

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

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## ABSTRACT

China has a unique land system that has undergone many reforms and typical forms. In this paper, we will study the impacts of the rural land system on rural-urban migration under market (the rent ratio of rural farming land) and government (land security) mechanisms. We will employ the Probit model with robustness and endogenous checks to identify the impact of each mechanism on migration. Results show that the rights of rent have a positive impact on migration, while land expropriation influences the decision negatively. The current reform on the land system, Three Rights Separation System, has shown a positive result in improving both land rights and security. The improvement brought by the reform will contribute to population mobility, further encourage resource allocation, promote a larger scale of urbanization, and eventually bloom China's economy.

**Keywords:** *land system, urban-rural migration, land property right, land tenure security, China.*

## 1. BACKGROUND

### 1.1. China's land system

China's land system has played a key role in ongoing structural changes that are changing China from a predominantly rural and agricultural society to one that is urban and rural (Perkins, 2009) [3], therefore the land system also connects tightly with rural-urban migration. In 1951, the new-formed government, the People's Republic of China, announced the establishment of the household registration system, replacing landlord's private ownership in feudal society. The land was then collectively owned after 1956, with evenly distributed to each family. The existence of the People's Commune during the cultural revolution and township afterward helped in organizing and collecting lands. Until 1978, the Household Responsibility System (HRS) was firstly introduced and officially established in 1982, assuming that farm families would stay on the land. Formally, the land was owned collectively, but farmers' rights to the land were distributed to individual households based on family size and similar criteria. Not only equally obtain the land and the assets owned by the collective, collective members also enjoy the rights to all assets grown out of collective land (Liu, 2019) [6]. Since then, more rights were opened up to the people: the land use rights opened

in the 1980s, land transfer rights, and the rights to enjoy the transferred income claimed in recent decades.

#### 1.1.1. China's land system: urban and rural

Before the People's Republic of China (PRC) was founded in 1949, the land was privately owned, and the owners could transfer their land legally (Ding & Knaap, 2003) [2]. Then during the Communist Revolution, the rights of all property, including land, were transferred to the country. In rural areas, the CCP confiscated all privately held land and turned it over to the poor (Ding & Knaap, 2003) [2]. Until the end of the Cultural Revolution in 1976, the rural lands were owned by the collectives, with strict controls on the rental and transaction of the land. Until 1978, when Xiaoping Deng took the position, he initiated reforms on partial privatization of the housing sectors, which eased the restrictions on land property rights.

Unlike its rapid development in other areas, China's urbanization still has a lot of developing space. One impediment is the Hukou, the household registration system. Peasants are given residence in rural areas based on their land ownership. However, the system limits their developing space in cities because they cannot access welfare in the city with rural Hukou. The restricted social

mobility further increases the gap between urban and rural living quality, leading to “high rural-urban inequality” (Mullan, Grosjean, and Kontolean, 2010) [5].

Moreover, the increasing population had put enormous pressure on rural land resources: the farmland is scarce and the environment was damaged by excessive development. To address these problems, the government introduced and constantly improved the cultivated land protections, aiming to ensure peasants’ benefits, to prepare for agricultural modernization, and to protect the ecological environment.

### *1.1.2. HRS land property right characteristics*

The household contract responsibility system, commonly known as “large-scale household contracting”, is a policy implemented in the rural area in the early stage of reform and opening up in mainland China. It is now an important transition in the rural land system and is also a basic economic system in mainland China. The system was firstly introduced in Xiaogang Village of Anhui Province, to increase production during catastrophic drought.

The biggest difference between HRS and the people’s communes (from the late 1950s to the 1970s as mentioned before) is that farmers are contracted with the country. Contracted farmers cultivate on the distributed lands, then hand in a considerable amount of agricultural products back to the country. The surplus grain, other than the amount handed to the state, is freely handled by the contracted farmers, usually is sold to the market. The agricultural production was previously managed by a production team, such as the local commune. After the HRS was established, it has been transformed into household units, where farmers can self-manage, produce, distribute, and operate their agricultural land and products.

## *1.2. Migration*

Migration in China is pushed by China’s special household registration system Hukou, a local “citizenship”. Only the legal citizens in the city could fully enjoy welfare in this specific city. In the other words, unless a person is registered as an urban resident—and becoming registered as such has been difficult to achieve—he has few rights in the city. Specifically, this person has had no right to public education or public health care. Therefore, one of the two internal migration types is getting popular: migrants generally move from rural areas to more urbanized better-developed areas, for better education and other welfare resources for the next generations. The other internal migration type, specifically Hukou, is gathering several villages together to form a new town due to the expansion of urbanization.

