

The Impact of Land System on Urban Migration

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Abstract: This paper examines how China's dual land system influences rural-to-urban migration through market and government mechanisms. The study finds that active land rental markets promote migration by freeing up economic resources. In contrast, government-led land expropriation tends to discourage migration due to inadequate compensation and institutional barriers, as indicated by the CHARLS data and Probit/Logit models. Key demographic factors—such as income, age, and gender—also play significant roles. These findings highlight the critical impact of land reform policies on urbanization and economic restructuring in China.

Keywords: China; Land Policies; Urban Migration.

1. Introduction

1.1. China's Land System

The roots of China's land system date back to the mid-20th century, when China adopted a centralized, state-led economy under the leadership of the CCP (Chinese Communist Party), following the takeover of the KMT (Kuomintang). The 1954 Constitution of the People's Republic of China formally stated that all urban land belongs to the state, while rural land remains collectively owned by rural villages or production teams [1].

areas gives rise to a dual land governance system: urban-state land is managed directly by municipal, city, and county authorities, while rural land is allocated through collective ownership. Under this management, agricultural land and rural construction land served different purposes. One supports food production, and the other serves as a village-level enterprise for public use (L7.1, L7.2). The state retained the right to expropriate rural land for public purposes, as stipulated in Article 5 of the 1954 Chinese Constitution, as demonstrated by the line L5. While this system was ideologically consistent with the communist vision, it led to significant inefficiencies.

1.2. China Land System: Urban and Rural

As seen in Figure 1, the division between urban and rural

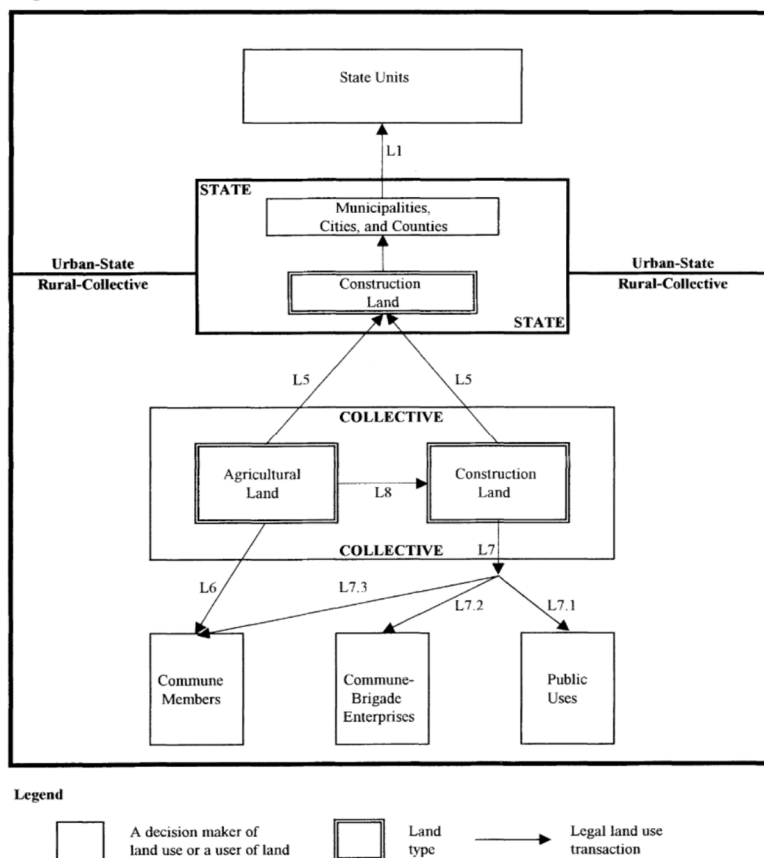


Figure 1. China's Land System Under Central Planning

Urban land is often allocated administratively to state entities at little or no cost, which creates a lack of incentive to use land efficiently. In rural areas, collective farming through communes is the mainstream approach to agricultural production, where land use decisions are made centrally by production teams rather than individual farmers, leaving little room for innovation or farming diversity. [2] Simultaneously, the Hukou system, introduced in the 1950s, generated the divide by tying individuals' legal residency to their place of birth, categorizing them as either rural or urban Hukou holders. Rural residents were restricted from migrating to cities freely [2]. In return, rural Hukou holders will receive a plot of farmland for farming under the guidance of production teams. As a result, farmland productivity stagnated, and rural labor remained tied to subsistence farming, unable to leave their hometowns to participate in industrialization and the growing urban economy. The state's monopoly over inter-sector land transfers, which requires rural land to be

expropriated before it can be allocated to urban people, further demonstrates the inefficiencies of this system, which limits rural communities' ability to benefit directly from land conversion [1].

By the late 20th century, the demands of industrialization and urbanization necessitated reform. Urban land markets emerged in the late 1970s, shifting toward the commercialization of land-use rights. As shown in Figure 2, the urban open land market introduced a dual-track system: land-use rights could be allocated to state-owned or non-profit entities (L1) or sold to commercial users through market-based transactions (L2). Commercial users gained the right to trade, lease, or mortgage land-use rights on the secondary market (L3), creating a mechanism for market-driven land allocation [1]. This land reform solves the inefficiencies of administrative allocation and preserves state ownership of urban land.

