Land Property Rights and Rural-Urban Migration in China

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Abstract: Obstacles to internal migration in China contribute to inefficiency, inequality, and land degradation. Academic and policy debate has primarily focused on discrimination against rural migrants on arrival in urban areas. This paper examines the relationship between land property right reform and farm-households' migration decisions, then analyzes various factors leading to migration. I use a multiple linear regression model as an identification strategy to look into the relationship between the migration and land tenure which can be separated into market mechanism and government mechanism. The result of regression model shows that land do influences migration through market channel and government channel. Besides, it also indicates that family income, gender, and party significantly influence migration as well.

1. Introduction

The growth miracle created by China mostly attributes to the significant transformation in China's land system. China transforms from a rural to an urban society; furthermore, this observable transformation's foundation is a systemic in land institutions: it went collectively owned to household responsibility system. This new system allocates land to individuals, and individuals must take responsibility for the losses and profits of the land. Despite the vast scale of migration in China, there is evidence that constraints on labor mobility remain. These contribute toward both rural–urban and regional inequality and reduce overall labor productivity at a national level (Au & Henderson, 2006). In urban areas, the Communist Party took a gradual approach. While confiscating property owned by foreign capitalists and anti-revolutionaries, it allowed private ownership and land transactions to continue. Over the next two decades, however, through land confiscation, strict controls on rent and major investments in public housing, state dominance in urban land and housing markets grew. By the end of the Cultural Revolution in 1976, nearly all land was owned by collectives or by the state. Private property rights virtually disappeared and land transactions were banned. In urban area, individuals have the right to dispose their land. Although they don't own it, they can still sell or rent the land. In rural areas the Communist Party confiscated all privately held land and turned it over to the poor. Later, peasants joined communes ("production co-operations") by donating their assets, including their land. Today, nearly all land in rural areas remains owned by farmer collectives. In rural areas, farmers don't have the right to dispose the land assigned by government. They can only utilize the land.

HRS begun in early 80's. Because of the lack of food and enthusiasm at that particular period, Chinese government decided to make revolution on land property. Therefore, HRS was emitted, and this is a method which makes local farmers are responsible for the profits and losses of their land. This system partially supplanted the egalitarian distribution method, whereby the state assumed all profits and losses. More importantly, HRS improves farmers' enthusiasm in a large extent. Household responsibility system was first adopted in agriculture in 1979 and later extended to other sectors of the economy. It is a basic economic system in rural areas which has supplanted the equalitarianism distribution method in some degree. In agricultural production, farm households were considered as a relatively independent economic entity to obtain the land tenure rights individually on collective land and hold responsible for individual profits and losses. In addition, except land constrained by contract quotas, everything could be purchased and owned by households.

The introduction of the HRS brought about a more flourishing agriculture oriented to more decentralized decision-making. Many scholars believe that public ownership only exist in law and papers and its concept is ambiguous in practice. Such incomplete land property rights are described as "quasi-private" property rights (Kung, 2002) and "in-form" public ownership because as the time went by, the land use rights are becoming closer in nature to private property, with longer contrasts and reduced frequency of land reallocations.

Ownership right is the legal right to the possession of a thing. It includes rights allowing a person to use and enjoy certain property. Furthermore, It includes the right to convey it to others. It can also be the state or fact of being an owner. Contractual rights are the set of rights guaranteed whenever people enter into a valid contract with one another. Management Rights is a business that gives the right to the resident owner of a lot, contained within a community living complex. Although the Rural Land Contracting Law (RLCL), was enforced in 2002, aimed at strengthening the households' rights of secure possession by enforcing 30-year land-use contracts; disallowing large-scale reallocations of land and limiting small-scale re-adjustments; and permitting transfers of land between households (Ping Li, 2003), readjustments still exist and land transferring is not well acted. The insecurity of land tenure isn't solved once for all.

In general, migration stands for the movement of people from one place to another with the intentions of settling, permanently or temporarily at a new location. In this paper, I mainly discuss the migration between rural and urban areas. Migration between urban and rural areas can bring the over-saturated labor force from rural areas to urban areas, which are in great demand for labor force and reallocate rural land resources. However, in China, although rural-urban migration is great, demanded and expected, it is still limited. Scholars believes that Hukou system (Deininger and Jin, 2009) and discrimination towards rural migrants in labor market (Démurger, Gurgand, Li and Yue, 2001) blocked the migration. However, even Hukou restrictions has been removed and rural labors are gradually no longer treated as "The second-class workers", the migration restrict will still exist. Which means, other barriers of migration are still to be proved and solved, such as land tenure.

