Empirical Study on Satisfaction of Farmers with Land Requisition in Guangdong Province

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Abstract Taking land requisition and land disputes in Guangdong Province as starting point, this paper built a framework for analysis of farmers'satisfaction with land requisition. Through questionnaire survey and in-depth interview, field survey was carried out. With the aid of statistical software SPSS22.0 and AMOS22.0, it analyzed specific factors influencing satisfaction of farmers with land requisition using Principal Component Analysis (PCA), Exploratory Factor Analysis (EFA), and Structural Equation Modeling (SEM). Empirical results indicate that annual family income of farmers, proportion of requisitioned land to total land of a family, land requisition compensation procedure, compensation standard, compensation content, and compensation supervision havea significantly positive influence on satisfaction of farmers with land requisition.

Key words Satisfaction with land requisition, Compensation procedure, Compensation standard, Compensation content, Compensation and resettlement

1 Introduction

Due to urbanization and industrialization, large agricultural land is changed to non-agricultural land. According to reliable data issued by Chinese Academy of Social Sciences, the number of land-losing farmers sharply rises at the speed of 3 -4.5 million annually. According to prediction of Bao[1], by 2020, the number of land-losing farmers in China will exceed 100 million. There are still many problems and outstanding conflicts in the land requisition compensation system. An essential root cause is extremely low satisfaction of farmers with land requisition. There are frequent occurrences of land requisition disputes and collective appealing to higher authorities. This becomes a social issue that can not be neglected. At present, there have been extensive research findings in China and foreign countries about land requisition compensation and satisfaction with land requisition, but there are still following weak points. (i) Most existing researches are qualitative and few are empirical. (ii) Most researches about satisfaction of farmers with land requisition just discuss the phenomenon and reasons for low satisfaction, no empirical analysis is made on factors influencing satisfaction of land requisition. In view of these, we took land requisition and land disputes in Guangdong Province as starting point, built a framework for analysis of satisfaction of farmers with land requisition, and made an empirical analysis on specific factors influencing satisfaction of farmers with land requisition, and finally came up with recommendations for raising satisfaction of farmers with land requisition and reforming land requisition policies.

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2 Literature review

2.1 Compensation procedure Lin Qiling[2] studied China's land requisition compensation system and found that some local governments did not implement laws and regulations in land requisition compensation procedure, the compensation procedure was not transparent and open, and there was even illegal land requisition, consequently leading to many farmers'appealing to higher authorities and land requisition disputes. Through building structural equation model, Zhao Yanxia[3] concluded that compensation fund payment and rationality have a significant influence on satisfaction of farmers with the compensation. Tan Shukui *et al.*[4] found that existing land requisition compensation procedure still lacks transparency, openness, feedback, and conflict mediation, so the satisfaction of farmers with land requisition is relatively low. Zhang Yuyang[5] held that satisfaction of farmers with land requisition should be raised from further improving legal system, regulating compensation procedure, establishing sunshine mechanism, and ensuring sunshine operation of land requisition. Through field survey of land requisitioned farmers in three representative regions of Chengdu City, Wang Xuxi *et al.*[6] built Logistic regression model and obtained factors influencing satisfaction of farmers with land requisition, including family income after land requisition, land requisition procedure, land requisition willingness, transparency and compensation standard.

2.2 Compensation standard Researches of Fischel and Shapiro[7] indicated that taking land market value as suitable compensation level is helpful for raising satisfaction with land requisition and improving social welfare level. Miceli & Segerson[8] believed that the optimal land compensation mechanism is to establish independent market evaluation. According to opinions of Zhao Wei and Zhang Zhengfeng[9], the existing land compensation standard greatly deviates from market value, and the compensation is only made for direct losses of farmers, no compensation is made for in-

direct losses, middlemen and local government obtain large portion of land requisition income. Through building land requisition market value model and establishing subgame Nash equilibrium method, Ed Nosal[10] proved that it is required to make land requisition compensation at market value. With the aid of three-party game model, Blume L[11] made empirical analysis on land requisition compensation standard and stated that requisition of different land types should follow the differentiated principle. Li Qiling[2] pointed out that existing land requisition compensation standard is obviously low, not consistent with China's economic growth rate and social environment, and land auction price is much higher than compensation price, thus government should make adjustment of land requisition compensation standard with reference to economic development situations.

2.3 Compensation content Wu Yongsheng and Liu Xinping[12] made an empirical analysis on satisfaction of farmers with land requisition and found that the compensation is mainly made in cash, farmers in some underdeveloped areas only receive several thousand or hundred yuan compensation, leading to their dissatisfaction with land compensation content. Zhu Qian[13] contended that government should implement mixed compensation system, including monetary compensation, employment selection opportunity, shareholding cooperative, and ensuring rural collective reserve land. Zhao Wei and Zhang Zhengfeng[9] believed that the present land compensation is basically a lump-sum monetary compensation or installment monetary compensation. In opinion of An Husen and Zou Xuan[14], due to existence of land opportunity cost, it is not reasonable for government to adopt the method of submerging land value, lump-sum cash compensation easily lead to difficult living of farmers after land requisition, difficult to meet daily needs, and they recommended replacing lump-sum cash compensation with other resources.

