Linking Land Property Rights with Rural-Urban Migration: Land Transfer and Expropriation Channels in China

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Abstract: This paper mainly examines the roles of two typical forms of circulation of land property rights: renting out and expropriation in migration from rural to urban areas. The former reveals the effectiveness of market mechanism, while the latter reflects the power of government's macro control on arable land resources. We also compare the impacts of both sides to shed light on the empirical question: which channel plays a more significant role in an individual's migration choice? Using the dataset arranged and sorted out according to the questionnaires covering information about residence, land, family, health, income, and education from 2013 to 2014, we find that land renting has a positive impact on rural-urban migration in China, while land acquisition has a negative impact. We also show that the former, land transfer, exerts greater influence than the latter, land acquisition, on migration out of rural areas and labor reallocation relating to it.

Key words – property rights, land transfer, expropriation, rural-urban migration, China

1. Introduction

Urbanization has long time been an effective indicator of a country's development. The general urbanization rate in Australia and the U.S. is between 80% and 90%, in Europe and Japan it is 60%-70%, while this rate in China is 57.73% as the National Bureau of Statistics shows in 2017,

which is relatively low. Agriculture in those foreign countries is of large scale and mostly based on machinery, while in China agriculture is still labor-intensive and has lower labor productivity. Less cultivated area and more population require a labor reallocation that shifts labor out of agriculture to achieve a more productive use of lands and higher welfare.

As many other developing countries, China's urbanization has experienced the huge migration outflows from rural areas. The most striking characteristic of this migration is non-permanent, that is, rural migrants in China keep going back and forth between original villages and urban areas. One possible reason is that China's collective land ownership is part of the public ownership, which means that only village collectives officially own the land, but individual households have fixed-term contracts to use the land. Another is that Chinese characteristic hukou system have set many limitations on immigrants' enjoying public services, supported by the fact that Chinese urbanization rate of household registration only reached 36%.

Nowadays, land policies put more emphasis on the "Three Powers Split" and environmental protection. The former refers to the split in parallel of three land-related rights: rural collective ownership of land, farmers contracting right and land management right, innovatively transformed from the previous family-contract responsibility system. The latter can be reflected from a series of latest "returning farmland to forest"

policies. For instance, our state grants subsidies (total amount: 25.49 billion yuan) to farmers, encouraging them to leave the arable land unreclaimed and keep the surface vegetation complete, in case of soil erosion, flooding, landslides, droughts, sandstorms, losses of biodiversity, land degradation and deforestation. Besides, an increasing number of natural forest protection programs and sloping land conservation programs are also part of this progress.

Since 1978, due to the marketization and the opening policy, China has created the miracle of sustainable economic growth with high growth rate through taking advantage of demographic dividends and abundant labor force. However, based on the present stage where the Lewis turning point, i.e., surplus rural labor reaches a financial zero is approaching, the demographic dividends that used to support China's rapid economic growth is now failing, which implies an increased labor cost of manufacturing workers and an urgent demand on removing household registration restrictions. China's household registration system has long time been attached to a lot of administrative, economic and welfare functions. The existing dual household registration system and the related welfare system has hindered the optimal combination of labor endowments and economic opportunities, leading to restraints on urban and rural workforce mobility. The intuition behind is that in order to avoid being stuck in the “middle income trap” — the dilemma usually faced when heading towards high

income nations, effective optimization of urban and rural population structure established by transfer of rural surplus rural labor force, matters much in economic transformation and sustainable development.

The remainder of the paper is organized as follows. In Section 1 we provide details on the history of changes in the land system in China. Section 2 summarizes the literature on land issues. Section 3 describes the data, then presents the empirical strategy and results with additional robustness checks. Section 4 shows the empirical analysis accordingly and Section 5 concludes.

