mechanisms on migration decisions is mainly manifested through the channel of land lease (rent\_per). We first analyze the relationship between land rental and migration under different income levels:

**Table 4.** Income Group Analysis of Land Rental and Migration

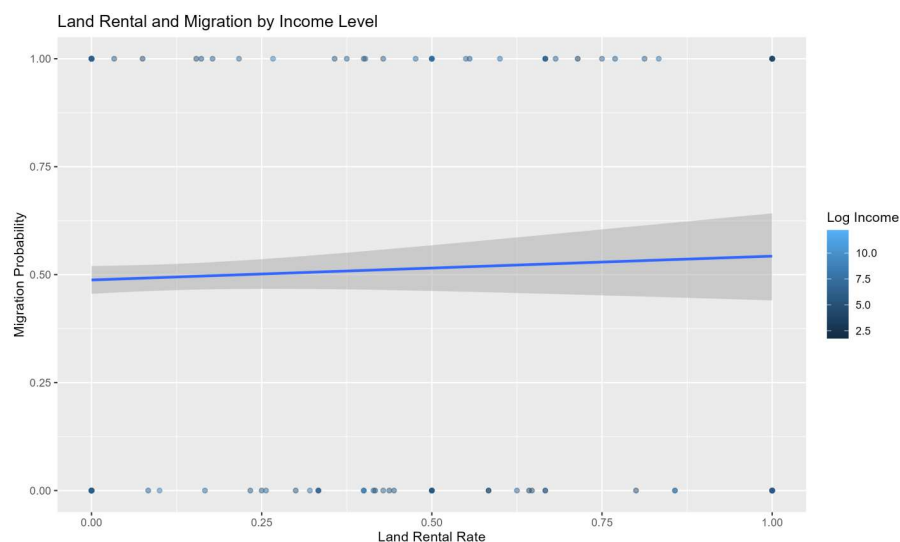
| income_group | rent_migration_corr | avg_rent | avg_migration | n    |
|--------------|---------------------|----------|---------------|------|
| Low          | 0.0836              | 0.492    | 0.0836        | 4207 |
| Medium       | -0.00626            | 0.528    | 0.0809        | 2970 |
| High         | 0.0133              | 0.581    | 0.0848        | 3689 |

As can be seen from Table 4, the relationship between land leasing and migration varies across income groups. The low-income group shows the strongest positive correlation (0.0836), which suggests that for low-income people, land leasing may be an important factor in facilitating their decision to migrate. In contrast, the middle-income group shows a slight negative correlation (-0.00626), while the high-income group exhibits a weak positive correlation (0.0133).

We also observe that the proportion of migration increases with income level: 49.2% for the low-income group, 52.8% for the middle-income group, and up to 58.1% for the high-income group. This pattern suggests that while land leasing as a market mechanism plays a role in facilitating migration, its impact may be dominated by the stronger factor of income level.

**Table 5.** Age Group Analysis of Land Rental and Migration

| age_group | rent_migration_corr | avg_rent | avg_migration | n    |
|-----------|---------------------|----------|---------------|------|
| Below 45  | -0.0889             | 0.0781   | 0.687         | 2094 |
| 45-55     | 0.0154              | 0.0932   | 0.635         | 6498 |
| 55-65     | -0.0153             | 0.0838   | 0.525         | 6630 |
| Above 65  | 0.0635              | 0.108    | 0.518         | 5398 |



**Figure 3.** Land Rental and Migration by Income Level

Age subgroup analysis (Table 5) reveals a more complex relationship. land leases show a negative correlation (-0.0889) with migration in the under-45 group, which may reflect a preference among young people to migrate directly rather than relying on income from land leases. The middle-aged group (45-55 years) shows a slight positive correlation (0.0154), while the older group (65+ years) shows a relatively strong positive correlation (0.0635).

From the generated market mechanism diagram, we can see that the relationship between land lease rate and migration probability varies with income level, which further confirms the moderating role of income level in the land lease-migration relationship.

### 3.2. Government Channel

The government channel influences migration decisions mainly through land expropriation (appropriation). The analysis shows the differential impacts of government land expropriation on different groups:

**Table 6. Hukou Type Analysis of Land Appropriation Effects**

| <b>hukou</b>            | <b>appropriation_effect</b> | <b>n_appropriated</b> | <b>n_total</b> |
|-------------------------|-----------------------------|-----------------------|----------------|
| Agricultural Hukou      | -0.0404                     | 919                   | 12804          |
| Non-agricultural Hukou  | -0.199                      | 161                   | 3251           |
| Unified Residence Hukou | 0.0556                      | 32                    | 179            |

As can be seen from Table 6, the negative impact on the agricultural household group is relatively small (-0.0404), while the negative impact on the non-agricultural household group is the most significant (-0.199).