Profits will be generated when migration occurs, because population mobility will bring a huge amount of labors, and these labors will create higher productivity; therefore, economy will be improved, and more profits will be obtained. Hukou system causes great differences between urban area and rural area, and the differences indicate migration. Urbanization refers to the population shift from rural area to urban area, and it will eventually create the proportion of population living in urban area. Urbanization promotes migration; therefore, it promotes economy. But meanwhile, with the increase of urbanization, there'll also be a problem: rural area will be lack of young labors, and there will be no one to look after the senior people who can't take care of themselves. Industry structure upgrade ensures that China shifts from an agricultural country to an industrial country, which promotes migration because this upgrade creates more job opportunities. For hundreds of years, China has been a rural country, which is the reason that China used to be invaded. After People's Republic of China formed in 1949, president Mao made a decision that China has to transform from rural country to an industrial country. Then, after all these years, China's industry structure has been perfected for many times, and the upgrade of the industry structure truly brought China lots of benefits on economy. Middle-income trap bonds with a country's economy tightly due to the large amount population of the middle class. After large migration activities occur, there will labor shortage because most of the labors have already migrated to urban area. When the number of the remaining labors reaches zero, lewis turning point appears.

2. Literature

Property right includes property's ownership, possession, right to dispose, right to utilize. Property right can also constraint people's economic behaviors. The household registration (hukou) system has been described as the major impediment to migration, by preventing rural migrants from accessing all the benefits associated with legal residence in cities. Whalley and Zhang (2007) argue that removing hukou restrictions would significantly increase migration flows and reduce regional

income disparities. Another widely described obstacle to migration relies on the extent of labor market segmentation and discrimination against rural migrants. For example, Meng and Zhang (2001) find significant evidence for occupational segregation, some of which may also be traced back to the hukou system (Lu & Song, 2006). Land property in rural area and urban area are different. In rural area, farmers don't have Contractual rights and management right. Therefore, it makes migration from rural to urban area seem difficult because farmers have to give up their land in order to migrate to urban area. It will cause a great loss for farmers; meanwhile, it will indicate the lack of the land because most of people now intent to stay in rural area. Following the positive link between land rights and investment decisions, we can identify two relevant arguments according to which land management arrangements would influence migration decisions in the context of China. First, migration is associated with a risk of expropriation since migration entails a decrease in household size. Hence, under the current system of rural land tenure in China, this may induce redistribution of some of the household land in order to maintain egalitarian land holdings (Rozelle & Li, 1998). Second, migration is encouraged by the development of land exchange rights. The ability to rent land while away reduces the opportunity cost of lost agricultural labor.

3. Empirical Analysis

3.1 Data

To study the impacts of land tenure on the migration decisions of rural households, this paper makes use of information about a farm-household cross-sectional dataset fielded in 2013 and 2014 from the China Health and Retirement Longitudinal Study (CHARLS). The national baseline survey for the study was conducted in 2011 and samples collection of Chinese residents were 45 years of age or older, covering roughly 10,000 households and 17,500 individuals that were selected by random stratified sampling. These individuals are dispersed in 150 counties and 450 resident committees. For the purposes of this paper, I focus on rates of the land rented and land expropriation since 1979 and consider both as key variables to analyze the households' migration decisions.

All data in CHARLS, based on indicators such as population density and agricultural potential, are maintained at the National School of Development of Peking University, in collaboration with the Behavioral and Social Research division of the National Institute on aging, the National Science Foundation of China and the World Bank. These panel dataset reflect much of the diversity in the lives and conditions of individual respondents (International Journal of Epidemiology, 2014). As a result, the data has been used for a variety of studies on aspects of the relationship between health outcomes and basic social-economic indicators (SES), one prefered measure of household resources (Strauss et al, 2010).

The surveys include detailed sections directed at demographics, family structure, education level, health status and work – all of which are essential to answer the core CHARLS questionnaires of this paper. The data is from a series of survey in 2013 and 2014. From the data collected, we are able to analyze the impact that different variables have on migration.