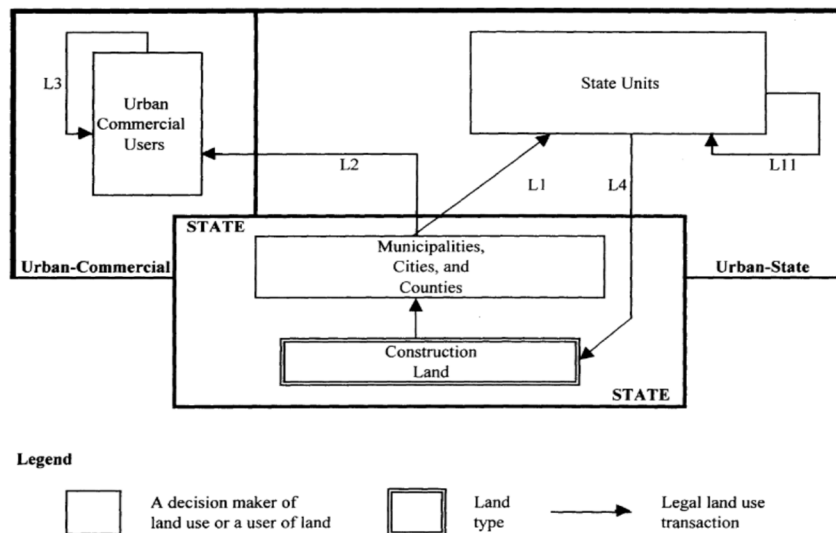


Figure 2. China's Urban Open Land Market

China's contemporary land system comprises a mixture of state ownership in urban areas and collective ownership in rural areas, which accommodates both legal and illegal land use transactions.

In urban areas, when China commercialized land use rights in 1988, as Ho and Lin explain, "it introduced a 'dual-track' system (a 'plan' track and a 'market' track) ... allocation and conveyance" [1]. The land is managed by municipalities, cities, and counties, which allocate construction land to state units (L1) for public infrastructure or government projects, and to urban commercial users (L2) through market mechanisms such as sales, leases, or auctions. Urban commercial users can further trade, lease, or mortgage their land-use rights on the secondary market (L3). The combination of allocation and conveyance creates China's primary market for land use rights. State allocation occurs when the government grants land-use rights to state entities, such as schools or public projects, at a fixed, low cost. This includes basic fees, such as the cost of transferring the land from collective to state ownership, as well as small government-set fees, with no time limits on the land-use rights. In contrast, conveyance involves selling or leasing land-use rights to commercial users, such as businesses, through market-based methods like auctions, bidding, or

negotiations. Since the price for conveyance is market-driven, it is much higher than the allocation.

By paying a higher conveyance fee, commercial users gain access to the secondary market for land-use rights, as demonstrated in Figure 2 L3. This allows consenting individuals to transfer these rights to others, rent out their land, or use the land-use rights as collateral for loans. In the secondary market, the price for land-use rights is noticeably higher than in the primary market. Moreover, using land-use rights as collateral is especially important in China, where capital markets are comparatively underdeveloped, and banks often require collateral to provide loans.

Land-use rights from allocation cannot be used directly in the secondary market. However, it can convert from state-allocated land to commercial use by compensating the state for the price difference between the allocation cost and the conveyance cost. Local city governments, which act as agents of the state, can reacquire land allocated to state-owned units by paying compensation fees, such as demolition fees, and then resell the land-use rights to commercial entities at market prices, as shown in Figure 2 L2. Additionally, state-owned enterprises that change ownership must pay a conveyance fee to the state before they enter the commercial market. Although it is illegal for one state entity to sell land to another,

land exchanges between state units are allowed if the transactions are registered and taxes, such as land appreciation tax, are paid, as shown in L11.

Rural land remains under collective ownership (L7 Figure 3) and is categorized into agricultural and construction land. Agricultural land is allocated to rural households under the Household Responsibility System (L6), allowing them to legally manage the land and transfer use rights to other farmers or commercial users (L9), thereby supporting appropriately scaled farming operations. Rural construction land is allocated for public uses (L7.1), rural enterprises (L7.2), and rural households for residential purposes (L7.3). In November 1993, the policy was established that the contract would last for 15 years. In 1998, under the Land Management Law, the contract could be extended for an additional 30 years upon expiration of the original 15-year term [1]. However, rural collectives must now report the overall and annual land utilization plans to the township when assigning construction land to users. Since many township-village enterprises have changed their ownership form, converting from township or village collective enterprises to shareholding companies, they have paid the required conveyance fee to the county for the land previously allocated to them. This is because they wish to participate in the secondary market for land use rights in the rural commercial sector (L3). Furthermore, a secondary market for rural construction land exists, which is occasionally utilized by

rural enterprises (L10).

