The Impacts of Rural Land System on Migration in China

Weihang Zhang
University of Florida, FL, USA
weihang.zhang@ufl.edu

Abstract. The land system is significant to economic development, and the effective deployment of land policy can boost the advantage of resource endowment. The research of migration and land policy can help us acquire the basic logic in the migration for making a perfect land policy. In this paper, the main purpose is exploring the relationship between rural land system and migration under the market and government mechanism. The result indicates that the market mechanism has a positive impact on migration, and the government mechanism has a negative impact on migration.

Keywords: Land tenure; Land rent; Rural-urban migration; Land expropriation.

1. Introduction

Before 1949, private land ownership existed, and Chinese society was divided into landlords, rich peasants, and poor peasants. Exclusive, transferable, alienable, and enforceable are basic features for private land property right. There are four categories of land property right: None, Communal property, Private property, and State property (Feder & Feeny, 1991). After 1949, Chinese government expropriated all land from landowners, and implemented land reform. By 1958, China adopt the second category in the rural area, and the fourth category in the urban area. In other words, government owns urban land property right, and rural collective owns rural land property right (Zhou et al., 2020).

1.1 China rural land system

China has different policy between urban and rural land system. In rural, individual farmer had no land property right, and the management of land was handed over to the People's Commune(PC). The agriculture land and crops was ruled by nation, and the government managed and controlled land market. No land trade was permitted. At the same time, the planning of government's agricultural departments was a mess, and there was no special agency to implement special management and scheduling of land. The ambiguous of land management caused that two different government departments have different scheduling for the same land, such confusion often occurs (Qu et al, 1995). Moreover, the pitfalls from PC started to appear. The equalitarianism dampened the enthusiasm of farmers and caused the decreasing of crops production. According to the National Bureau of Statistics Rural Socio-economic Survey Team, the crops production from 197 million tons in 1958 to 136 million tons in 1961 (NBSSST,2000).

1.2 HRS land property right characteristics

In 1978, Xiaogang Village in Fengyang County broke the traditional PC system. The villagers distributed contractual production to household, forming Household Responsibility System (HRS). The new system links farmers' income and output, motivating the enthusiasm of farmers. HRS had a dual management approach. For individual farmers, they could choose whatever crops they wanted to grow. They submitted a part of crops to the government as tax, and they could own the rest as income. For rural collective, they built infrastructure, such as water irrigation system, to benefit farmers (Qu et al., 1995). Since then, HRS popularized throughout the whole country in 1984, which became the foundation of China agricultural development. The HRS achieved the separation of ownership and contractual management right, and the former belongs to collective and the latter to farmers (Zhou et al, 2020). Afterwards, China deepened land system reform. In 1985, government set an institution to eliminate land disputes about land management and land waste, called Land

Administrative Bureau (LAB). They completed the basic rule of land ownership, land use right, and land application and surveyed the resource of land to design the development plan and protected land resource to prevent degradation (Qu et al,1995). The establishment of LAB boosted the publishing of China's first land law- Land Administrative Law (LAL). Since then land disputes had been based on law to solve and manage.

1.3 China urban land system

In 1978, The "open door" reform begun, and China purposed to build market economic system. Under the wave of separation of politic from economic, China established the special economic zones, such as Shenzhen, in the east-south coast to attract foreign capital. These zones separated the land-use right and land ownership, which impacted next land policy (Ding, 2003). In 1988, the Constitution amendment mentioned that the separation of land use right and land ownership, and land use right could be trade, however, land ownership still belonged country. The urban land use right could be trade in the market, but there was an expiration date. 70 years for residence, and 50 years for industry, education, and culture, and 40 years for commerce (Zhang,1997). Local government charged land use fee rather than tax, therefore, the appreciating of land were not taxed, which made capital start to invest real estate. Since then sales of land use right became a big part of government revenue, and renting land tenure was not only supply the local finance, but officials also got politic achievement. In the land allocation system, China adopted double-track system. On the one hand, the price of acquiring land was zero, and government allocated the land using administrative channel. On the other hand, land use rights were based on market economy, and organizations could purchase land use rights from the government (Zhang,1997; Ding, 2003).