3.2 Identification Strategy

In order to model this survey, I utilized the multiple regression equation:

$$Y = \beta_0 + \beta_1 X_1 + \cdots + \beta_n X_n + \mu$$

We will investigate the effect of land tenure on the likelihood of households having a member that has a tendency to migrate. The main approach for estimation in this paper however, is to use a multiple linear regression model as an identification strategy. In the first regression, we take Chuzhubi as X, and Y as migration. To determine whether to migrate or not, there could be many variables, and these variables can affect the possibility of migration by a great extent. Age: generally, younger people are more likely to migrate than older people because they life has just started, and

they want to have a better platform to perform their talent. Nationality: in China, Han is the major nationality, so, those people who believe there's a divergence between nationality and are minority are less likely to migrate. Members in family: Mostly, people who have a lot of family members are less likely to migrate, because they have more to concern than those people who live alone. Parents' health: parents' health is a vital variable, because in China, taking care of parents is the most important job for young people. Hence, young people can't just migrate to urban area while their parents are unhealthy.

This is also a Probit model using a binary dependent variable Y that takes the value 1 if any household member has left the village for employment proposes during the preceding year. X_n stands for changeable variables which might have an influence on whether to migrate, such as age, gender, health condition and family income. X_n can be a dummy variable.

3.3 Market Mechanism of Land Property Right Change on Migration

Market mechanism affects migration. More specifically, whether they hold land transfer rights influences migration. If land can be rented out, the marginal productivity of land will always be equalized to the land rental rate, while the marginal productivity of labor will be equalized to the off-farm wage rate (Mullan and Grosjean, 2011). However, if land cannot be rent out, the loss of labor because of migration will lead to reduced utility of household land. As a result, the opportunity cost for migration will increase, blocking the migration process.

Table 1. Descriptive statistics of regression variables.

Variable	Description	Mean(SD)
age	Age of the individual	58.8(10.9)
health	Rating of self-assessed health status 1= very good; 5= very poor	3.02(0.978)
rgender	1 = gender is male	0.475(0.499)
edu	Education level 1 = primary school; 2 = middle school; 3 = high school; 4 = college; 5 = postgraduate; 6 = PHD	1.58(0.837)
han	1 = member of Han ethnic group	0.923(0.266)
zhengdi_dumm	1 = land have been ever acquired since 1978	1.97(0.463)
chuzubi	Ratio of area of rented land to all the land of the household	0.134(0.341)
parents	1 = father is living	0.139(0.345)
siying	1 = household members engaged in self-employed business	0.092(0.290)
hunyin	Marital Status 1 = married with spouse present; 2 = married but not living with spouse temporarily for reasons such as work; 3 = separated; 4 = Divorced; 5 = widowed; 6 = never married	1.58(1.35)
party	1 = member of CCP	0.108(0.310)
logincome_1	income	6.17(1.30)
prov	province. 1-28 represent different province	
iv	1 = own fixed assets for agricualtual production	0.99(0.298)
hukou	current Hukou status 1 = agricultural Hukou	0.8(0.483)

Table 1 contains the descriptive statistics for all the dependent and independent variables. We can see that the average age of individuals involved are senior. Their health condition is at medium level and the average education level is relatively low. Most individuals' land has not been acquired since 1979, and their fathers are not alive. Few people engaged in self-employed business, only a small

fraction of people is CCP members, and agricultural Hukou is much more than non-agricultural hukou.

3.3.1 Basic Regression

To evaluate how market mechanism influences migration, we use a variable, which stands for the ratios of areas of rented land to all the land of the household, as a key variable to represent the rental right. Meanwhile, we select income, province, education, age, gender and health as subsidiary variables.

The impacts of increased rental right and improved rights to rent land on migration are estimated using a Probit model for whether the individual migrates. The model is estimated using STATA 9. A general specification of the land tenure and migration relationship can be shown by the following equation.

$$Migration = \beta_0 + \beta_1 chuzubi + \beta_2 income + \beta_3 province + \beta_4 education + \beta_5 age + \beta_6 gender + \beta_7 health + \mu$$

From Table 2 basic regression, we can see that variables of chuzubi, logincome_1, rgender and party is significant in the model. The variables of rgender is of high significance level. The coefficient of chuzubi is positive, testifying the assumptiob that the more land an individual rented, the more likely he is going to migrate. Besides, the coefficient of rgender of logincome_1 is also positive. However, to draw a rigid conclustion on how market influences migration, we need further robustness checks on the basic regression.