Two major types of collectively owned land transactions have received special government attention: converting agricultural land to rural non-agricultural use (Figure 3) and expropriating collectively owned land by the state (Figure 3) for urban or commercial purposes. The first type involves a change in how the land is used, while the second consists of a change in ownership. Historically, before 1978, low incomes and strict political controls limited rural residential construction, thereby minimizing the conversion of cultivated land to non-agricultural uses. However, after the 1978 reforms, economic growth and relaxed controls led to a demand for better housing, resulting in a housing boom and an increase in the conversion of rural land to residential purposes. Moreover, the rapid development of rural non-agricultural activities, previously restricted, drove this demand. Urban reforms and the growth of small and medium-sized cities accelerated the conversion of rural land for non-agricultural purposes, leading to widespread land-use changes throughout the late 1970s and early 1980s.

As stated by Ho and Lin, “Rural households do not have the right to convert the contracted agricultural land to non-agricultural use” [1]. While rural collectives oversee land allocation, illegal transfers (I11), such as unauthorized land sales or conversion for non-agricultural uses, persist. However, farmland is not allowed to be rented or used as a mortgage.

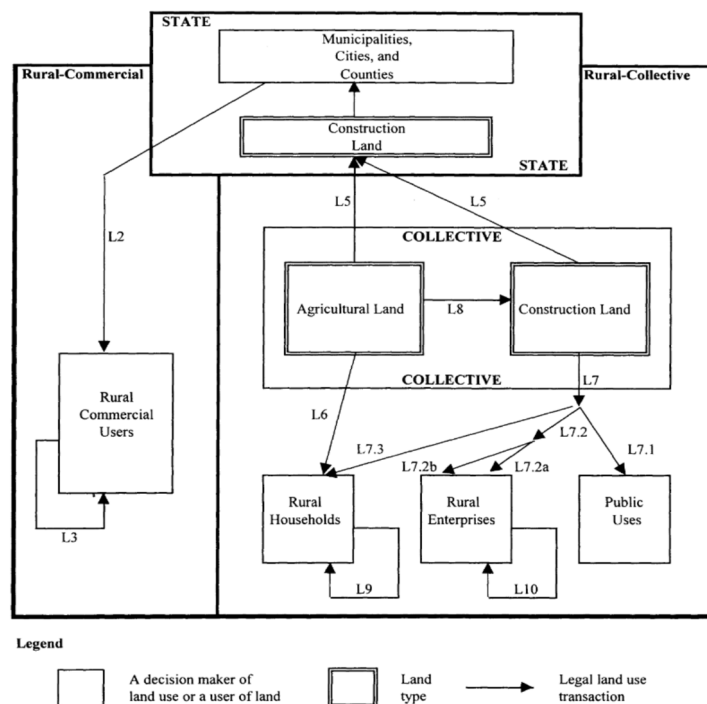


Figure 3. China's Rural Open Land Market

1.3. Characteristics of HRS Land Property Rights

The introduction of the Household Responsibility System (HRS) in rural areas in the late 1970s represented a revolutionary reform. Under the HRS, collective ownership of rural land was maintained, but individual households were granted use rights. Farmers could now manage their land, make informed production decisions, and retain surplus income after fulfilling their state obligations. This reform

fundamentally transformed rural China's economic structure, improving agricultural productivity and household incomes [2]. As illustrated in Figure 3, agricultural land under collective ownership was allocated to households through long-term contracts (L6, L7.3). Initially, contracts spanned three years but were later extended to 15 and then 30 years to provide greater tenure security [1]. Rural households gained autonomy to lease or subcontract their land-use rights, creating opportunities for surplus labor to seek employment in urban areas. However, the Hukou system imposed significant barriers to this labor mobility. Rural migrants,

often referred to as “floating populations,” faced restricted access to urban housing, education, and healthcare due to their rural Hukou status.

Moreover, while households enjoyed secure land-use rights, restrictions on outright land sales or transfers to non-village members limited the marketability of land. This restriction was intended to safeguard collective ownership and prevent land concentration, but it also constrained the development of a fully functional rural land market. Furthermore, periodic land readjustments by local authorities undermined tenure security, discouraging farmers from making long-term investments in their land [1].

Rural-to-urban migration has been a cornerstone of China’s industrialization and urbanization. Migrants, referred to as the “floating population,” significantly contribute to urban economies but face systemic disadvantages, including limited access to public services. The Hukou system, a household registration policy tied to land ownership, further perpetuates inequalities by restricting the rights of rural migrants in urban areas [5].

1.4. Impacts of Urban Migration

Urban migration offers multiple socio-economic benefits. For migrants, it provides access to better-paying jobs and improved living standards. Cities benefit from the labor force migrants bring, which supports industries and ultimately drives economic growth. Urbanization fosters innovation and enhances infrastructure development, creating a cycle of modernization and productivity [18]. For example, Guangzhou’s garment industry heavily relies on migrant workers, whose contributions have made it a global manufacturing hub [18]. Moreover, urban areas offer better healthcare facilities, as seen in Beijing and Shanghai, where migrants and their family members gain access to higher-quality treatments for illnesses.

1.5. Impacts of Over-Migration

An influx of migrants to urban areas can strain urban infrastructure and public services, causing overcrowding, housing shortages, and increased job competition. In cities like Beijing, those problems have manifested in rising housing costs and overburdened public transportation systems. However, these issues can be addressed with proper planning and effective integration policies. For instance, Shanghai’s urban renewal projects have created affordable housing units for low-income migrant families.