2.4 Compensation and resettlement Zhong Shuiying and Li Kui[15] made an empirical analysis on the relationship between land compensation and resettlement. Empirical results indicate that an essential factor influencing satisfaction of farmers with land requisition is the compensation level. Martin Millspaugh[16] studied land compensation and resettlement and believed that government should make necessary compensation from policy background, compensation method, resettlement difficulty, and operation method of land requisition, and they found that homestead arrangement and type of connecting road after resettlement are also major factors influencing satisfaction of farmers with land requisition. Joseph J. Cordes[17] built a framework of Uniform Relocation Assistance Act and made an in-depth study on influence of relocation expenses, resettlement cost, and property disposition on satisfaction of farmers with land requisition. Zhao Wei and Zhang Zhengfeng[9] stated that the existing land compensation and resettlement method is excessively single, which is not favorable for future living guarantee of farmers, so it is required to adjust the resettlement method from employment and medical care guarantee. Wu Yan and Pu Chunling[18] made an empirical analysis on compensation and resettlement of land requisitioned farmers and held that it is required to change the unreasonable land requisition compensation system and allow land requisitioned farmers to participate in distribution of land appreciation income, so as to improve farmers' living conditions. In sum, we put forward following hypotheses:

H1: Land requisition compensation procedure exerts significantly positive influence on satisfaction of farmers with land requisition

H2: Land requisition compensation standard exerts significantly positive influence on satisfaction of farmers with land requisition

H3: Land requisition compensation content exerts significantly positive influence on satisfaction of farmers with land requisition

H4: Land requisition compensation and resettlement exert significantly positive influence on satisfaction of farmers with land requisition

3 Model building and data source

3.1 Research area and data source Using theories combining empirical researches, we built an indicator system for evaluating satisfaction of farmers with land requisition. With the aid of statistical software SPSS22.0 and AMOS22.0, we analyzed relationship between variables influencing satisfaction of farmers with land requisition using Principal Component Analysis (PCA), Exploratory Factor Analysis (EFA), Structural Equation Modeling (SEM), and path analysis method. In this study, we surveyed land requisitioned farmers in Pearl River Delta area, east, west and north Guangdong Province using random sampling, home visit and in-depth interview. In total, we distributed 400 copies of questionnaire and collected 360 copies, and 320 copies are valid with the response rate up to 80.0%. Our questionnaire applied seven point Likert scale. The interviewed farmers made objective judgment and gave a mark (7 means very satisfied or consistent and 1 means completely dissatisfied or inconsistent) as per actual land requisition conditions.

3.2 Selection and measurement of variables With reference to research findings of interview experts such as Tan Shukui and Xian Mihua *et al*, we preliminarily obtained four factors influencing satisfaction of farmers with land requisition: land requisition compensation procedure, compensation standard, compensation content, and compensation and resettlement. At present, due to scarcity of empirical analysis on satisfaction of farmers with land requisition, we prepared a set of scale. Satisfaction with land requisition includes good job, income increase, and drop of life pressure after land requisition. Land requisition compensation procedure includes issuing land requisition notice in advance, asking farmers about land requisition willingness, formulating land requisition scheme and announcing the land requisition compensation scheme before land requisition. Land requisition compensation standard includes sufficient area of compensation, different compensation standard for different land types, diversified compensa-

tion forms, and full compensation amount. Land requisition compensation content includes granting lump-sum monetary compensation, increasing insurance compensation, sharing out bonus after land appreciation, and allowing farmers to participate in bonus share through pooling of land as shares. The resettlement includes house resettlement, employment resettlement, household registration resettlement, and children education resettlement, *etc.*

3.3 Test of variables With the aid of SPSS 22.0 software, we made Exploratory Factor Analysis on sample data, made Principal Component Analysis on 16 factors influencing satisfaction of farmers with land requisition compensation, and obtained that the Accumulated Variance Contribution Rate of 4 principal components is up to 85.759%. Besides, we classified 16 factors using rotated factor matrix, and named 4 principal components as land requisition compensation procedure, compensation standard, compensation content, and compensation and resettlement.