2. Migration from rural to urban

In the 1950s, China implemented regulation and law to control population migration. Hukou system was an important tool to achieve the target. In the first time, hukou system was a national-wide mechanism to monitor population movement. However, when more and more farmers migrated to city for urban residents' attractive remuneration, such as medicine, retirement welfare, food, and housing subsidy, the State Council issued "Decision on Labor employment problem" to address systemic problems of "blind" rural residents influx into the cities (Cheng et al,1994). The policy that denied peasants going into city and repatriated unemployment population back to rural led the low level of urbanization, comparison to the world standard, which forced countryside absorbing unlimited labor; Thus, nation could reduce financial pressure through discarding the surplus unemployable urban population under the situation that absented unemployment insurance and countryside national welfare (Chan,2009; Cheng et al.,1994). Hukou system limited the migration from rural to urban. The people who desired to migrate had to apply migration certificate from the government. The system was not only established administrative management for rural and urban movement, but it also controlled the movement of inter-rural and inter-urban.

2.1 The impact of land tenure on the migration

There are two land mechanism to affect migration. The first mechanism is market mechanism. In 2003, Rural Land Contracting Law conferred transfer right for peasants, and they could subcontract, rent, and exchange their land with price that both sides agreed (Xu, 2008). The acquiring of transfer right boosted the migration of farmers so that they could not only rent farmland, but they also worked in the cities. Farmers could get two incomes to improve their life quality. However, under the limit of Hukou system, rural migrations didn't bring their family members to the urbans and abandoning land use right, and they always chose reserving their land tenure as backup, preventing to become unemployment in urbans (Ma et al,2016). However, migration could decrease the size of household, which led the increasing risk of land expropriation. The characteristics of HRS was allocation by person. When a family member migrated to other place, the land could be expropriated. This is the

second mechanism: government mechanism. The deprivation of land will decrease the probability of migration. To avoid this risk, family will make long-term or permanent migration decision carefully (Yan et al., 2014). At the same time, low probability expropriation may restrained the labor to gain the largest value of land so that the labor could not migrate. If the labor chose to migrate, the rest of family member will waste the land resource, which forms opportunity cost of migration. In contrast, high probability expropriation will decrease the opportunity cost of migration (Mullan, 2011). Therefore, it was uncertain relationship between migration and land expropriation.

2.2 Data

The China Health and Retirement Longitudinal Study (CHARLS) aims to collect a high quality nationally representative sample of Chinese residents ages 45 and older to serve the needs of scientific research on the elderly. The baseline national wave of CHARLS is being fielded in 2011 and includes about 10,000 households and 17,500 individuals in 150 counties/districts and 450 villages/resident committees. The individuals will be followed up every two years. All data will be made public one year after the end of data collection.

3. Identification Strategy

In the questionnaire, we use whether respondents live outside their permanent city or county more than six months as the standard of migration. Two options are designing for the problem, namely, yes=1, no=2. In this paper, the explained variable belongs to a 0-1 variable. Probit and Logistic model are used for analysis. These are binary dependent variable model. The dependent variable "y=1" indicates the respondent are migration to other place, and "y=0" indicates the respondents are not migration. Independent variable x is that the land tenure as key variable to analysis whether affects migration. The linear regression equation can be expressed as formula:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \cdots + \beta_n x_n$$

Table 1. Data Description

Variable	Description	Mean	S.D.
migration	Explained Variable. The decision of migration. 1 migration, 0 otherwise.	0.1631	0.3695
Rent_per	Key variable. The ratio of rent land to total land. Market mechanism indicator.	0.0998	0.2784
expropriation	Key variable. The land is expropriated marked as 1, 0 otherwise. Government mechanism indicator.	0.1220	0.3273
age	The age of respondents.	66.834	10.919
gender	The gender of respondents. 1 male, 0 female.	0.4766	0.4995
logincome	The respondents' income with logarithm.	6.1686	1.3024
Health	The health level of respondents. 1 Excellent. 2 Very good. 3 Good. 4 Fair. 5 Poor.	3.8879	1.8577
han	Is the Han nationality? 1 yes, 0 otherwise.	0.7472	0.4346
education	The education level of respondents. 1 Primary school. 2 Secondary school. 3 Vocational school and Three-year college. 4 Bachelor, Master, and Doctor degree	1.5558	0.6115
martial	Marital status. 1 Married with spouse present. 2 Married but not living with spouse temporarily for reasons. 3 Separated. 4 Divorced. 5 Widowed. 6 Never married. 7 Cohabitated.	1.5791	1.3497
hukou	Current hukou status. 1 agriculture. 2 non-agriculture. 3 unified. 4 none	1.2473	0.4599
Self-employ	Is household member engage in self-employed business? 1 yes, 0 no.	0.0924	0.2896
sibling	Number of siblings.	3.8036	1.8577
Child alive	Is respondents' child alive? 1 yes, 0 no.	0.9831	0.1287
pension	Do respondents have pension? 1 yes, 0 no	0.7967	0.4025
mother	Is the mother living? 1 yes, 0 no.	0.2989	0.4578