1.6. Impacts of Under-Migration

By contrast, a decline in rural-to-urban migration could hinder economic growth and exacerbate rural poverty. For example, if fewer migrants move to urban areas, cities like Wuhan and Chengdu may face labor shortages in construction, which slows infrastructure projects. Reduced migration also mitigates the labor supply to urban industries, directly decreasing productivity. Meanwhile, rural areas might experience stagnation, with fewer opportunities for economic diversification and development. In regions like Guizhou, the reduction in migration has led to persistent rural poverty, as young people lack access to higher-paying jobs available in urban centers.

2. Literature

2.1. Land Property Rights

In China, agricultural and forest land is often described as having “quasi-private” property rights (Kung, 2002). Since the 1980s, rural households have had individual rights to use the land, although these rights are not absolute [15]. Between 1979 and 1983, rural land transitioned from a collective-based system to a family-based one, granting households land-use rights. However, ownership remained under collective control (Brant et al., 2002). Land management operations under the Household Responsibility System (HRS) allocate household land-use rights. Those rights are reinforced by the Rural Land Contracting Law (RLCL), which secures a 30-year land-use contract [6]. In 2014, China introduced land system reforms that established the “Three Rights Divisions,” which separate ownership, contract, and management rights with transferable management rights.

2.2. Mechanisms of Land Property Rights Impacting Migration

Land property rights influence migration through two primary mechanisms: market-based and government-driven.

When land rights are secure, rural residents can utilize their land as a financial asset. Farmers with secure tenure can lease or sell their land, using the proceeds to fund migration to urban areas. For example, in Zhejiang province, farmers who could rent out their land to agricultural cooperatives gained the money to start small businesses in urban areas. Such a mechanism aligns with market principles, allowing individuals to optimize resources and make voluntary migration decisions based on economic incentives. Additionally, secure land tenure improves investments in rural areas, which increases its value and provides better returns for those leasing it out. As a result, rural residents are less likely to rely on subsistence farming and can pursue higher-paying jobs in urban areas. The Guangdong province demonstrated this market-driven mechanism after the social and economic reform in 1978.

By contrast, insecure land rights often lead to government appropriation of land for urban development projects. Farmers are frequently compensated below market value when local governments requisition land. This forced migration disrupts the livelihoods of affected individuals and creates economic instability. For example, large-scale land appropriations for industrial parks in Hebei province displaced thousands of rural residents, many of whom lacked adequate compensation or resettlement plans [18]. The government-driven mechanism sheds light on a forced aspect of migration policies, where individuals are relocated by necessity. Local authorities justify this practice as a means to promote economic development, yet it undermines trust in governance and exacerbates social inequalities. Forced migration often results in rural residents being absorbed into the urban labor market as low-wage workers, perpetuating cycles of poverty and marginalization. The market-based mechanism promotes voluntary migration and economic empowerment, enabling rural residents to transition smoothly into urban life. Ma observed that many migrant workers hesitate to relinquish their rural land-use rights due to challenges in accessing social security and the advantages available to urban residents [3]. Similarly, Yan discovered an inverse relationship between migration duration, participation in land rentals, and the establishment of land rental farms [19].

These findings suggest that the impact of rural labor migration on the development of China's rural land market remains inconclusive. By contrast, the government-driven mechanism often leads to social unrest and economic disenfranchisement.

In contrast, insecure land rights often lead to government appropriation of land for urban development projects. The incomplete enforcement of the Rural Land Contracting Law in China (RLCL) may pose a significant barrier to migration due to the increased likelihood of land insecurity. Meanwhile, the increasing risk of land expropriation can increase the relative benefits of migration. Consequently, it remains unclear whether tenure security has a positive or negative influence on migration [6]. Ma demonstrates that tenure security has a significant impact on family migration decisions in villages with poorly developed land leasing markets [3]. However, this effect diminishes in areas with more advanced land leasing systems. In less developed land leasing markets, households in villages without land redistribution will participate less in migration. In contrast, families that prioritize land certificates to safeguard their land-use rights will likely engage more in migration.

3. Empirical Analysis

3.1. Data

The China Health and Retirement Longitudinal Study (CHARLS) is designed to gather a nationally representative dataset of Chinese residents aged 45 and above, supporting research on the elderly population. The baseline national survey of CHARLES, initiated in 2011, encompasses approximately 10,000 households and 17,500 individuals across 150 counties or districts and 450 villages or residential committees. Participants will be re-surveyed every two years, with all collected data becoming publicly available one year after the conclusion of data collection.

3.2. Probit Model and Logit Model

In regression analysis, two or more independent variables define a multiple regression model. Since most phenomena are influenced by numerous factors, combining several independent variables provides a more accurate prediction or estimation of the dependent variable than relying on a single independent variable. A basic multiple linear regression model can be represented by the formula (1).

Table 1. Data Description. This table explains the variable's meaning, the mean value, and the standard deviation.

