

Willingness to Paid Exit of Homestead Based on IAD Extended Decision Model

—Taking Beiliu, Guangxi Province as an Example

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Abstract—Based on Ostrom's Institutional Analysis and Development Framework (IAD) theory, an IAD analysis framework for paid exit of farmer homesteads was constructed, and a binary logistic regression model was used to study the factors influencing willingness to paid exit of homesteads based on survey samples of Beiliu, Guangxi. The research results show that the willingness to exit from a farmer's homestead is affected by the participant's status, conditional control, and farmers' perceptions. It is recommended to combine the situation that they do not have adequate understanding of paid use policies, the importance of social security, and the value of homestead, so as to improve and promote the paid use system of over-standard areas of homesteads, strengthen farmers' understanding of multiple compensation methods, vigorously advance the right of homesteads, and promote the correct recognition of the value of homesteads.

Keywords—Homestead; Willingness to exit; IAD extended decision model

I. INTRODUCTION

Since China's reform and opening up, with the rapid advancement of industrialization and urbanization, the rural population has moved to cities on a large scale. Plus, the "free acquisition and long-term use" of China's housing site system has resulted in the problem of "multiple houses in one household", "occupancy over area" and "amphibious" of urban and rural areas. Especially in the hilly areas of southern China, the relationship between people and land is very tense, and the contradiction between people and homestead is very significant. The lack of an effective exit mechanism for the homestead system is the key; therefore, exploring the exit mechanism of homestead and guiding farmers to voluntarily withdraw from idle rural homesteads have become important measures to promote efficient and intensive use of rural land and implement rural revitalization strategies [1].

In recent years, research on the exit behavior and willingness of farmers' homesteads has gradually become a focus of attention in the academic community [2-7]. Although many influencing factors for the willingness to exit from a homestead have been proposed, it is rare to systematically analyze the various influencing factors under a unified framework, leading to a fragmented research conclusion. Therefore, this work introduce the Institutional Analysis and Development framework (IAD) in the field of autonomous governance of public resources. Based on the survey sample of 121 farmers in Beiliu, Guangxi, the influencing factors of the willingness to exit from homestead have been explored.

II. THEORETICAL ANALYSIS FRAMEWORK

In recent years, the research such as farmers' land acquisition willingness based on IAD and its extended model [8], the decision of paid exit and paid use of farmer's homestead [9], and farmers' willingness to cultivate land for recuperation [10] have shown that the model can better guide research on farmers' willingness to make decisions.

Based on the relevant research results, this work obtained a theoretical analysis framework for the influencing factors of the paid exit decision of the farmer's homestead (Fig.1). According to IAD theory, an individual's rational choice is influenced not only by exogenous variables, but also by endogenous variables such as action situation and mental activity of the actor. Action situation is a situational factor that shapes individual psychological decision-making. The actors interact in the action situation, which together constitutes the action stage. The action stage constructed in this work includes the external action situation (action situation) and the psychological cognition generated by farmers (actors) in the action situation in the external action situation.

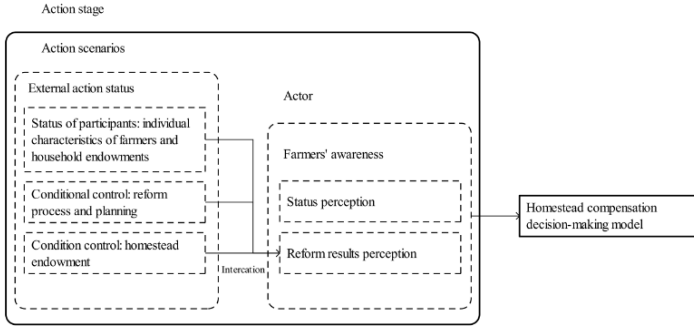


Fig. 1. Theoretical analysis framework of influencing factors for paid exit decision of farmer's homestead