In Table 1, it contains the descriptive statistics for all the dependent and independent variables. This paper chooses rent land ratio and expropriation as key variables. The rent land ratio is better than

a number of renting land. In China, different countryside has different situation. Some places have sufficient cultivated land; thus, farmers can be allocated a lot of land. But, some villages lie at the poor land so that cultivated land per person is very little. For example, although some farmers rent 1 acre's farmland, they own 10 acres farmland, when people who live in poor land only own 1 acres. Thus, using variable ratio of renting land can solve the problem. Furthermore, the age, gender, logincome, health, han, education, martial, and hukou are demographic variables. And, the self-employ, sibling, child alive, pension, and mother are variables for robustness checks.

3.1 Basic Regression on Market Mechanism

Base on the analysis of 2.2, rent land ratio is a key variable in the whole model. Rent land is a freedom market since 2002. Thus, Model 1 establish the basic Probit model for migration influenced by market mechanism, and the dependence variable is migration, independence variable is rent ratio, income, age, gender, health, martial. Among M1, the condition is rural Hukou with age less than 70, and the result of rent ratio is positive and statistical significance, which means the bigger rent ratio, the more possibility of migration. Moreover, variable martial is also statistical significance, and the constant is negative. M2 adds nationality, han, based on M1. M3 adds sibling and pension based on M2. M4 adds self-employed based on the M3. M5 adds number of children and minus self-employed based on M4.

Table 2. Regression on market mechanism

Variable	M_1	M_2	M_3	M_4	M_5
Rent_per	0.686**(2.27)	0.433*(1.819)	0.485**(1.983)	0.487**(1.982)	0.477**(1.937)
logincome	-0.028(-0.415)	0.032(0.665)	0.048(0.928)	0.047(0.924)	0.047(0.89)
age	0.011(0.302)				
65.age		-0.582*(-1.815)	-0.646**(-1.99)	-0.644**(-1.987)	-0.527(-1.577)
gender	0.23(1.358)	0.6***(4.877)	0.663***(5.01)	0.663***(4.994)	0.682***(5.121)
health	0.04(0.403)				
2.health		-0.374(-0.61)	-0.408(-0.622)	-0.411(-0.629)	-0.369(-0.598)
martial	-0.206***(-2.66)	-0.075(-1.539)			
2.martial			0.378**(2.017)	0.378**(2.014)	0.362*(1.874)
han		0.074(0.383)	0.111(0.519)	0.112(0.526)	0.121(0.56)
3.sibling			0.946**(2.048)	0.942**(2.036)	1.078***(2.741)
pension			-0.047(0.351)	-0.046(-0.341)	-0.064(-0.456)
Self-employ				0.026(0.125)	
Child_alive					-0.197(-0.423)
_cons	-1.59(-0.737)	-1.221*(-1.697)	-2.01**(-2.364)	-2.052**(-2.127)	-1.995**(-2.066)
N	362	791	764	764	743

M2, M3, M4, M5 include certain variables, such as special type of age, health, martial, and sibling, such as 65.age means 65 years old, 2. health means very good, 2. martial means married but not living with spouse temporarily for reasons, 3. sibling means three siblings. Based on the table 2, we can state that income has positive relationship about population flow. Age has negative related to migration, especially 65 years old, which is statical significance. Gender has statical significant positive related to migration. From the overall, health's constant is positive, but, for people who think their health is very good, the constant is negative. The overall martial is significant negative related to migration, but, for people who married but not living with spouse, the constant is positive. Han, self-employed, and the number of child alive are positive related to migration. Whether have pension is negative related about population. The number of siblings is significant positive to migration.