### *1.2.1. The profits of migration*

China now is experiencing urbanization; more rural people migrate to urban areas for better living, or many small villages are combined to form a new city town. Migration brings benefits to both urban and rural areas. Peasants are not limited to their farmlands only. They have more choices to work in the cities or even start their own business with the resources of the new city town, increasing their improving spaces. While new people are moving into urban areas, or new towns are formed, these people positively influence the original urban people by raising good competition in or among urban areas, further pushing to more innovation. Not only the social efficiency is improved, but increased population mobility can also reduce inequality in rural and urban welfare, narrowing the gap in between. Moreover, the conditions for modernization of rural areas are also fulfilled by migration. The large migration of rural people reduces the rural population so that land resources are not too scarce. More importantly, this is better for the intellectuals to manage and plan the use of land by technology, promoting the scale and modernization of agriculture.

## **2. LITERATURE**

### *2.1. Property right*

Chinese property law has been developed in different forms during the last centuries. After the establishment of the new People’s Republic of China in 1949, most lands were owned by the state. Until 2007, the Property Law of China passed 2007 codified property rights, which protects the interest of private investors to the same extent as that of national interests for the first time. There are three types of real property rights in China: ownership rights, usufructuary rights, and security rights. Usufructuary rights especially provide rural people more development choices toward urban areas by reducing the burden of rural properties and ensuring living rights in urban areas.

### *2.2. The mechanism of land property right impacting migration*

Usufructuary rights include the right to land contractual management and the right to use residential housing land. The right to land contractual management focuses on agricultural lands. It allows a contractor the right to possess, utilize and obtain profits from agricultural land. This right is transferable, which means people who plan to move to urban areas could transfer their land to others. When the lands are transferred, the original owners not only unload the burden of must leaving a few family members or hiring more workers to manage the farmland, but they also save money from land-transferring fees. Thus, it decreases the opportunity cost of migration and encourages migration to urban areas.

The right to use residential housing land protects the right of possessing land and enables owners to build residential houses and their accessory facilities. In this way, while rural migrants don't need to worry about their tenures that have not yet transferred to others will be taken away, whoever gets a house in cities is ensured to live in cities legally by laws. This promotes urbanization so that more migrants move to urban areas.

### 3. EMPIRICAL ANALYSIS

#### 3.1. Data

The research makes use of data from the CHARLS national statistical survey. The survey records in 2013 and 2014 are used. Both surveys cover 150 county-level units, 450 village-level units, and approximately 17,000 in 10,000 households. These samples were tracked every two to three years in the future. One year after the survey is over, the data will be carried out to the academic community.

**Table I.** Data Description.

This table gives an explanation of the variable's meaning along with the mean value, the standard derivation, and the number of observations.

Variable	Description	Mean	S.D.	Obs
migration	Explained Variable. The decision to migrate to other locations other than registered living places. 1: <i>migrated</i> ; 0: <i>otherwise</i> .	0.1630896	0.3694589	16028
rent percentage	Key Variable. The <i>percentage of additional land rented</i> in on the total land allocated. Market mechanism indicator.	0.22476	3.065174	6435
expropriation	Key Variable. 1: <i>owned land has been expropriated</i> ; 0: <i>otherwise</i> . Government mechanism indicator.	1.971445	0.4633149	11942
gender	The gender of respondents. 1: <i>male</i> ; 2: <i>female</i> .	1.523448	0.4994633	18594
age	The <i>age</i> of respondents.	56.81656	10.98087	4492
education	The education level of respondents. An ascending three-level classification is adopted from 0 to 2. 0: lower education level with at highest of middle school; 1: middle education level with high school or college; 2: <i>high education level with any level above college</i> .	0.1491998	0.3841039	20496
income	responders' <i>beginning income</i> when doing the first job	5.40762	1.503499	16744
marital status	Marital status. 1: <i>Married with spouse present</i> ; 2: <i>Married but not living with spouse temporarily for reasons such as work</i> ; 3: <i>Separated</i> ; 4: <i>Divorced</i> ; 5: <i>Widowed</i> ; 6: <i>Never married</i> ; 7: <i>Cohabitated</i> .	1.579069	1.349695	18585
hukou	Current Hukou status. 1 <i>agricultural</i> ; 2 <i>non-agricultural</i> ; 3 <i>unified</i> ; 4 <i>none</i> .	1.247318	0.4598901	18551
health	Health condition. Whether having ever received a physical injury that has led to any permanent handicap, disability, or limitations in daily life. 1: <i>yes</i> ; 0: <i>no</i> .	0.0826835	0.27541	20391
insurance	Whether having any medical insurance. 1: <i>yes</i> ; 0: <i>never</i> .	0.9642323	0.1857151	19403
minzu	Whether the responder is Han. 1: <i>yes</i> ; 0: <i>no</i> .	0.9190003	0.272842	18605
communist party	Whether the responder is the Communist. 1: <i>yes</i> ; 0: <i>no</i> .	0.1079974	0.3103855	18556