III. MODEL SETTING, VARIABLE SELECTION AND DATA SOURCE

A. Model setting

The Logistic regression model is suitable for regression analysis where the dependent variable is categorical, and whether the farmers are willing to withdraw from the

homestead is a typical dichotomous variable. Therefore, a binary logistic regression model is used to analyze the willingness of the farmer to leave the homestead and its influencing factors. If farmers are willing to withdraw from the homestead, the value of the dependent variable is $P = 1$; if the farmer is unwilling to withdraw from the homestead, the value of the dependent variable is $P = 0$; the independent variable is the influencing factor that affects the paid exit of the farmer's homestead, the specific form is as follows:

$$\ln \frac{P}{1-P} = \beta_0 + \beta_1 X_1 + \beta_3 X_3 + \dots + \beta_{19} X_{19} \quad (1)$$

Its dominant value is:

$$\frac{P}{1-P} = e^{\beta_0 + \beta_1 X_1 + \beta_3 X_3 + \dots + \beta_{19} X_{19}} \quad (2)$$

Probability p is the probability that the farmer is willing to exit, and its value is:

$$P = \frac{e^{\beta_0 + \beta_1 X_1 + \beta_3 X_3 + \dots + \beta_{19} X_{19}}}{1 + e^{\beta_0 + \beta_1 X_1 + \beta_3 X_3 + \dots + \beta_{19} X_{19}}} \quad (3)$$

B. Variable selection

Based on the IAD extended decision framework, 19 independent variables are established (Table 1).

TABLE I. VARIABLE SELECTION

Category	Variable name	Variable definition and assignment instruction
Dependent variable	Y: Whether to agree to the paid exit from homesteads	1 = Yes, 0 = No
Personal characteristics of farmers	X1: Age	1 = 18-25 years old, 2 = 26-35 years old, 3 = 36-45 years old, 4 = 46-55 years old, 5 = 55 years old or older
	X2: Occupation	1 = farming, 2 = doing business, 3 = working, 4 = other, unordered multiple classification variables, no model introduced
	X3: Education level	1 = elementary school and below, 2 = junior high school, 3 = high school (including technical secondary school), 4 = college, 5 = undergraduate and above
Family endowment	X4: Family population	1 = 3 people and below, 2 = 4-7 people, 3 = 8-12 people, 4 = 13 people and above
	X5: Annual household income	1 = 1 million or less, 2 = 1-30000 (inclusive), 3 = 30,000-60,000 (inclusive), 4 = 60-100,000 (inclusive), 4 = 100,000 or more
Reform procedures and rules	X6: Whether have a "homestead certificate"	1 = no, 2 = some are partially not, 3 = yes
Homestead endowment	X7: Whether belongs to a pilot village for reform	1 = yes, 0 = no
	X8: Number of homesteads	1 = 1, 2 = 2 and above
	X9: Homestead area	1 = 100 m ² and below, 2 = 100 m ² and above
Perception of external conditions	X10: Whether the homestead area is sufficient	1 = yes, 0 = no
	X11: Whether there is a need to rebuild a new house?	1 = yes, 0 = no
	X12: Illegal construction in the village is due to the mentality that no occupation equals to loss	1 = yes, 0 = no
	X13: Whether to accept paid use policy	1 = yes, 0 = no
Reform results recognition	X14: Centralized living preference	1 = disagree, 2 = disagree, 3 = fair, 4 = agree, 5 = agree
	X15: Understanding the importance of reasonable compensation	1 = not important at all, 2 = not important, 3 = neutral, 4 = relatively important, 5 = very important
	X16: Understanding the importance of social security	1 = not important at all, 2 = not important, 3 = neutral, 4 = relatively important, 5 = very important
	X17: Understanding the importance of new home quality	1 = not important at all, 2 = not important, 3 = neutral, 4 = relatively important, 5 = very important
	X18: Understanding the importance of exit location	1 = not important at all, 2 = not important, 3 = neutral, 4 = relatively important, 5 = very important
	X19: Understanding the importance of new home location	1 = not important at all, 2 = not important, 3 = neutral, 4 = relatively important, 5 = very important

C. Data sources

Guangxi Zhuang Autonomous Region is located in the west of the hills of Guangdong and Guangxi. Beiliu City is located in the southeast of Guangxi. It has a typical hilly landform. In

recent years, the phenomenon of "multiple houses in one household" and over-occupied land in the countryside has been serious. Taking Beiliu City as an empirical evidence is of typical significance to explore the paid exit of the farmer's homestead in the hilly areas of southern China. The project

team visited two villages, Chaotang Village and Daponei Village in Beiliu City, to conduct field surveys, and distributed questionnaires by random sampling. A total of 140 questionnaires were issued, of which 121 were valid questionnaires, and the effective questionnaire recovery rate was 86.43%.