Variable	Description	Mean	S.D.
migration	Key Variable. Migration decision. 1 migrate, 0 not migrate	0.5773901	0.4940089
rent_per	Key Variable. The land rented / the total land allocated. Market mechanism indicator.	0.0969766	0.2749459
appropriate~n	Key Variable. 1 symbolizes the land is expropriated; otherwise, 0—government mechanism indicator.	0.1345834	0.3412938
age	The age of the respondents	58.83354	10.91945
gender	The gender of respondents: 1 male, 0 female	0.4747494	0.4993741
edu	The education level of the respondents. An ascending five-level classification is adopted from 1 to 5	1.575425	0.837429
health	The health level of the respondents. A descending five-level classification is adopted from 1 to 5	3.024122	0.9782006
party	Whether is part of the Chinese Communist Party (CCP): 1 Yes, 0 No.	0.1079974	0.3103855
han	The Han ethnicity: 1 Yes, 0 No	0.923268	0.2661729
hukou	Current Hukou Status: 1 agricultural; 2 non-agricultural; 3 unified; 4 none.	1.247318	0.4598901
prov	The province of respondents	13.3289	7.170836
logincome	The respondents' income with logarithm	6.168619	1.302449
weight	Cross-section individual weight with household and individual non-response adjustment.	31029.01	39903.73
siying	Household members who engaged in self-employed businesses.	1.907603	.2896001
hunyun	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	1.579069	1.349695
parents	Is the father living? 1 Yes, 2 No	1.861464	0.345478

$$y = \hat{y} + \mu = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n + \mu \quad (1)$$

In this scenario, y represents the actual value of the dependent variable and \hat{y} denotes its predicted value. μ is the error. β_0 is the constant or intercept of the regression equation; β_i refers to the coefficient corresponding to the i -th independent variable, where i ranges from 1 to n .

When y is a binary variable (taking values of either 0 or 1), it is assumed that the residual value u and the independent variable x are uncorrelated, with u having a mean of zero and constant variance. Mathematically, this is expressed as $E(u | x) = E(u) = 0$. Under these conditions, the expected value of y is defined as shown in equation (2).

$E(u | x) = E(u) = 0$. Under these conditions, the expected value of y is defined as shown in equation (2).

$$P(y|x) = 1 * P(y = 1|x) + 0 * P(y = 0|x) = P(y = 1|x) \quad (2)$$

From formula (3), it can be concluded that the probability $P(y = 1 | x)$ is a linear function of x_i , referred to as the response probability (RP). Since the sum of probabilities equals 1, $P(y = 0 | x) = 1 - P(y = 1 | x)$, which is also a linear function of x_i . As this response probability is linearly

related to the parameter β_i , the multivariate linear model for a binary dependent variable is commonly referred to as the Linear Probability Model (LPM).

$$P(y = 1|x) = \hat{y} + \mu = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n + \mu \quad (3)$$

The formula for the Linear Probability Model (LPM) reveals that changes in the value of x_i can result in probabilities that fall outside the range of 0 to 1. This limitation means that the LPM violates the Gauss-Markov assumptions. Specifically, when y is a binary variable, its conditional variance given x is expressed as shown in formula (4).

$$Var(y|x) = P(x)[1 - P(x)] \quad (4)$$

In the Linear Probability Model (LPM), $P(y = 1|x) = \hat{y} + \mu = \beta_0 + \beta_1 X_1 + \dots + \beta_n X_n + \mu$. This indicates that unless the probability is unrelated to any x , there will be an issue of heteroscedasticity, such as the variance being non-homogeneous.

The Linear Probability Model (LPM) has limitations—the probability of the fitted values may fall outside the range of 0 to 1, although this is straightforward. To address these issues, a more sophisticated binary response model is required. Such a model focuses on the response probability. In LPM, the response probability is assumed to be a linear function of a series of parameters β . To overcome the shortcomings of LPM, we can extend the model by adopting a different type of equation, as represented in equation (5).

$$P(y = 1|x) = G(\beta_0 + \beta_1 x_1 + \dots + \beta_n x_n) = G(x\beta) \quad (5)$$

$x = \{x_0 = 1, x_1, x_2, \dots, x_n\}$, and G is a monotonic function with values strictly ranging between 0 and 1. This property ensures that the response probability also stays within this range. There are various forms of G to choose from. When G is linear, it corresponds to the previously mentioned Linear Probability Model (LPM). However, more commonly used nonlinear forms include the logit and probit models. Specifically, when G represents the cumulative distribution function (CDF) of a standard logistic random variable, it is referred to as the logit model (as in Formula 6). Similarly, when G represents the cumulative distribution function (CDF) of a standard normal random variable, it is called the probit model (as in Equation 7).

$$G(x) = \frac{\exp(x)}{1 + \exp(x)} \quad (6)$$

$$G(x) = \int \frac{1}{\sqrt{2\pi}} \exp\left(-\frac{x^2}{2}\right) dx \quad (7)$$

Based on the above analysis, there is no fundamental difference between the Logit and Probit models, as both are generally applicable. The key distinction lies in their respective distribution functions: the Logit model assumes that the random variable follows a logistic probability distribution. In contrast, the Probit model assumes it follows a normal distribution. In practice, the formulas of these two distribution functions are similar, with minimal differences in their values. The primary distinction is that the logistic distribution has thicker tails than the normal distribution. However, when the dependent variable is ordinal, the ordered Probit model can be employed for regression, serving as an extension of the Probit model. This study uses the Probit

model for the primary analysis and the Logit model for robustness checks.