### 3.2. Identification strategy

#### 3.2.1. Dependent Variable: Migration

The tested dependent variable is migration, defined as the population migration from rural to urban. The dummy variable of whether have lived continuously for more than six months in places other than the location of registered permanent residence is the dependent variable.

#### 3.2.2. Key Independent Variables

Two key variables are related to two aspects of land property rights: lease and expropriation situation. For leasing, the original data sets cannot be applied directly because of the difference in areas of available lands among regions of the country. For example, farmers in Northeastern regions in China with large areas of land, such as Heilongjiang Province, can be allocated with more areas, while in southern regions that have greater population density, such as Guangdong and Guangxi Province, the available area for distributed land is much smaller. To gather a fair data set that represents the leasing situation, the lease ratio is calculated by dividing the total area of land owned by the family from the area of land that the family has rented in the past year.

For the aspect of expropriation, the respondents are asked whether their land has ever been expropriated since 1978 after HRS was established. This dummy variable reflects the security of land use for farmers or the level of fears of losing land.

#### 3.2.3. Other Independent Variables

The analysis model also includes several conventional variables: gender, age, education level, and income level. These basic data are recorded to decrease heteroscedasticity brought by different groups of people. The results of the model discussed below show the relationship between each independent variable and migration, such as what age range has less possibility of migration, and how significant this relationship is.

Special variables are the variables that might also influence people's decisions specifically on migration. The single healthy people tend to move to cities for better opportunities, while those who have received a physical injury that has led to issues like a permanent handicap, disability, or living limitations in daily life might have less motivation to move around. Moreover, rural residences, who have the agricultural HuKou as the first Hukou status, are more likely to move toward urban areas for the non-agricultural HuKou, so that they could enjoy a better welfare system. Stable insurance or real-estate heritage gives people a reason to stay. In addition, whether the responder is Han or other ethnic minorities, and whether he is a member of the Chinese Communist Party (CCP) are two aspects that are also worth testing. Therefore,

marital status, the first HuKou status, the healthy condition, the ownership of medical insurance, nationality, and the party membership are selected from the survey.

#### 3.2.4. Probit Model

The most common statistical technique that uses explanatory variables to predict the outcome of a response variable in regression analysis is linear regression, explaining the relationship between one single independent variable and the predicted dependent variable. If there are more than one independent variables, the model used will be multiple regression, an extension of the linear regression, expressing as the following formula (1)

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n + \mu \quad (1)$$

where  $y$  is the real value of the response variable, migration, that has the difference of error term  $\mu$  with the predicted value,  $\hat{y}$ , as shown in formula (2).

$$y = \hat{y} + \mu \quad (2)$$

However, since the dependent variable  $y$  is a dummy variable with an outcome range from 0 to 1, multiple linear regression may lead to prediction outside the range. Moreover, the difference in the results from over or under prediction also might reveal another problem: the heteroskedasticity, where the variance of the residuals is unequal over a range of measured values. Logit and probit models solve each of these problems by fitting a non-linear function to the data. Replacing the straight line, the new S-shaped curve sets the boundaries within the appropriate range for the dependent variable and eliminates heteroskedasticity. We choose the Probit model; the predicted formula and its predictor is written as the formula (3) and (4)

$$\hat{y} = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n \quad (3)$$

$$\hat{y} = f(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_n x_n) \quad (4)$$

With the function  $f$ , the probit model rescales the results to the predicted range, between 0 and 1, using the cumulative distribution function of the standard normal distribution.