3.3.2 Robustness Checks

To check the robustness of the basic regression, we take the strategies of adding variables to the regression mode. We subsequently add prov (province), edu (education), party (if is a CCP member), hunyin (marital status) to the regression model to check if the key variable is still significant.

From the table, it is safe to draw the conclusion that rental condition has a significant relationship with migration. The relationship can be verified by robustness checks. The relationship between market mechanism and migration is positive. Apart from that, gender is proved to have a significant positive relationship with migration, and party have a significant negative relationship with migration. Because in rural areas, women usually play the role as taking care of the children and elderly, while men are responsible for making money, so men tend to migrate for better income. In addition, those who are members of CCP are usually members of local departments or administrations, which is thought to be a good work. Thus, these people are less likely to migrate.

3.3.3 Endogenous Checks

In testifying the relationship between migration and market mechanism, we use chuzubi (ratio of area of rented land to all the land of the household) to represent the influence of market mechanism. However, there are actually a mutual influence between the ratio of areas of rented land to all the land of the household and migration. On one hand, if the ratio of areas of rented land to all the land of the household goes up, people are more likely to migrate because the opportunity cost for migration is reduced. On the other hand, if people want to migrate, they will rent out their land, causing the increase of the ratio. As a result, there is a reverse causality between the two variables, which is a kind of endogenous problems. Thus, I use an instrumental variable iv, which has strong relationship with the ratio of areas of rented land to all the land of the household but cannot be influenced by migration, to substitute for chuzubi. The mutual relationship between migration and the key variable is avoided.

Table 2. Probit estimates of migration participation decision (market mechanism)

Variable	Basic Regression	Robustness Check1	Robustness Check2	Robustness Check3	Robustness Check4
migration					
chuzubi	0.631**	0.623**	0.870***	0.890***	0.865***
	(2.94)	(2.15)	(2.97)	(3.04)	(2.94)
logincome_1	0.111**	0.136**	0.139**	0.143**	0.135**
	(2.12)	(2.55)	(2.38)	(2.43)	(2.36)
prov	yes	yes	yes	yes	yes
age	yes	yes	yes	yes	yes
edu	yes	yes	yes	yes	yes
rgender	1.309***	1.508***	1.372***	1.378***	1.370***
	(8.45)	(9.05)	(7.71)	(7.77)	(7.70)
health2	yes	yes	yes	yes	yes
party	no	-0.981***	-0.841**	-0.847***	-0.848***
		(-3.82)	(-3.28)	(-3.30)	(-3.29)
han	no	yes	yes	yes	yes
hunyin	no	no	yes	yes	yes
siying	no	no	no	yes	no
parents	no	no	no	no	yes
constant	-1.427*	-1.115	-0.843	-1.324	-1.002
	(-1.81)	(-1.22)	(-0.88)	(-1.15)	(-0.96)
N	480	478	468	468	468

* Denotes *10% significance level.*
** Denotes *5% significance level.*
*** Denotes *1% significance level.*
yes: Variable controlled
no: Variable uncontrolled
The effect of land rights on migration is still positive.

We use a dummy variable which represents whether a household has certain fixed assets for agricultural tools to work on their lands. If a household does not have such kinds of tools, it is very likely that they rented out their land. However, I omitted some cases that the household just rented out a part of their land, but still work on their land with some tools. It does not influence the correctness of the data and the estimation. I firstly establish a regression model to represent chuzubi with iv, and put iv into the original regression models to substituted for chuzubi. Table 3 and Table 4 shows the result of the process.