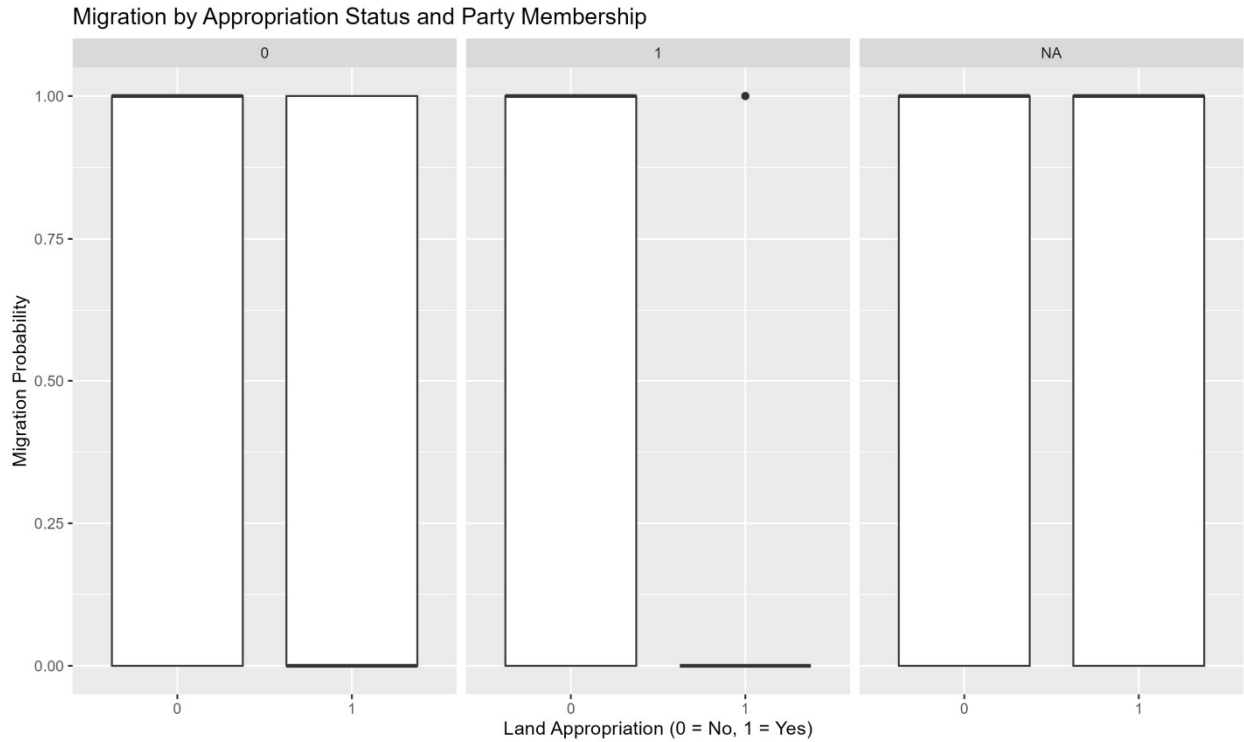
**Table 7. Party Membership Analysis of Land Appropriation Effects**

| <b>party</b> | <b>appropriation_effect</b> | <b>avg_migration</b> | <b>n</b> |
|--------------|-----------------------------|----------------------|----------|
| 0            | -0.0442                     | 0.539                | 14571    |
| 1            | -0.306                      | 0.508                | 1674     |

The analysis of party membership (Table 7) shows that the negative impact of land expropriation on migration is -0.0442 in the non-party group, while in the party group this negative impact increases significantly to -0.306. This finding implies that party members may be more inclined to choose to stay in their locality in the face of land expropriation.

**Table 8. Top 5 Provinces by Appropriation Rate**

| <b>prov</b> | <b>appropriation_rate</b> | <b>migration_rate</b> | <b>correlation</b> | <b>n</b> |
|-------------|---------------------------|-----------------------|--------------------|----------|
| 1           | 0.267                     | 0.919                 | -0.667             | 72       |
| 18          | 0.25                      | 0.626                 | -0.0873            | 849      |
| 14          | 0.212                     | 0.534                 | -0.0895            | 939      |
| 9           | 0.205                     | 0.524                 | -0.0769            | 1786     |
| 22          | 0.198                     | 0.693                 | -0.0323            | 539      |



**Figure 4.** Migration by Appropriation Status and Party Membership

The generated government mechanism map shows the interaction between land acquisition and party membership, further confirming the mechanism by which the government channel influences relocation decisions through institutional factors.