IV. ESTIMATED RESULTS AND ANALYSIS

Before performing model estimation, a multicollinearity test is performed. The KMO value of the variable is 0.568,

which is less than 0.6, so there is no multicollinearity between the independent variables, and the regression estimation can be performed.

SPSS 20.0 can be used for binary Logistic regression analysis, and all variables are used to enter the variables. The overall regression results of the model show that the participant status, condition control, and farmer cognition are significant variables (Table 2), that is, the willingness to withdraw from the homestead is affected by the participant status, condition control, and farmer perception.

TABLE II. REGRESSION RESULTS OF THE FARMERS' WILLINGNESS TO PAID EXIT MODEL

Variable category	Variable name	β	S.E.	Wald	df	Sig.	Exp (B)
Personal characteristic of farmers	Age	-0.499	0.468	1.134	1.000	0.287	0.607
	Occupation	-0.028	0.428	0.004	1.000	0.948	0.972
Family endowment	Education level	0.202	0.657	0.094	1.000	0.759	1.223
	Family population	1.107	0.575	3.706	1.000	0.054*	3.025
Reform procedures and rules	Annual household income	-0.794	0.464	2.926	1.000	0.087*	0.452
	Whether have a "homestead certificate"	0.612	1.138	0.290	1.000	0.591	1.845
	Whether belongs to a pilot village for reform	-0.133	0.972	0.019	1.000	0.891	0.875
	Number of homesteads	-2.968	1.114	7.099	1.000	0.008***	0.051
	Homestead area	-0.507	0.866	0.343	1.000	0.558	0.602
Homestead endowment	Whether the homestead area is sufficient	-1.658	0.907	3.342	1.000	0.068*	0.190
	Whether there is a need to rebuild a new house?	-2.316	1.140	4.127	1.000	0.042**	0.099
	Illegal construction in the village is due to the mentality that no occupation equals to loss	-0.557	0.993	0.314	1.000	0.575	0.573
Perception of external conditions	Whether to accept paid use policy	0.280	0.442	0.402	1.000	0.526	1.324
	Centralized living preference	-0.826	0.489	2.857	1.000	0.091*	0.438
	Understanding the importance of reasonable compensation	-0.284	0.654	0.189	1.000	0.664	0.753
	Understanding the importance of social security	1.364	1.019	1.792	1.000	0.181	3.910
	Understanding the importance of new home quality	-2.091	0.807	6.716	1.000	0.010***	0.124
	Understanding the importance of exit location	2.081	0.904	5.292	1.000	0.021**	8.009
	Constant term	3.940	4.004	0.968	1.000	0.325	51.420

A. The effect of participant status on willingness

The annual household income variable passes the significance test at the level of 10%, and the effect on the homestead withdrawal willingness is positive, which is the same as the existing research conclusions [11, 12]. The higher the annual income of the farmer household, the stronger the willingness to withdraw from the homestead. The higher-income farmer households have a higher demand for quality of life, have higher requirements for housing, and are more willing to obtain money, housing and other compensation through withdrawal of homestead to improve living conditions, while low-income families have a single source of livelihood, a high proportion of farming, and a strong dependence on land, which has led farmers to be reluctant to withdraw from their homesteads.

B. The effect of condition control on willingness

Whether have a "homestead certificate" variable passes the significance test at the level of 10%, which has a negative impact on the homestead withdrawal willingness, and is the same as the existing research conclusions [13]. The confirmation of the homestead right makes the farmers realize that their right to use the homestead is protected by law, which strengthens the farmers' confidence in the stability of the right to use the homestead, thereby increasing the enthusiasm of the farmers to continue to maintain the homestead.