3.3. Market Mechanism on Migration

3.3.1. Basic Regression

Based on the analysis in Part II, “rent_per,” also known as chuzubi (calculated as land rented divided by total allocated land), is used as the variable representing the market mechanism. Different variables and conditions are selected to explore the relocation mechanism further within the market context and establish various probit models for analysis. Probit_M1 lays the foundation by focusing on rural households where individuals are under 80 years old. It examines the relationship between migration and fundamental factors, including province (prov), age (age), education (edu), gender (gender), party membership (party), ethnicity (Han), and health status (health). These variables capture key demographic and institutional drivers that influence economic decision-making related to migration. Probit_M2 extends Probit_M1 by incorporating hunyin (marital status) as a proxy for household structure and stability, alongside applying weights to adjust for sample representativeness. This acknowledges the role of family economics in migration decisions, where household dynamics can serve as both incentives and constraints within the labor market. Probit_M3 adds siying (private ownership or entrepreneurial activity), capturing the influence of individual economic agency and market engagement. This addition illustrates how participation in non-agricultural economic activities influences the opportunity cost and financial feasibility of migration. Probit_M4 builds on Probit_M2 by incorporating parents as a variable to account for intergenerational economic dependencies and obligations, which are particularly relevant in rural economies with strong familial ties. As shown in Table 2, the results reveal a significant positive correlation between chuzubi and migration across all models. This indicates that higher engagement in land rental markets facilitates greater labor mobility, a finding consistent with economic theories on resource reallocation and efficiency. By allowing land to be utilized more effectively through rental markets, rural households can unlock liquidity and reduce constraints on migration, enabling individuals to seek better economic opportunities in urban or peri-urban areas. Additionally, the results highlight the significance of province, age, gender, and party affiliation in influencing migration behavior. These factors highlight regional economic disparities, demographic characteristics, and institutional constraints, such as access to party networks, which often influence access to jobs and resources in China’s segmented labor market.

3.3.2. Robustness Check

A widely used approach in empirical research is robustness checking, which involves adding or removing variables or employing alternative models to evaluate the stability and reliability of core regression coefficient estimates under modified regression specifications [2]. As noted by Catherine et al., robustness checks, such as adding controls or sample splits, are standard features of empirical research. However, they are less common in structural research due to computational costs [20]. Implementing robustness checks, including alternative models such as the Logit model, enhances the credibility of the research findings by demonstrating that the results are not sensitive to specific model specifications. While the initial experimental results,

obtained by including or excluding variables, provide a solid foundation for analysis, additional steps are often taken to strengthen the scientific validity of the findings. The Logit model, as introduced in Section B.1, is used to ensure the robustness of the results further. The experiments conducted in Section C.1 are repeated using this alternative model, with the results summarized in Table 3. The analysis provides a supplementary perspective by employing the Logit model,

allowing for the comparison of results across different modeling approaches. This reinforces the reliability of the conclusions and ensures that the observed relationships are not artifacts of a single modeling framework but hold consistently across variations in the specification. In econometric analysis, robustness checks are essential for validating empirical findings.

Table 2. Results of each Probit Model Based on the Market Mechanism. Only variables with greater than or equal to one model with significant results are retained. This includes certain variables, such as a special type in prov. For example, 11. prov represents the result of prov 11.

	Probit_M1	Probit_M2	Probit_M3	Probit_M4
rent_per	0.0623**	0.637**	0.652**	0.634**
	(-2.145)	(-2.161)	(-2.208)	(-2.146)
logincome	0.136**	0.140***	0.144***	0.139***
	(-2.545)	(-2.615)	(-2.658)	(-2.599)
11.prov	0.383	0.320*	0.337*	0.323*
	(-0.903)	(-0.761)	(-0.793)	(-0.767)
17.prov	-1.022***	-1.204***	-1.190***	-1.205***
	(-2.782)	(-3.182)	(-3.133)	(-3.183)
18.prov	1.552**	1.496**	1.497**	1.500**
	(2.272)	(2.217)	(2.234)	(2.219)
21.prov	-1.357***	-1.359***	-1.375***	-1.363***
	(-3.140)	(-3.154)	(-3.165)	(-3.149)
22.prov	1.138**	1.042*	1.035*	1.038*
	(2.158)	(1.901)	(1.890)	(1.893)
65. age	-1.418*	-1.383*	-1.378*	-1.382*
	(-1.851)	(-1.823)	(-1.816)	(-1.820)
72. age	-2.176**	-2.166**	-2.170**	-2.164**
	(-2.355)	(-2.366)	(-2.367)	(-2.363)
gender	1.508***	1.498***	1.505***	1.498***
	(9.054)	(8.825)	(8.870)	(8.818)
party	-0.981***	-0.999***	-1.006***	-1.002***
	(-3.825)	(-3.995)	(-4.000)	(-3.985)