Table 3. Estimates of the ratio of rented land to all land of the household (with iv)

Variable	Basic Regression	Robustness Check1	Robustness Check2
chuzubi			
iv	-0.124**	-0.124**	-0.126**
	(-2.048)	(-2.101)	(-2.126)
prov	yes	yes	yes
logincome_1	yes	yes	yes
age	0.003*	0.003*	0.003
	(1.726)	(1.699)	(1.204)
edu	0.110*	0.111*	0.116**
	(1.932)	(1.940)	(1.994)
rgender	yes	yes	yes
health2	yes	yes	yes
party	yes	yes	yes
han	yes	yes	yes
siying	no	yes	yes
parents	no	no	yes
constant	-0.374	-0.373	-0.463
	(-1.357)	(-0.980)	(-1.130)
N	498	497	497

* Denotes 10% significance level.
** Denotes 5% significance level.
*** Denotes 1% significance level.
yes: Variable controlled
no: Variable uncontrolled

In Table 3, iv is significant in the regression meaning that it has a strong relationship with chuzubi, so it can be used as an instrumental variable to substitute for chuzubi in the original regression model. In Table 4, chuzubi (substituted by iv) is significant in the model, testifying the assumption that market mechanism and rental condition do influences migration.

3.4 Government Mechanism on Migration

The government mechanism impacts migration decision-making if migration results in an increased risk of land expropriation. In other words, government mechanism influences migration by influencing the land tenure security. It is because migration leads to a decrease in household size. Due to the limited land resource and the incomplete implementation of the RLCL, this could lead to a reattribution of the land of some households in order to maintain "fair" land holdings. In this situation, a household must take the increased risk of land expropriation in the future period, which results from the reduction in household size, into consideration. The effect of the increased risk is viewed as similar to the effect of a tax on migration by some scholars (Mullan and Grosjean, 2011), which reduces the likelihood of migration. The information about useful variables are presented in Table 1.

Table 4. Estimates of migration participation decision (market mechanism) (without endogenous)

Variable	Basic Regression	Robustness Check1	Robustness Check2
migration			
chuzubi	2.835***	2.832***	2.831***
	(7.064)	(7.059)	(7.039)
prov	yes	yes	yes
logincome_1	yes	yes	yes
age	-0.031***	-0.032***	-0.030***
	(-3.819)	(-3.934)	(-3.664)
edu	-0.361**	-0.366**	-0.375***
	(-2.529)	(-2.552)	(-2.634)
rgender	yes	yes	yes
health2	yes	yes	yes
party	yes	yes	yes
han	yes	yes	yes
siying		yes	yes
parents			yes
constant	1.874**	1.484	1.671
	(2.389)	(1.498)	(1.640)
N	498	497	497

*Denotes *10% significance level.*
**Denotes *5% significance level.*
***Denotes *1% significance level.*
yes: Variable controlled
no: Variable uncontrolled

3.4.1 Basic Regression

To evaluate how government mechanism influences migration, we use a dummy variable which stands for the answer of the question: "Have your land ever been acquired since 1978?" as a key variable to represent the land tenure security. Meanwhile, we select age, gender and health as subsidiary variables. The impacts of increased land tenure security and improved rights to rent land on migration are estimated using a Probit model for whether the individual migrates. The model is estimated using STATA 9. The basic regression model is:

$$\text{Migration} = \beta_0 + \beta_1 ifexpropriated + \beta_2 income + \beta_3 province + \beta_4 education + \beta_5 age + \beta_6 gender + \beta_7 health + \mu$$

Table 3 presents the results of the Probit estimation of the impacts of government mechanism on whether any members of the household choose to migrate. From Table 3 basic regression, we can see that variables of zhengdi_dummy is not significant in the basic regression model. The variables of

income, rgender which are of high significance level. However, to draw a rigid conclusion on how land security influences migration, we need further robustness checks on the basic regression.

3.4.2 Robustness Checks

Whilst in the basic regression model of Table 5 it didn't appear to be a significant relationship between land tenure and government mechanism on migration, I also consider the consistency and robustness of the model by adding and controlling different variables to the regression model. To estimate if the key variable is still insignificant, I take the strategies to add han (nationality), party (if is a CCP member), hunyin (marital status), siying (whether engaged in self-employed business), and parents (if parents are alive).