2. Literature

Despite the similarities between land use rights and private property due to longer land tenure contracts, reduced frequency of land reallocations and increased renting opportunities, the constraints on rural-urban labor mobility still remain with the described obstacles such as the household registration (hukou) system and the occupational segregation and discrimination against rural migrants, laying troubles for inequality, economic inefficiency and rural environment degradation (Katrina Mullan, Pauline Grosjean & Andreas Kontoleon, 2010). They examine the role of incomplete rural property rights, including tenure insecurity and restrictions on land rentals in the migration decisions of rural households

to shed light on whether rural land tenure arrangements are a further constraint and whether tenure insecurity or limits on renting land act as constraints on migration. And they find that greater tenure security tends to increase migration on forest land and agricultural land when rental rights are complete, while it reduces migration where renting agricultural land is restricted.

Although well-defined and secure land property rights are essential, security of access requires evidence of productive use by the occupant, which implies that leaving the land idle or lending it to others would cause a substantial risk of rights loss (Alain de Janvry, Kyle Emerick, Marco Gonzalez-Navarro & Elisabeth Sadoulet, 2015). They use the panel data of households from PROGRESA, the Mexican land certification program from 1993 to 2006 and find that redefining property rights, i.e., removing the link between land use and land rights through the issuance of ownership certificates, can induce migration out of rural areas, while have little effect on cultivated area due to two countervailing forces: land consolidation into larger farms and the investment effect, in spite of significant population losses. The results also indicate that removing the constraints on labor allocation and land transactions through delinking land rights from land use is one way to enhance agricultural labor productivity and farmland consolidation efficiency.

While it's quite obvious that land liquidity constraints can have impacts on the rural households' migration decisions, empirical verification on this issue is still lacking. The case of the Stolypin agrarian reform in the Russia empire provides a natural experiment with exogenous variation in liquidity constraints. Using a panel of historical data from 1901-1914 on regional migration, Eugenia Chernina, Paul Castañeda Dower and Andrei Markevich (2010) examines the empirical relation between titling reform, liquidity constraints and internal migration based on the Stolypin reform, and finds a strong positive correlation between the reform and migration. The findings show that liquidity constraints matter for migration, and introduction of individual land titles improves the allocation of resources by influencing the migration decision.

3. Empirical Analysis

This article makes use of panel data from individual surveys at a national level carried out by Peking University and Tsinghua University from 2013 to 2014. Investigation methods involve face-to-face interviews and online questionnaires, creating a large sample set of 19,903 answers after dropping the seniors who are aged more than 80.

3.1 *Data*

Using the panel data of individuals from various parts of China over the subsequent two years 2013–2014, we arrange and analyze the residence, demographic background, family information, education history, health status, household and individual income of households covering 28 provinces in China. Besides, we reserve the effective answers only from the respondents with an agricultural hukou, in order to maximize the data validity.

Importantly, we select the metric variable, rental ratio to measure the effectiveness of market mechanism where land management rights can be freely traded between those who demand and supply land resources, since the proportion of land renting out well indicates the land transfer channel, especially with regards to homeland areas. Analogously, the dummy variable, whether land has been acquired since 1978 represents the influence of national government regulations on land control, since the household-responsibility system, by which local managers are held responsible for the profits and losses of an enterprise, was first adopted in agriculture from then on.

Table 1 — Descriptive statistics of regression variables

Variable	Description	Obs.	Mean	Standard Deviation
Migration	1 = has left residence for over 6 months	6,906	0.5805	0.4935
Proportion of land renting out	Ratio of rental area (mu) to contracted	5,759	0.0938	0.2697
Whether land has been acquired since 1978	1 = land has been expropriated by government since 1978	10,345	0.1362	0.3430
Gender	1 = male	19,903	0.4755	0.4994
Party	1 = communist	15,588	0.1002	0.3003
log(income)	Logarithm of income (yuan)	10,628	6.1823	1.2935
Health	Self-assessed health status from 1–5	7,818	3.0196	0.9665
Education	Level of education received from 1–5	19,779	1.5901	0.8415
Age	Age of the respondent	19,903	57.897	9.8799