The homestead area variable passes the significance test at the level of 1%, which has a negative effect on the willingness to withdraw from the homestead. According to regulations, houses built after 1987 only register the excess part of the homestead area, and no right will be granted. The problem of over-occupation in the study area is relatively prominent. The over-occupied farmer worry that there will be a compensation difference (no compensation or little compensation) between the area they cannot determine their right and the area they determine their right when they withdraw, resulting in a huge sense of loss and reluctance to withdraw from the homestead.

C. The effect of external situation perception on willingness

Whether there is a demand for renovated houses passes the significance test at the level of 10%, which has a negative impact on the willingness to withdraw from the homestead. Farmers with renovated houses need generally have older houses on their homesteads and longer residence time. According to the endowment effect in behavioral economics, given the personal preferences and homestead value, the longer a farmer has a homestead, the more emotion involved, the greater the degree of emotional dependence. Therefore, they tend not to exit homestead.

Whether the illegal construction in the village is caused by the mentality of taking advantage, the variable passes the significance test at the 5% level, and it has negative impact on the willingness to withdraw from the homestead. The reason is

that in the absence of external constraints, each participant (farmer) can overtake the homestead and cannot prevent others from overtaking. Participants who see the benefits of others without having to pay a price will be inclined to refer to and imitate the behavior of other individuals in the group after perceiving this situation, and they are unwilling to exit.

D. The effect of reform result recognition on the willingness

The cognitive variables of the importance of reasonable compensation and the importance of the exit location pass the significance tests at the levels of 10% and 1%, which have a negative impact on the willingness. The more aware the farmers are of the importance of reasonable compensation, the weaker their intention of compensated withdrawal of homestead will be. The individual cognition has an irrational component. In this study, the farmers tend to overestimate the value of the homestead they own, but ignore whether the value of the homestead is based on legal ownership. Farmers who highly recognize the location of the existing homestead have raised their subjective valuation of the homestead and are unwilling to withdraw from the homestead.

The cognitive variable of the importance of the new home location passes the significance test at the level of 5%, which has a positive impact on the willingness. Based on the interview results, most of the farmers who value the new home location want to move to a new neighborhood through the unified planning and construction of the government. The desire to improve the living environment makes it easier to focus on the prospects after the withdrawal of the homestead and therefore make the decision of accepting the paid exit.

V. CONCLUSIONS AND IMPLICATIONS

The research results show that the willingness of rural households to withdraw from their homesteads is affected by the participants situation, condition control, perception of external conditions, and the recognition of reform results. The higher the household's annual income, the stronger the willingness to withdraw from the homestead; farmers with "homestead use certificate" are less willing to withdraw with compensation; the larger the area of homestead, the weaker the willingness to withdraw; those who have the need to rebuild new houses and believe that they can take advantages have led to a weaker willingness to withdraw from the construction of illegal construction in the village; awareness of the importance of reasonable compensation and the recognition of the importance of the exit location have a negative effect on the willingness to withdraw from the farmer's homestead, and the recognition of the importance of the new residence location has a positive effect on the willingness. Based on the above research conclusions, the following countermeasures can be taken in order to guide farmers to withdraw rationally:

Firstly, in response to the over-occupied area of the homestead formed by the established facts, it is not appropriate to force farmers to withdraw to avoid inciting social contradictions. In combination with the current situation of farmers' insufficient awareness of the paid use policy, it is recommended that the government improve and promote the paid use system of the excess area of the homestead, so as to

restrain farmers from occupying more land, building new ones and not demolishing old ones.

Secondly, from the perspective of farmers' cognitive differences, the government should design a variety of compensation methods for different farmers to choose from. At the same time, they should strengthen farmers' awareness of the importance of compensation methods other than monetary compensation and housing compensation (such as social security compensation), so as to ensure that the long-term living conditions of farmers after leaving their homesteads will not worsen, while reducing the pressure on government funding.

Thirdly, starting from the fact that some farmers have neglected the value of homesteads based on legally having the right to use homesteads, it is recommended that the government strengthen management and guidance, vigorously promote the work of determining the rights of homesteads, and promote farmers to correctly understand the residence of homesteads and property values, so as to prevent farmers from overestimating the value of their homesteads, which is not conducive to paid withdrawals.

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