### 3.3. Market mechanism of land property right change on migration

#### 3.3.1. Basic regression

Based on the model in section III.B, *rentper* helps to explain the market mechanism. Rural people could choose whether to rent more areas of land-based on their own situations, so the rental arrangement is based on people completely. This shows how the land property

right influences migration in market mechanisms. To analyze relationships more deeply, we select different variables and define different conditions to establish different Probit models. Model(1) selects rural people with an age of less than 90 and only analyzes responders' rental percent, gender, and age. Model(2) selects the same group of people and adds education and income situations to (1). Model(3) adds marital conditions to (2), and model(4) adds health and insurance upon (3). Lastly,

model(5) adds whether the responders are Han and their political party status into the model.

From *Table 2*, the key variable rental percent has a positive correlation to migration in all 5 Probit models, meaning that the additional areas of lands are transferred for renting increases the migration. In addition, among the 12 variables, gender, age, party, and whether the responders are Hans, these 4 variables have a significant influence on migration.

**Table 2.** The results for 5 Probit models

	(1)	(2)	(3)	(4)	(5)
rentper	0.10355** (3.06)	0.08717* (2.28)	0.08143* (2.20)	0.07873* (1.97)	0.07801* (1.96)
gender	0.54126*** (5.84)	0.56135*** (4.87)	0.54728*** (4.71)	0.53466*** (4.45)	0.50371*** (4.13)
age	-0.01265** (-2.74)	-0.00693 (-1.16)	-0.00430 (-0.69)	-0.00512 (-0.80)	-0.00813 (-1.25)
edu		0.01531 (0.08)	-0.01020 (0.06)	0.00089 (0.00)	-0.07176 (-0.38)
income		0.00090 (0.02)	0.00102 (0.03)	0.00481 (0.13)	0.00461 (0.12)
marital			-0.06567 (-1.51)	-0.06469 (-1.46)	-0.05013 (-1.12)
health				0.11894 (0.66)	0.13931 (0.77)
ins				-0.14148 (-0.37)	-0.05889 (-0.15)
minzu					0.38830* (1.79)
comm					0.44293** (2.20)
Constant	0.51933* (1.69)	0.16874 (0.36)	0.11941 (0.25)	0.24157 (0.39)	-0.12783 (-0.20)
Obs	1123	786	745	745	745
Ftest	2.40e-10	9.81e-06	9.37e-06	0.000106	1.99e-05
t statistics in parentheses					
* p<0.05, ** p<0.01, *** p<0.001					

### 3.3.2. Robustness checks

Multiple tests are required to make sure the results are not made by chance. There are two ways to test robustness: changing variables or using other qualified models to track the changes on regression coefficients for the variables. *Table 2* includes different Probit model results from adding variables. To further check the robustness, the Logit model mentioned in *III.B.3* will be used to test the same group of variables. The results are shown in *Table 3*.

The results in *Table 3* using the Logit model are roughly the same as those from the Probit

model. The rental percentages are still significant to the migration; when only considering gender and age, the estimated model is stable. This is the same when in the Probit model. So based on *Tables 2* and *3*, rental percentages do have a positive impact on migration in terms of market mechanisms. In addition, the significant variables in *Table 2* still hold a significant impact: older people are less likely to migrate, communist members, and/or Han people are more likely to migrate.

**Table 3.** Results of 5 Logit models Based on the Market Mechanism.  
Variables used are the same as those used in Probit models

	(1)	(2)	(3)	(4)	(5)
x1_rentper	0.16965**	0.14069**	0.13183**	0.12565*	0.12668*
	(2.05)	(2.249)	(2.188)	(1.973)	(1.968)
x3_gender	0.96287***	1.01767***	0.99453***	0.97662***	0.92550***
	(5.70)	(4.72)	(4.59)	(4.35)	(4.06)
x4_age	-0.02175***	-0.01137	-0.00713	-0.00886	-0.01460
	(-2.60)	(-1.05)	(-0.64)	(-0.77)	(-1.24)
x5_edu		0.01012	-0.01356	-0.03191	-0.15331
		(0.03)	(-0.04)	(-0.096)	(-0.453)
x6_income		0.00448	-0.000803	0.01034	0.01294
		(0.07)	(-0.01)	(0.15)	(0.187)
x7_martial			-0.12425	-0.12121	-0.09893
			(-1.51)	(-1.451)	(-1.173)
x9_health				0.20731	0.24243
				(0.662)	(0.766)
x10_ins				-0.30111	-0.13467
				(-0.453)	(-0.201)
x12_minzu					0.75171*
					(1.786)
x13_comm					0.78223**
					(2.33)
Constant	-0.98239**	0.35993**	0.31967**	0.60052	-0.12121
	(1.789)	(0.427)	(0.373)	(0.547)	(-0.103)
Obs	1123	786	786	745	745
Ftest	3.79e-10	1.22e-05	1.11e-05	0.000117	1.73e-05
t statistics in parentheses					
* p<0.05, ** p<0.01, *** p<0.001					