Nationality	1 = has a Han nationality	15,549	0.9207	0.2702
Province	The number of province from 1–28	19,903	13.273	7.1643
Self-employed business	Household members engaged in self-employed business from 1–2	8,740	1.9054	0.2927
Marriage	Current marital status from 1–7	15,606	1.4978	1.2701
Parents	1 = father is still living	8,939	1.8570	0.3501

3.2 *Identification Strategy*

We use the panel data of 23,752 individuals from CHARLS Life History: Residence, which contains detailed demographic variables and migration status of household members over the two years 2013–2014. The dependent variable is an indicator for whether an individual has ever lived outside his/her permanent city/county/district for more than 6 months since he/she first came to permanent city/county/district, due to our definition of

migration is a relatively long-term (for over half a year) change of the place of residence. Notably, answers from the respondents with non-agricultural or not applicable hukou type are eliminated from our statistics. The main estimating equation is

$$M = \delta R + \gamma A + \varphi E + \alpha H + \beta M + \lambda F + \mu G + \xi A_g + \sigma I + \omega B + \eta P + \rho N + \tau D + \varepsilon, \quad (1)$$

where M is an indicator for whether an individual has been away from his/her permanent place of residence for over 6 months, R is the proportion of land area rented out to contracted, and A is an indicator for whether land has been acquired since 1978, since we consider the transfer of land property rights mainly featuring two forms: renting out and expropriation, while the former is voluntary (reflects the market mechanism of land circulation), and the latter is compulsive (implies the government's macro-control of land transfer). Controllable variables E is the education effect indicated by the level of education received, H is the health effect ranged by self-assessed health status, M is the marriage effect categorized by marital status, F is the parents effect where we focus on whether the respondent's father is still living, G is the gender effect for whether the respondent is male or female, A_g is the age effect where we select individuals under 80 from the samples, I is the income effect measured by

the logarithm of income per month, B is the private business effect based on the number of household members engaged in self-employed businesses, P is the party effect for whether the respondent is a communist, N is the nationality effect for whether the respondent has a Han nationality, D is the district effect dependent on the province of residence, and ε is a random error term. δ, γ, φ, α, β, λ, μ, ξ, σ, ω, η, ρ, τ are coefficients of the independent variables and controllable variables respectively as above: R, A, E, H, M, F, G, A_g, I, B, P, N, D. We provide support for the validity of this identification assumption in Section III C (b).

3.3 *The Impact of Land Transfer on Migration*

Table 2 — Effect of land renting on migration behavior

Variables	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months
	(1)	(2)	(3)	(4)	(5)	(6)
Migration						
Proportion of land renting out	1.169**	0.862***	0.883***	0.877***	—	—
	(2.157)	(2.911)	(2.980)	(2.949)	—	—

Proportion of land renting in	—	—	—	—	-0.093	-0.093
	—	—	—	—	(-0.744)	(-0.758)
log(income)	0.196*	0.141**	0.146**	0.143**	0.115**	0.111**
	(1.901)	(2.448)	(2.521)	(2.494)	(1.996)	(1.973)
Gender	2.524***	1.371***	1.378***	1.375***	1.286***	1.282***
	(7.356)	(7.661)	(7.739)	(7.726)	(7.057)	(7.048)
Party	-1.518***	-0.837***	-0.844***	-0.852***	-0.806***	-0.811***
	(-3.158)	(-3.265)	(-3.284)	(-3.302)	(-2.993)	(-3.002)
Parents	No	No	No	Yes	No	Yes
Self-employed business	No	No	Yes	Yes	Yes	Yes
Marriage	No	Yes	Yes	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes	Yes	Yes
Health	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes
Nationality	Yes	Yes	Yes	Yes	Yes	Yes
Province	Yes	Yes	Yes	Yes	Yes	Yes
constant	-3.241	-0.730	-1.255	-1.417	-1.166	-1.319
	(-1.357)	(-0.757)	(-1.094)	(-1.176)	(-1.004)	(-1.070)
Observations	487	468	468	468	453	453

Wald chi2	159.33	197.37	197.29	197.02	186.15	185.88
R^2	0.3590	0.3720	0.3729	0.3732	0.3588	0.3591

t statistics in parentheses

* p<0.1, ** p<0.05, *** p<0.01

3.3.1 *basic regression*

Estimates of (1) are partly presented in Table 2. Column 1 shows that an increase of 1.169 in the probability of an individual leaving his/her residence for over 6 months is associated with one unit rise in rental ratio of farmland. This basic result is significant at the 5 percent level, and is not sensitive to a variety of robustness checks.