t-statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

The findings in Table 3 highlight several significant relationships in migration patterns under the market mechanism. The rental ratio (chuzubi) is positively correlated with migration across Logit_M2, Logit_M3, and Logit_M4, consistent with prior studies that suggest land rental systems facilitate labor mobility by reallocating resources more effectively [6]. However, the lack of significance in Logit_M1 underscores the importance of including household structure variables, such as marital status, in migration analysis. This

makes Logit_M1 statistically insignificant. Income (logincome) is also positively associated with migration, reflecting the economic principle that higher income provides the financial means to migrate [7]. Additionally, significant provincial differences suggest that localized economic and institutional factors influence migration likelihood, with certain provinces exhibiting higher mobility due to economic push or pull factors [5]. Age negatively correlates with migration, affirming that younger individuals are more likely

to relocate due to lower opportunity costs and greater adaptability [8]. Gender plays a critical role, as men are significantly more likely to migrate, aligning with traditional labor market demands and sociocultural norms in rural areas [6]. Party membership is negatively associated with migration, likely reflecting the advantages that CCP members have

within localized governance and employment systems [5]. Collectively, these findings confirm the importance of market mechanisms, demographic factors, and institutional influences in shaping migration behavior, aligning with established theories of migration and empirical evidence.

Table 3. Results of each Logit model based on the Market Mechanism. Identical to Table 2, but based on the Logit Model rather than the Probit Model.

	Logit_M1	Logit_M2	Logit_M3	Logit_M4
rent_per	0.989*	1.022*	1.046*	1.014*
	(-1.710)	(-1.731)	(-1.767)	(-1.713)
logincome	0.229**	0.241**	0.249**	0.239**
	(-2.396)	(-2.517)	(-2.564)	(-2.496)
11.prov	0.613	0.508*	0.537*	0.514*
	(0.843)	(0.708)	(0.736)	(0.714)
17.prov	-1.740**	-2.067***	-2.055***	-2.068***
	(-2.490)	(-2.908)	(-2.864)	(-2.912)
21.prov	-2.231***	-2.257***	-2.290***	-2.268***
	(-3.029)	(-3.053)	(-3.075)	(-3.051)
22.prov	1.824**	1.675*	1.659*	1.668*
	(2.026)	(1.811)	(1.792)	(1.804)
72. age	-3.799**	-3.775**	-3.778**	-3.772**
	(-2.141)	(-2.140)	(-2.146)	(-2.136)
gender	2.546***	2.513***	2.524***	2.512***
	(-8.165)	(-8.083)	(-8.140)	(-8.075)
party	-1.721***	-1.438**	-1.450**	-1.456**
	(-3.60)	(-3.14)	(-3.15)	(-3.14)

t-statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

3.4. Government Mechanism on Migration

3.4.1. Basic Regression

The impact of land acquisition on migration has been a topic of considerable debate. This paper investigates the role of government mechanisms by using land expropriation as a dummy variable, represented by *zhengdi_dumm*. This variable serves as the key indicator for exploring the effects of land acquisition policies on mobility. By focusing on rural households with members under the age of 80 and controlling for variables such as log income (logarithmic income, age, education level, gender, and presence of father), the analysis yields significant results. These control variables ensure the findings account for socioeconomic and demographic factors influencing migration behavior. As detailed in Table 4, the specific parameters provide empirical evidence that government-led land acquisition significantly impacts migration patterns.

Based on the table, the variable *zhengdi_dumm* (representing land expropriation) has a negative coefficient (-0.263) that is statistically significant at the 5% level ($*p < 0.05$). This indicates that land expropriation is negatively associated with migration. In other words, individuals affected by land expropriation are less likely to migrate compared to those not affected. First, the compensation provided during land expropriation often falls below market value, leading to economic instability that hinders the financial capacity to migrate [10]. Second, the hukou system restricts rural residents' access to urban social services, deterring migration even when land is expropriated [9]. Third, the psychological attachment to ancestral land and community may discourage relocation even when land is lost [10]. All these factors may be the mechanics behind the observed negative association between land expropriation and migration.

Table 4. Results of the Probit model based on the government mechanism. Only show zhengdi_dumm as a significant regression result.

Variable	Probit_G
appropri~n	-0.278* (-2.05)
logincome	0.0425 (-1.20)
age	-.0372*** (-6.35)
edu	-0.093 (-1.45)
gender	0.867*** (-8.90)
parents	-0.0843 (-0.62)
_cons	1.801*** (-3.80)

t-statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

3.4.2. Robustness Check

Similar to the way of analysis in Section C.2, Robustness Checks were conducted to validate the consistency of the results, with the experimental findings presented in Table 5. The results consistently demonstrate that, under the government mechanism, land expropriation has a significant negative impact on migration, as observed in both Tables 4 and 5. This suggests that individuals affected by land expropriation are less likely to relocate, potentially due to financial instability caused by inadequate compensation [10]

or restrictions imposed by institutional mechanisms, such as the hukou system, which limits access to urban opportunities [9]. Additionally, the findings reaffirm that age negatively affects migration, with older individuals being less likely to migrate, aligning with previous studies suggesting that younger people are more adaptable and mobile due to lower opportunity costs [8]. Furthermore, the results highlight a consistent gender disparity, with men being more likely to migrate than women, which may reflect traditional labor market dynamics or cultural norms favoring male mobility [6].