3.2 Basic Regression on Government Mechanism

Expropriation is led by government; thus, expropriation is the key variable to explore relationship between migration and government mechanism. In the M1, we select expropriation, gender, martial, health, han as independence variable under the condition of age less than 100, education level is secondary school, and non-agriculture hukou. The result of expropriation is significantly negatively

correlated to migration. Gender is significantly positively correlated to population flow. Martial, health, and han are positive related to dependence variable.

Table 3. Regression of Government Mechanism

	(1) m1	(2) m2	(3) m3	(4) m4
Migration				
expropri~n	−0.897**	−0.906**	−0.891**	−0.739*
	(−2.484)	(−2.497)	(−2.423)	(−1.947)
gender	0.596***	0.584***	0.646***	0.610***
	(3.943)	(3.791)	(4.062)	(3.764)
martial	0.086	0.096*	0.089	0.071
	(1.590)	(1.753)	(1.602)	(1.258)
health	0.088	0.087	0.080	0.053
	(1.088)	(1.061)	(0.975)	(0.649)
han	0.520	0.508	0.735*	0.748*
	(1.526)	(1.463)	(1.860)	(1.937)
pension		0.098	0.152	0.092
		(0.459)	(0.711)	(0.419)
sibling			0.067*	0.065
			(1.670)	(1.626)
Mother				−0.525***
				(−2.887)
_cons	−2.039***	−2.096***	−2.615***	−2.304***
	(−4.334)	(−3.900)	(−4.379)	(−3.805)
N	400	387	383	383

t statistics in parentheses
* p<0.1, ** p<0.05, *** p<0.01

Compared to the M1, M2 adds pension. M3 adds the number of siblings based on M2. M4 adds is mother living based on M3. From Table 3, all expropriation constant is significantly negative. Gender is positive and statistically significant related to migration. Only in M2, marital is significantly positive related to migration, in the other models, martial just positive. Health is positive related to population flow. In M3 and M4, han is positive and statistically significant, in M1 and M2, it is positive. Pension is positive impact to migration. Sibling is significantly positive related to migration in M3, and just positive in M4. Mother is a significant and negative impact to migration.

3.3 Market Channel Analysis

From the result of Probit estimation on market mechanism, we observer that the higher rent ratio, the more probability of migration. After farmer acquired rent right, farmer families can allocate their labor rather than be bonded on the farm land. They can rent their land and migrate to cities finding work, which causes rural-urban migration. Therefore, people in rural can acquire two kinds of income. The aspiration of migration is also increased. In M2, M3, M4, the regression result of 65 years old people is significantly negative to migration. These people are too old to migration. When they leave hometown, unfamiliar environment and strange neighbor can be opportunity cost of migration. In China culture, hometown is a specific sign for elders, and most of elders are willing to die and bury in the hometown. Thus, it is obvious that migration and age are significantly negative correlated. According to the table, gender is also a significantly variable, and we can see that man are more likely

migration than woman, which is related to the division of labor in family. The responsibility of men are dealing with external affairs, such as earning money. Instead, women are dealing with internal affairs, such as chores and educating children. For higher wage, men are willing to leave family and migrate other cities. In addition, the biological difference between male and female makes men better at manual work. As a rapidly development nation, building infrastructures, residences, and factories need a lot of construction workers, and only the men can meet the work intensity. So, migration and gender are positive correlated. And then, the second marital status, person married but not living with spouse temporarily for reasons, is statistical significantly. Therefore, we can see the factor of people who leaves their spouse is migration, which is a kind of conjugation reaction.