Overall, the government channel appears to have a more significant and consistent impact on migration decisions than the market channel. In particular, the influence of the government channel is more pronounced when considering the institutional factors of party membership and hukou type. This finding underscores the important influence of government policies on labor mobility in China's particular institutional context.

## 4. Conclusion

### 4.1. What We Have Done in this Paper

This study delves into the impact of land property rights systems on the migration decisions of rural residents in China. Using data from the China Health and Aging Tracking Survey (CHARLS), we systematically analyze how land property rights arrangements affect rural labor mobility through both market and government mechanisms. In terms of research framework, we first sort out the land system with Chinese characteristics, including the urban-rural dual structure and the rural land contracting system, which lays the theoretical foundation for the subsequent analysis.

In terms of empirical research, we examine the impact of the two mechanisms separately by using the Probit model. For the market mechanism, we used the proportion of land leases as the core explanatory variable to explore the impact of marketized land transfer on migration decisions; for the government mechanism, we focused on the role of land expropriation, a mandatory intervention, on farmers' migration choices. By introducing control variables such as age, income, and education level, we ensure the reliability of our findings.

Further, we analyze the different groups with careful heterogeneity. In terms of market mechanism, we examine the relationship between land leasing and migration under different income levels and age groups; in terms of government mechanism, we explore the moderating

role of institutional factors such as party membership and hukou type, revealing the differential impact of government intervention on different groups.

#### **4.2. What the Conclusion is**

The study draws several important conclusions:

First, there is a significant difference between the effects of market and government mechanisms on the migration decisions of rural residents. The facilitating effect of market mechanism (land lease) on migration is relatively moderate and varies across groups. It is found that there is a strong positive correlation between land leasing and migration in the low-income group (correlation coefficient 0.0836), while this relationship is not significant enough in the middle and high-income groups. This suggests that market-based land transfer may be used more as an option for low-income groups to improve their livelihoods.

Second, the government mechanism (land expropriation) shows a more significant and consistent negative effect on migration decisions. In particular, this negative effect is more prominent for non-agricultural hukou holders (impact coefficient -0.199) and party member groups (impact coefficient -0.306). This finding reveals that government intervention may have dampened farmers' willingness to migrate by increasing their concerns about land security.

Third, institutional factors play an important moderating role in the relationship between land property rights and migration decisions. Characteristics such as party membership and hukou type not only directly affect migration decisions, but also change the way individuals respond to changes in land property rights. Such institutional differences reflect the complexity of policy implementation under a social system with Chinese characteristics.

#### **4.3. Policy Implication**

Based on the research findings, we put forward the following policy recommendations:

First, the rural land transfer market should be further improved to reduce transaction costs and enhance the effectiveness of the market mechanism. The study shows that although the facilitating effect of land leasing on migration exists, the impact is relatively limited, which may be related to the fact that the current land transfer market is not perfect enough. The government should establish a more standardized land transfer platform and provide the necessary legal safeguards so that farmers can participate in land transfer more conveniently.

Second, a more fair and transparent compensation mechanism should be established in the process of land expropriation. The study found that government land expropriation has a significant inhibitory effect on migration, which may be related to farmers' concerns about compensation for expropriation and their future livelihoods. The government should set more reasonable compensation standards to ensure that expropriated farmers are adequately compensated and provided with the necessary vocational training and employment support.

Third, policymaking should take into account the heterogeneous needs of different groups. Studies have shown that there are significant differences in the impact of changes in land property rights on different groups. Therefore, in promoting land system reform, the Government should adopt more precise policy measures and provide differentiated support for the characteristics of different groups.

#### **4.4. What Could Be Done in the Future**

Future research can be expanded in the following aspects:

First, the time dimension of the study can be expanded to analyze the dynamic effects of land property rights system changes on migration decisions through panel data. This study is mainly based on cross-sectional data, and in the future, the tracking characteristics of CHARLS can be utilized to explore the long-term effects of land system reform.

Second, the interaction between the land property rights system and other institutional arrangements can be studied in depth. For example, the interaction between the land property rights system and factors such as the social security system and the development of the financial market can be examined to fully grasp the impact of the institutional environment on rural labor mobility.

Third, research on regional differences can be strengthened. Considering the differences in the level of economic development and the institutional environment of China's regions, future research can analyze in more detail the characteristics of the implementation of land property rights systems in different regions and their impact on labor mobility.

Finally, the methodology of the study can be expanded. In addition to econometric methods, future research can combine qualitative research methods, such as field research and case studies, to gain a more in-depth understanding of the specific mechanisms by which the land property rights system affects migration decisions.

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