### 3.3.3. Endogenous checks

Endogeneity and sample selection bias result from the failure to account for unobserved heterogeneity in the primary equation (Heckman, 1979)[4]. In other words, it refers to the existence of a correlation between random disturbance items and one or more explanatory variables in the model. There are two reasons for endogeneity; the absence of variables that are related to the existing variables and the two-way causality between independent variables and the dependent variable. To check if the model has endogeneity, instrumental variables (IVs) are used to overcome the issue of omitted variables to make causal inference in observational studies when randomization is infeasible (Angrist, J.D. & Krueger, A.B., 2001)[1]. The selected IV affects the dependent variable

only through tested independent variable. It then needs to meet these three conditions: correlating with the tested independent variable, having no direct relationship with other variables, and no direct influences on the outcomes.

In this paper, migration and rental percentage might have reciprocal causality. People who rent more areas of land might have already decided to stay where they are, while others might choose not to migrate because they rent more land. Therefore, it is necessary to conduct an endogenous check using two-stage least squares regression (2SLS). IV is a dummy variable: whether the responder has farming tools, including tractor, thresher, pump, processing, and other tools. 1 means there is a farming labor production tool, and 0 means no tool. The result as *Table 4* shows.

**Table 4.** Results of 3 Probit models based on the market mechanism.  
The key variable used is the dummy variable of whether the family has farming equipment

	(1)	(2)	(3)		(1)	(2)	(3)
rentper				rentper	0.196	0.196	0.189
					(1.44)	(1.45)	(1.43)
gender	-0.187	-0.209	-0.218	gender	-0.493*	-0.486*	-0.453*
	(-1.22)	(-1.35)	(-1.39)		(-1.97)	(-1.91)	(-1.86)
age	-0.0126	-0.0126	-0.0126	age	-0.00332	-0.00330	-0.00639
	(-1.55)	(-1.54)	(-1.52)		(-0.34)	(-0.34)	(-0.63)
edu	-0.315	-0.327	-0.313	edu	0.0391	0.0440	-0.0275
	(-1.23)	(-1.27)	(-1.20)		(0.16)	(0.18)	(-0.11)
income	0.0651	0.0636	0.0633	income	-0.00318	-0.00247	-0.00179
	-1.3	-1.27	-1.26		(-0.07)	(-0.05)	(-0.04)
marital	-0.0134	-0.0137	-0.0124	marital	-0.0604	-0.0600	-0.0456
	(-0.25)	(-0.25)	(-0.23)		(-1.21)	(-1.21)	(-0.96)
health	0.0183	0.0269	0.0274	health	0.118	0.115	0.134
	-0.07	-0.11	-0.11		(0.66)	(0.64)	(0.75)
ins	0.217	0.216	0.219	ins	-0.161	-0.158	-0.0737
	-0.42	-0.42	-0.42		(-0.42)	(-0.41)	(-0.19)
equip	0.232	0.235	0.241	inher		0.0561	0.0857



	-1.51	-1.53	-1.57			(0.45)	(0.69)
inher		-0.145	-0.146	minzu			0.372
		(-0.92)	(-0.92)				(1.47)
minzu			0.137	comm			0.451*
			-0.54				(2.16)
comm			-0.0975	Constant	0.135	0.105	-0.262
			(-0.33)		(0.18)	(0.14)	(-0.36)
Constant	0.611	0.674	0.564	Obs	745	745	745
	-0.75	-0.82	-0.66	t statistics in parentheses			
athrho2_1				* p<0.05, ** p<0.01, *** p<0.001			
Constant	-0.25	-0.246	-0.229				
	(-0.25)	(-0.25)	(-0.24)				
Insigma2							
Constant	0.705***	0.704***	0.704***				
	-27.2	-27.18	-27.17				
Obs	745	745	745				
t statistics in parentheses							
* p<0.05, ** p<0.01, *** p<0.001							

In the two-stage least squares regression, the IV firstly replaces migration to test the relationship with rental percentage, then replaces rental ratio in the probit model. Migration and IV are still positively correlated, indicating that the original models in *sections III.C.1* and *III.C.2* are reliable, not endogenous.