The second column shows that the estimated migration decreases when marriage status is included in the regression. The decline from 1.169 to 0.862 is consistent with the fact that the closer the marriage bond, the less likely a migration decision is made.

The third and fourth column show that the estimated migration is almost identical with Column 2 when the factors of self-employed business and parents care are taken into account respectively. Notably, the coefficient of rental ration from our regression in these three columns varies as 0.862, 0.883 and 0.877, all of which are significant at the 1 percent level.

Overall, our main result remains economically large and statistically significant, and the migration behavior firmly points out that land renting increases the probability of rural-urban migration at an average level of 0.948.

3.3.2 *robustness checks*

Generally, there are 3 methods of robustness checks: one is that we add the weighted item to screen out careful answers and reduce bad ones. Another is that we exchange the original logit model for a similar probit model. Besides, we consider the sign of the proportion of land leasing as a reverse indicator of whether land transfer has a positive or negative impact on migration.

Following the strategies above, we include weighted item and alternative probit model in columns 2–6, the tested results show that the estimated coefficient is robust to controlling for marriage effect in column 2, private business effect in column 3, and parent effect in column 4. A key concern for our identification strategy is whether there is a reverse relationship between the proportion of land renting in and of land renting out. Therefore, we do symmetrical detection in columns 5–6, and find that the coefficient from the lessee is negative as 0.093, which is sufficient to prove our estimated positive impact of land rental on migration, though without a good significance level.

3.3.3 *endogenous checks*

Table 3 — Endogenous checks on instrumental variable

Variables	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months
	(1)	(2)	(3)
Migration			
Proportion of land renting out	2.905***	2.903***	2.904***
	(7.611)	(7.626)	(7.609)
Province	0.003	0.003	0.003
	(0.482)	(0.461)	(0.485)
Gender	0.376	0.387	0.403
	(1.394)	(1.437)	(1.451)
log(income)	0.013	0.014	0.021
	(0.216)	(0.235)	(0.362)
Age	-0.032***	-0.033***	-0.032***
	(-3.492)	(-3.621)	(-3.405)
Education	-0.362**	-0.368**	-0.377***
	(-2.524)	(-2.547)	(-2.633)

Nationality	-0.156	-0.126	-0.120
	(-0.688)	(-0.549)	(-0.527)
Party	-0.211	-0.219	-0.212
	(-0.894)	(-0.914)	(-0.877)
Health	-0.022	-0.017	-0.012
	(-0.339)	(-0.263)	(-0.181)
Self-employed business	—	0.183	0.200
	—	(0.738)	(0.826)
Parents	—	—	-0.196
	—	—	(-1.111)
Proportion of land renting out			
IV	-0.118*	-0.119**	-0.121**
	(-1.932)	(-1.984)	(-2.010)
Observations	488	487	487
Wald chi2	226.63	226.24	261.57

t statistics in parentheses

* p<0.1, ** p<0.05, *** p<0.01

We present endogenous test to support the validity of the identifying assumptions of the paper. The main threat to identification in our dataset is a correlation between land renting and migration behavior. To be specific,

one big concern for our estimation is the case where individuals rent their land after migration. The bidirectional influence mechanism implies a biased conclusion if migration is the cause, rather than the result of land rental. To investigate the possibility of the bias in twisted causal relationships, we adopt the method of instrumental variables (IV) divided into two steps. Firstly, since there is an obvious link between agricultural equipment and land rental, while agricultural equipment is irrelevant to migration, we choose the IV as a dummy variable: whether or not the respondent has at least one of the tractor, thresher, tractor tools, water pump and processing equipment, and examine the correlation between IV and rental ratio based on a probit model. Secondly, we substitute the IV for the independent variable, the proportion of land renting out, into the regression equation (1).