3.4 Government Channel Analysis

In the result of Probit model on government mechanism, it is clear that expropriation land negatively affect migration. The conclusion can be analyzed in two ways. The first factor is return. The family has a real estate and solid neighbor relationship in the rural. When people lose their interacting with others, it is difficult to support the life in city, such as finding jobs. In addition, The family can use compensation make an investment or give children a better education. Compared to above options, migrated to a strange city is risk. Migration has less return and higher risk. The second factor is cost. The compensation of expropriation is usually too low to support migration. Taking the whole savings migration from countryside to city may decrease the quality of life, because the housing price in city is far more than rural price. The ability of resisting risks for family is rapidly declining. Once a family member falls ill, it is not only the dearth of labor, but also it adds a considerable burden to the family. Therefore, migration and expropriation is negatively related.

4. Conclusion

This paper analyzes whether land tenure influences migration. There are two mechanism in the expectation of migration: market mechanism and government mechanism. Market mechanism and migration is positively correlated, and government mechanism and migration is negatively correlated. Overall, the Hukou system adds a lot of conditions to migration, such as specific document and extra fee, which dampens the enthusiasm of the migration. When farmers divorce from patriarchal environment and enter in city where interaction between people is decreasing, they will spend a tough time. At the same time, the loss of land also illustrates that migrants become proletariat from smallholder economy. They must involve in the market economy and conform to business cycle, such as unemployment and inflation, in which they may not acclimatize in the system. And then, most of migrations can't enjoy regular urban welfare and right, such as insurance and labor security. Migrants are facing these difficulties to form the impedance of urbanization. In addition, Chinese is in a phase of incomplete urbanization, which excludes migrants from urban welfare and programme. At the sacrifice of rural migrants' interest, China has rapidly industrialized and urbanized (Chan, 2010). Furthermore, Chinese government were implementing limiting migration policy to evade that increasing unemployment in city converts the increasing of crime rate. The uncommon structure of migration policies limit migration wishes. The paper just notices the relationship between land tenure and migration, ignoring the influences of policies. Chinese government deeply interferes economic development. The effect of policy is vital to individual decision. Thus, from the upper conclusion, it is obvious that when government supports the increased land tenure security, migration motivation will increase, which is a branch of government mechanism. Besides, equal acceptance of immigrants and Hukou system reform should be the next step in the development strategy. The nation should make full use of the market mechanism of land tenure in order to achieve migration liberation. In summary, rural land tenure reform have had a profound impact on Chinese economic development.

References

[1] Zhang, Xing Quan. "Urban land reform in China." Land use policy 14.3 (1997): 187-199.

[2] Qu, Futian, Nico Heerink, and Wanmao Wang. "Land administration reform in China: Its impact on land allocation and economic development." Land Use Policy 12.3 (1995): 193-203.

[3] Feder, Gershon, and David Feeny. "Land tenure and property rights: Theory and implications for development policy." The world bank economic review 5.1 (1991): 135-153.

[4] Zhou, Yang, Xunhuan Li, and Yansui Liu. "Rural land system reforms in China: History, issues, measures and prospects." Land Use Policy 91 (2020): 104330.

[5] Cheng, Tiejun, and Mark Selden. "The origins and social consequences of China's hukou system." The China Quarterly139 (1994): 644-668.

[6] Ding, Chengri. "Land policy reform in China: assessment and prospects." Land use policy 20.2 (2003): 109-120.

[7] Chan, Kam Wing. "The Chinese hukou system at 50." Eurasian geography and economics 50.2 (2009): 197-221.

[8] Mullan, Katrina, Pauline Grosjean, and Andreas Kontoleon. "Land tenure arrangements and rural–urban migration in China." World Development 39.1 (2011): 123-133.

[9] Ma, Xianlei, et al. "Land tenure insecurity and rural-urban migration in rural C hina." Papers in Regional Science 95.2 (2016): 383-406.

[10] Yan, Xiaohuan, Siegfried Bauer, and Xuexi Huo. "Farm size, land reallocation, and labour migration in rural China." Population, Space and Place 20.4 (2014): 303-315.

[11] Zhigang, Lu, and Song Shunfeng. "Rural–urban migration and wage determination: The case of Tianjin, China." China Economic Review 17.3 (2006): 337-345.

[12] Ma, Libang, et al. "Farmers' rural-to-urban migration, influencing factors and development framework: A case study of sihe village of Gansu, China." International Journal of Environmental Research and Public Health 16.5 (2019): 877.

[13] Chan, Kam Wing. "Fundamentals of China's urbanization and policy." China Review (2010): 63-93.