### 3.4. Government mechanisms of land property right change on migration

#### 3.4.1. Basic regression

The impact of land acquisition on migration has been a controversial topic. The risk of expropriation might reduce migration incentives due to the increased cost of

moving, but also increase migration incentives with the potential compensation. (Mullan, Grosjean, and Kontoleon, 2010) [5]. The dummy variable, whether or not the responder's land has been expropriated, is used to examine the impact of governance mechanisms on migration.

Similar to market mechanisms, the model is limited to rural residents with an age of less than 90. Other control variables are gender, age, level of education, log of income, marital conditions, health and insurance conditions, and whether the responders are Han and/or communists. The results are shown in *Table 5*.



**Table 5.** Results of 5 Probit models Based on the Government Mechanism.

	(1)	(2)	(3)	(4)	(5)
expro	-0.13984**	-0.17821**	-0.17474**	-0.15395*	-0.14874*
	(-2.21)	(-2.42)	(-2.39)	(-2.18)	(-2.14)
gender	0.63302***	0.68012***	0.67217***	0.63331***	0.62375***
	(7.41)	(6.68)	(6.56)	(6.01)	(5.87)
age	-0.00940**	-0.000845*	-0.00748	-0.00767	-0.00899*
	(-2.42)	(-1.74)	(-1.48)	(-1.48)	(-1.72)
edu		0.09978	0.09538	0.10851	0.06770
		(0.67)	(0.64)	(0.70)	(0.43)
logincome		-0.00290	-0.00314	0.00312	0.00481
		(-0.09)	(-0.10)	(0.09)	(0.15)
marital			-0.02480	-0.03431	-0.02615
			(-0.71)	(-0.95)	(-0.72)
health				0.14432	0.15196
				(0.89)	(0.94)
ins				-0.02602	-0.00269
				(-0.09)	(-0.01)
minzu					0.24576**
					(2.31)
comm					0.25841*
					(1.94)
Constant	0.72910**	0.78673*	0.75810*	0.66354	0.42565
	(2.22)	(1.75)	(1.68)	(1.21)	(0.74)
Obs	1370	1062	1062	1003	1003
Ftest	0	1.98e-10	5.49e-10	6.53e-08	8.15e-08
t statistics in parentheses					
* p<0.05, ** p<0.01, *** p<0.001					

The table tells that land expropriation has a negative effect on migration. Increased tenure security decreases migration. In addition, among the 12 variables, gender, age, and nationality have a relatively significant impact on migration. The results are less stable than the market one; there are changes in levels of significance while adding or subtracting variables. This is probably due to the controversial impact of land acquisition with compensation.

### 3.4.2. Robustness checks

To further test the stability of the model, the Logit model will be used to test the same group of variables, similar to *section III.C.2*. The results are shown in *Table 6*.

The results show that the expropriation reduces migration in government mechanisms. Elder people are less likely to migrate, but males are more likely to move. Nationality also has a relatively significant effect on migration.

**Table 6.** Results of Logit models Based on the Government Mechanism.  
Variables used are the same as those used in Probit models

	(1)	(2)	(3)	(4)	(5)
expro	-0.23900*	-0.30315**	-0.29857**	-0.25813*	-0.24360*
	(-2.18)	(-2.39)	(-2.37)	(-2.13)	(-2.06)
gender	1.14983***	1.24195***	1.22839***	1.157555***	1.143265***
	(7.19)	(6.39)	(6.29)	(5.78)	(5.67)
age	-0.01678**	-0.01495*	-0.01327	-0.01396	-0.01674*
	(-2.35)	(-1.70)	(-1.46)	(-1.49)	(-1.76)
edu		0.14207	0.13126	0.15536	0.07229
		(0.54)	(0.50)	(0.57)	(0.26)
logincome		-0.00324	-0.00523	0.00591	0.01143
		(-0.057)	(-0.09)	(0.10)	(0.19)
marital			-0.04787	-0.06503	-0.05114
			(-0.75)	(-0.98)	(-0.76)
health				0.25091	0.26820
				(0.90)	(0.95)
ins				-0.07935	-0.035498
				(-0.15)	(-0.07)
minzu					0.43205*
					(2.26)
comm					0.47557*
					(2.08)
Constant	1.40548**	1.49480*	1.46500*	1.34218	0.92299
	(2.40)	(1.87)	(1.82)	(1.38)	(0.89)
Obs	1370	1062	1062	1003	1003
Ftest	0	2.52e-10	6.76e-10	7.75e-08	8.66e-08
t statistics in parentheses					
* p<0.05, ** p<0.01, *** p<0.001					