Endogenous checks on the selected instrumental variable are presented in Table 3. From the table, we can see a negative correlation between IV and rental ratio, as -0.118 at the 10 percent significance level in column 1, -0.119 and -0.121 both at the 5 percent significance level in column 2–3 when self-employed business and parental maintenance are regarded as contributing factors. As a result, an average increase of 2.904 at the 1 percent significance level in the probability of one leaving residence for over 6 months is associated with per rise in the new rental ratio substituted by the IV.

3.4 *The Impact of Expropriation on Migration*

Estimates of (1) are partly presented in Table 4. Column 1 shows that a decline of 0.205 in the probability of an individual leaving his/her residence for over half a year is associated with per unit increase in the possibility of land acquisition since 1978. This basic result is not sensitive to a variety of robustness checks. In columns 2–6 we show that the results are robust to controlling for different controllable variables. In column 2 we allow the political status to be specific by distinguishing party and non-party members. Column 3 includes nationality differing from Han to minorities. In column 4–6 we introduce effects of marriage, crafts business and supporting parents respectively.

Overall, our main result remains valid, and the migration behavior denotes that land expropriation decreases the probability of rural-urban migration at an average level of 0.324.

Table 4 — Effect of land acquisition on migration behavior

Variables	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months	Has left residence for over 6 months
	(1)	(2)	(3)	(4)	(5)	(6)

migration

Whether land has been	-0.205	-0.299*	-0.297*	-0.311*	-0.404*	-0.425*
acquired since 1978	(-1.200)	(-1.745)	(-1.734)	(-1.754)	(-1.740)	(-1.823)
log(income)	0.120***	0.170***	0.171***	0.160***	0.208***	0.205***
	(2.594)	(3.353)	(3.369)	(3.187)	(3.264)	(3.223)
Gender	1.289***	1.394***	1.393***	1.449***	1.429***	1.427***
	(9.652)	(8.820)	(8.793)	(8.908)	(7.069)	(7.047)
Party	—	-1.017***	-1.022***	-1.066***	-1.101***	-1.119***
	—	(-3.850)	(-3.871)	(-4.042)	(-3.697)	(-3.727)
Parents	No	No	No	No	No	Yes
Self-employed business	No	No	No	No	Yes	Yes
Marriage	No	No	No	Yes	Yes	Yes
Nationality	No	No	Yes	Yes	Yes	Yes
Province	Yes	Yes	Yes	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes	Yes	Yes
Education	Yes	Yes	Yes	Yes	Yes	Yes
Health	Yes	Yes	Yes	Yes	Yes	Yes
constant	-1.389**	-1.698**	-1.855**	-1.914**	-2.913**	-3.304***
	(-2.028)	(-2.369)	(-2.416)	(-2.465)	(-2.489)	(-2.714)

Observations	618	605	603	601	405	405
Wald chi2	205.74	241.06	239.03	247.01	207.95	206.55
R^2	0.2562	0.3539	0.3534	0.3623	0.3873	0.3893

t statistics in parentheses

* p<0.1, ** p<0.05, *** p<0.01

4. Analysis

In this section, we seek explanations for the empirical results presented above. For the ease of distinction and description, we mainly discuss two independent channels: transfer channel and expropriation channel, to shed light on their roles in promoting or suppressing migration out of rural areas.