Table 5. Results of the Logit model based on the government mechanism. Only show zhengdi_dumm as a significant regression result.

Variable	Logit_G
zhengdi_dumm	-0.445* (-2.10)
logincome	0.0671 (-1.18)
age	-0.0563*** (-6.25)
edu	-0.159 (-1.42)
gender	1.401*** (-8.70)
parents	-0.141 (-0.65)
_cons	2.951*** (-3.82)

t-statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

4. Discussion and Conclusion

4.1. Discussion

Our findings align with the existing literature, which underscores the significant role of land rental markets in facilitating migration in China. For instance, a recent study by Ma et al. [11] found that the Land Certification Program (LCP) led to increased rural-urban migration and more active land rental markets, particularly among younger individuals and households with heads aged 50 years or younger. Additionally, research by Zhang et al. [12] suggests that rural labor migration has a significant positive impact on households renting out land in rural China, indicating that migration decisions are closely linked to land rental behaviors. Regarding the influence of Chinese Communist Party (CCP) membership on migration, Li and Rozelle found that institutional affiliations, such as CCP membership, often reduce the likelihood of migration by providing local advantages and access to resources, thereby diminishing the necessity for relocation [5].

4.2. Market Channel

Our analysis indicates that the transformation of management rights (TRD) in China may increase the likelihood of migration. Urban-rural migration is a crucial driver of China's urbanization and economic development [16], a trend that is expected to maintain momentum for an extended period [15]. Moreover, population inflows resulting from migration support the upgrading of China's industrial structure, showing that migration creates a significant influence on economic restructuring and growth [15]. Consequently, China's recent TRD reforms are expected to stimulate migration, thereby accelerating urbanization and industrial upgrading, critical components of sustained economic progress. Additionally, the labor shortage in rural areas could bring about the Lewis Turning Point [14], where surplus rural labor is depleted, potentially lowering economic growth. The labor shortage also risks pushing China toward the middle-income trap, where economic growth stagnates before transitioning to high-income status.

4.3. Government (Expropriation) Channel

The difficulty in identifying a robust combination of variables for a significant relationship with `zhengdi_dumm` indicates that the conclusion that land insecurity negatively impacts migration is not entirely stable, despite the significant results observed in the Probit and Logit models. This aligns with the findings of Mullan et al. [6], who suggested that land insecurity could positively or negatively impact migration, depending on the context. Our empirical analysis shows that land insecurity reduces the likelihood of migration. This can be attributed to the collective or state ownership of land in China, which creates uncertainty for users who might face land reallocation if they choose to migrate. Consequently, many choose not to migrate to safeguard their land rights. Nevertheless, the transformation of rural land rights (TRD) introduced reforms that ensure land security. By confirming the contract operating rights to homestead plots, the TRD system guarantees farmers the right to use the land while maintaining collective ownership. This reform ensures farmers' land security by clearly stating their rights as members of collective economic organizations. Those changes reduce the risks of land insecurity, thereby increasing

the probability of migration. In addition, migration opportunities can drive labor reallocation and contribute to economic growth, further supporting the modernization of China's economy through urbanization and industrial restructuring. This reform can transform land management practices and unlock greater economic productivity in rural and urban areas.

4.4. Conclusion

China's rural land reform, characterized by the Three Rights Division (TRD) system, represents a shift in land management by stating ownership, contract, and management rights. This reform strengthens farmers' control over their contracted land and facilitates its use, transfer, and mortgage, laying a foundation for economic mobility. Against the backdrop of China's ongoing urbanization, industrial restructuring, and the challenges posed by the middle-income trap and Lewis Turning Points, this study provides a detailed analysis of the rural land system's impact on migration, a critical driver of economic growth. Our empirical analysis based on the CHARLS data reveals significant and stable findings, incorporating identification models, robustness checks, and endogeneity tests. Land rental opportunities, male gender, and higher income positively influence migration, while land insecurity and age negatively affect it. Interestingly, the lower propensity for migration among Chinese Communist Party (CCP) members highlights the role of institutional ties in anchoring individuals to their local area. However, the instability of the negative relationship between land insecurity and migration is potentially tied to compensation from land expropriation. Our findings emphasize that TRD reforms, by promoting the transformation of land management rights and guaranteeing contract rights, can enhance migration probabilities through market and government mechanisms. These migrations will ultimately lead to urbanization, industrial upgrading, and regional economic growth, addressing labor market inefficiencies. However, the impacts of TRD extend beyond immediate economic outcomes. By granting more power to the rural populations with secure land rights, TRD reforms give a sense of agency and long-term planning among farmers, making them engage more in the broader context of China's modern economy. Looking ahead, it is essential to explore further the extent to which rural land system reforms influence migration patterns and their lasting effects on China's economic trajectory.

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