Table 5. Probit estimates of migration participation decision (government mechanism)

Variable	Basic Regression	Robustness Check1	Robustness Check2	Robustness Check3	Robustness Check4
migration					
zhengdi_dumm	-0.192	-0.301*	-0.308*	-0.403*	-0.414*
	(-1.151)	(-1.777)	(-1.773)	(-1.748)	(-1.896)
logincome_1	0.118**	0.146***	0.159***	0.204***	0.186***
	(2.561)	(3.056)	(3.159)	(3.178)	(2.991)
prov	yes	yes	yes	yes	yes
age	yes	yes	yes	yes	yes
edu	yes	yes	yes	yes	yes
rgender	1.292***	1.477***	1.453***	1.439***	1.342***
	(9.764)	(10.005)	(8.950)	(7.130)	(6.923)
health2	yes	yes	yes	yes	yes
party	no	-1.091***	-1.086***	-1.114***	-1.078***
		(-4.718)	(-4.114)	(-3.759)	(-3.670)
han	no	yes	yes	yes	yes
hunyin	no	no	yes	yes	yes
siying	no	no	no	yes	no
parents	no	no	no	no	yes
constant	-1.790***	-2.052**	-2.248***	-2.967**	-2.927***
	(-2.592)	(-2.574)	(-2.861)	(-2.460)	(-2.965)
N	618	616	610	405	416

* Denotes 10% significance level.
** Denotes 5% significance level.
*** Denotes 1% significance level.
yes: Variable controlled
no: Variable uncontrolled

Table 5 presents the results under these different vairables while controlling some of them. The results are fairly robust: there is a strong and negative correlation between the key variable zhengdi_dumm and the government mechanism on migration, which proves that the households who are in low land security have lower tendency to migrate.

4. Analysis

4.1 Market Channel

In Table 3, the coefficient of chuzubi (substituted by iv) is positive and significant, representing a positive relationship between migration and land rental condition. It testified our assumption that if it is easier for a rual individual to rent out their land, or the land renting market is energetic in rural areas, people will be more likely to decide to migrate. It is because they can get migration funds from rented land and land renting will also lower their opportunity cost of migration. Moreover, because the land is rented, so literally the land is still being used. As a result, rural people wouldn't have to worry about their land being expropriated because of the unused status. This is how the land market influences migration.

4.2 Expropriation (Government) Channel

In Table 4, the coefficient of zhengdi_dumm is negative and significant, representing a negative relationship between migration and land rental condition. It as well testified our theory that if people believe that their land are less likely to be expropriated, they will be more optimistic to migrate. In China land system, land is attributed to households by the collectives for free, but the collectives have the right to expropriate the land in some situations, including when the land have been unused for 2 years and when the land is required to develop industry. Therefore, to avoid their lands being expropriated, many rural residents prefer not to migrate. They do not want their land to stay at an unused status, which might increase the risk of expropriated, they will be less willing to migrate.

5. Conclusion

In this paper, we investigated in many factors which might influence the decision-making of migration by literature review, and chose to research on how land influences migration. I separated the influence of land into two parts: market mechanism and government mechanism. I firstly did some literature review on the backgrounds of China rural land system and migration. Then I chose some useful variables which might influence migration, and selected some correlated data from a dataset of a questionnaire. In data analysis, I used the ratio of area of rented land to all the land of the household to denote the impact from market mechanism and use whether the land have been ever acquired since 1978 to denote the role of government mechanism. After basic regression, I did robustness check on the basic regression model by adding variables to the original model to test whether the result of basic regression model is stable and reliable. But in the part of market mechanism, I found that there is a reverse causality between migration and the ratio of area of rented land to all the land of the household. Therefore, to make the result more reliable, I took whether a household owns fixed assets for agricultural production as an instrumental variable which only have something to do with the ratio of area of rented land to all the land of the household to avoid endogenous problem. Finally, I used the results of the regressions to verify our assumptions on the relationship between land and migration. In empirical analysis, the result of regression model shows that land do influences migration through market channel and government channel. The conclusion can be used as references for policy making in order to boost rural- urban migration. I testified that there is a causal relationship between migration and the market and government mechanism of land. On one hand, the government can use the relationship to predict that if a land policy is made, what influence and how much influence it will have on migration, which might be helpful in decision making. On the other hand, if the government want to boost the rural-urban migration, they can also take advantage of the causal relationship between migration and land by making certain land policies to influence migration. In the future, the government can take action to encourage land renting in rural areas, such as providing renting services for rural residents and popularize land renting information in rural areas. Moreover, the government can boost migration under government mechanism and make some policy to restrict the government right to expropriate the land, such as stipulating that the government can't expropriate the land in 40 years or even longer and loosening the strict requirements for keeping the land.

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