## 4. ANALYSIS

### 4.1. Market Channel

Market mechanism's impacts on migration rely on people's rights to rent the lands from or to others. Migration is encouraged by the development of land exchange rights. Regardless the lands are being rented in or out, the rental ratio indicates the positivity of renting. Rural people are given the ability to exchange lands, thus reducing the opportunity cost of lost agricultural labor and the burden of migration (Mullan, Grosjean, and Kontoleon, 2010) [5]. Land property rights are well protected, so people are encouraged to rearrange their lands based on their plans. The increased freedom of rights promotes a better allocation of labor resources and improves population mobility as well. Furthermore, population mobility stimulates the exchanges and communication between urban and rural areas, playing a significant role in China's urbanization as well as the development of the economy (Zhang et al, 2003) [9]. More population inflows toward urban, higher social operating efficiency, thus enhancing market competitiveness and accelerating innovation and growth.

### 4.2. Expropriation (Government) Channel

Rapid economic development, combined with high population density, has created high demand for rural land to be used for urban expansion and infrastructure projects (Mullan, Grosjean, and Kontoleon, 2010) [5]. The risk of land expropriation reduces tenure security and the empirical analysis in *section III.IV* indicates that the tendency to emigrate decreases when the land is insecure. The results may not be as robust as the impact of market mechanisms, although both Probit and Logit models provide relatively significant estimates. Due to the fear of losing their rights to agricultural land if migrating for a long enough time, or permanently, rural-urban migrants in China are more likely to move temporarily (Yang, 1997) [8]. In contrast, the government could also encourage migration through income mechanisms. High compensation will boost migration, but it is usually a one-time income, which is not enough for relocation to the city. In addition, the lost income due to land acquisition might also be far greater than this one-time compensation. This contradictory relationship is one of the reasons for the relative instability of the results.

## 5. CONCLUSION

### 5.1. The conclusion

In this paper, we study the impact of the rural land system and its property rights on migration. Based on data from CHARLS, we conduct empirical analysis, in-

cluding basic Probit model, robustness check, and endogenous check, on market and government mechanisms. The results indicate that the rights to rent land increases the possibility of migration, while land insecurity inhibits the incentive of migration. In both mechanisms, men are more likely to move for better jobs because they can usually take on more physical labor and earn more money. The traditional culture in China that males should be responsible for outside matters while females take care of the family might also push men to go out seeking more opportunities. Elder people tend to stay at the current living places, compared to young people. What's more, CCP members in rural areas are less likely to migrate because some of them took the lead in the Down to Countryside Movement, and some of them with positions and status enjoy the resources brought by their current position.

### 5.2. Policy implication

It's clear that giving people the right to allocate lands encourages resource reconfiguration and stimulates population inflows to urban areas. Government should protect property rights, allow the market to function itself, and eliminate compulsory land acquisition, to achieve free choice on land arrangements. China is currently undergoing a reform of rural land, the Three Rights Separation System, aiming to separate the original household right of contractual operation into a contractual right (right of disposal) and an operation right. Combined with previous village collective ownership, the new reform will constitute China's new structure of farmland rights (Wang and Zhang, 2017) [7].

### 5.3. Future study direction

For future research topics, we could further test the sensitivity of migration on each various variable, about how much probability the independent variables will change the migration. The second possible direction is how the impact of different amounts of compensation on migration varies in different cities and regions: developed regions may have more compensation to better encourage migration, while poor areas, like the Midwest of China, might have the opposite situation. In addition, other possible directions are how the migration resulting from the new rural land system will affect urban people's life, and how does the life of those who stay in rural areas develop after the reforms.

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