4.1 *Transfer Channel*

The information given by Table 2 shows that the behavior of renting arable land to others adds to the possibility of migration from rural to urban areas, indicating that an effective market mechanism where land property rights can be traded voluntarily promotes population mobility, and thus allows for productive land use and optimized labor reallocation. Besides, gender matters as shown in the table: the probability of a males to migrate

is higher than females by 1.662 as an average, significant at the 1 percent level. This can be explained by the fact that most jobs a migrant worker can get require much physical labor, on which men have an advantage over women. Income also counts, supported by the average coefficient of the logarithm of income: 0.157, significant at the 5 percent level. This is because the individual or household with higher degree of affluence in the countryside is more likely to afford to pay the resettlement cost of migration. Interestingly, those who are communists are less likely to move to town, explained by the average negative impact of 1.013 decrease on migration possibility at a 1 percent significance level. This result can be interpreted relating to the reality that party members in rural areas are generally village cadres, who are unwilling to enter the city, restricted by government rules or based on vested interests.

Apart from mentioned above, we also examine other possible factors, such as providing financial support and care for parents, household member running self-employed business, current marriage status, health conditions, academic level, Han nationality or minorities, age and living province. However, they aren't robust enough for validity.

4.2 *Expropriation Channel*

In this part we focus on the impact of land acquisition on migration behavior. In Table 4, we can see the negative correlation between national

land acquisition command and rural residents' migration into city, which implies that macro land control which permits government to acquire land with village collective's ownership, will curb urban-rural migration activities. This empirical result is contradictory to common sense that loss of land will force rural members to migrate to urban areas. One reasonable explanation for this can be that the sum of subsidies for land expropriation is relatively low and cannot cover the high resettlement cost in city. Moreover, government distributes the compensation not directly to individuals, but indirectly to village collectives, during which allotment disputes are likely to occur, and sometimes the compensation one really gets is less than he/she deserves. Another alternative explanation for this is that since those levied is arable land, not homestead, farmers can still plant and sow in the spacious yard surrounding the cottage, with livelihood guaranteed and without suffering discrimination against rural migrants on arrival in urban areas.

5. Conclusion

This paper has looked at whether land transfer and expropriation act as contributors on rural–urban migration in China. Although there has been work elsewhere on the determinants of migration in China, we examine separately the impacts of market mechanism and government control, as

these have potentially different migration implications. The two unusually distinct channels have led to suggestions that research on these might affect labor mobility and inequality in China.

A. *What we have done in this paper*

Linking land property rights with migration has been the focus of land reforms in China. In this paper, we discuss two channels of the change of land ownership: land transfer and land acquisition, and then compare the impacts on migration from both sides. We provided evidence on our estimation by analyzing the questionnaires involving detailed information of individuals' residence situation and identity background from 2013 to 2014. In addition, we document endogenous checks on instrumental variable to test the validity of our estimated results. We find that the independent metric variable "proportion of land renting out" after adjustment, still has an obviously positive correlation with migration behavior.

B. *What the conclusion is*

We use the dataset to document the migration response in agricultural communities in 28 provinces, covering most part of China. Land transfer increases the probability of migration by 94.8 percent, while expropriation

decreases the possibility of migration by 32.4 percent. The implications are that less restricted market mechanism which allows for land rental based on freewill of counterparties in trade can induce increased outmigration from agricultural communities, while the mandatory government land control which forces farmers to turn in their land reduces migration to cities.

C. *Policy implication*

Since rural-urban migration relates greatly to land transfer, government should relax control over land rental and focus more on enhancing the flexibility of land transfer. Firstly, despite the steady growth of non-agricultural employment, if rural social security system isn't well established, farmers would still regard land as the only way for maintenance, and thus reluctant to give up their land use rights. Therefore, government should help gradually establish and improve the rural social security system to ease farmers' worries about transfer of land use rights. Secondly, government should implement policies to speed up the development of rural secondary and tertiary industries, and promote rural labor transfer. Finally, government should effectively reduce the frequency of land adjustment to facilitate the transfer of rural land use rights.

D. *What could be done in the future*

Since what factors limit farmers' participation in land transfer markets and the differences in the size of the agricultural land market in different regions are not yet explored, in the future, it is very important for China to sharpen the agricultural competitiveness edge in the international market to promote farm land transfer, improve utilization of land resources, and step further in removing hukou system as a major barrier to migration.

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