(i) Validity test. Through consulting experts of related fields, small sample preliminary test and scale revision, we carried out Kaiser-Meyer-Olkin (KMO) measure and Bartlett test of sphericity. KMO closer to 1 means the variable is more suitable for factor analysis. From Table 1, we can see that sample sufficiency KMO is 0.856, and the significance probability of Bartlett statistical value is 0.0000, indicating the obtained data are very suitable for factor analysis. In the process of using PCA, the criterion for factor selection is the absolute value of factor loading must be greater than 0.5. Through PCA, factor loading of all items we selected is higher than 0.7, so the items well represent content to be measured.

Table 1 KMO and Bartlett test

Take sufficient Kaiser-Meyer-Olkin measure		0.856
Bartlett test of sphericity	Approximate square	3229.740
	df	120
	Sig.	0.000

(ii) Reliability test. Cronbach's alpha is used to analyze internal consistency of items: higher Cronbach's alpha means higher reliability. From Table 2, we obtained that Cronbach's α of land requisition compensation procedure, compensation standard, compensation content, compensation and resettlement and land requisition satisfaction is 0.871, 0.894, 0.865, 0.895, and 0.879 respectively, so the reliability of samples passes the internal consistency test.

Table 2 Exploratory Factor Analysis ($N=320$)

Latent variable	Question item	Mean value	Standard deviation	Load	Bartlett test	KMO	Accumulated contribution rate//%	Cronbach's α
Compensation procedure	Issuing land requisition notice in advance	4.37	1.734	0.845	263.332*** (0.000)	0.781	85.35	0.871
	Asking farmers about land requisition willingness	4.53	1.452	0.845				
	Formulating land requisition scheme before land requisition	3.96	1.713	0.816				
	Announcing land requisition scheme before land requisition	4.56	1.788	0.804				
Compensation standards	Area of compensation for land requisition	3.31	1.643	0.836	554.687** (0.000)	0.832	82.79	0.894
	Amount of compensation for land requisition	3.79	1.621	0.878				
	Difference of compensation for land requisition	3.42	1.573	0.896				
	Method of compensation for land requisition	4.75	1.456	0.852				
Compensation content	Allowing farmers to participate in bonus share through pooling of land as shares	3.63	1.753	0.784	291.042** (0.000)	0.798	87.53	0.865
	Farmers can obtain long-term bonus of land appreciation	3.01	1.611	0.765				
	Land requisitioned farmers can obtain compensation for social insurance	4.65	1.732	0.885				
	Land requisitioned farmers can obtain lump-sum monetary compensation	5.96	1.641	0.832				
Compensation and resettlement	House resettlement	2.43	1.521	0.852	363.552*** (0.000)	0.856	79.98	0.895
	Employment resettlement	3.32	1.342	0.802				
	Household registration resettlement	3.01	1.621	0.857				
	Children education resettlement	3.31	1.532	0.840				
Satisfaction with land requisition	Good job after land requisition	2.57	1.432	0.879	521.532*** (0.000)	0.878	86.90	0.879
	Income increase after land requisition	4.42	1.654	0.843				
	Obvious drop of life pressure after land requisition	4.24	1.610	0.889				

Note: ** denotes P is significant at 0.01 and *** denotes P is significant at 0.001.

Besides, according to determination of average variance extracted (AVE) convergence validity indicator, the criterion is 0.5, the higher AVE value indicates the smaller relative measurement error. According to Table 4, AVE values of the compensation procedure, compensation standard, compensation content, and compensation and resettlement are 0.6434, 0.6875, 0.6542

and 0.5975 respectively, all higher than 0.5, indicating the questionnaire measurement has convergence validity, and AVE value is higher than square value of correlation coefficient, so it passes the validity test. In brief, explanatory factor analysis results indicate that question items of land compensation procedure, compensation standard, compensation content, compensation and resettlement and satisfaction with land requisition can well measure our latent variables, data collected can be used for further empirical study.

Table 3 Correlation analysis of variables

Latent variable	AVE	Compensation procedure	Compensation standard	Compensation content	Compensation and resettlement
Compensation procedure	0.643 4	1	–	–	–
Compensation standard	0.687 5	0.376***	1	–	–
Compensation content	0.654 2	0.472***	0.404***	1	–
Compensation and resettlement	0.597 5	0.441***	0.468***	0.462***	1

4 Empirical results and analyses

Table 3 indicates correlation between latent variables. To further study interaction between latent variables, we built a framework and structural equation and made an empirical analysis using AMOS 22.0 software. Considering individual characteristics of farmers, such as age of farmers, annual family income, educational level, and proportion of requisitioned land to total family land, that may exert certain influence on satisfaction of farmers with land requisition, we added individual characteristics of farmers as independent variables to make regression analysis. Age of farmers, annual family income, and the proportion of requisitioned land to total family land are expressed in actual values, and using 1 – 5 to denote no education, primary school, junior middle school, senior middle school, college and above. Then, we made stepwise regression of individual characteristics of farmers, land requisition compensation procedure, compensation standard, compensation content, and compensation and resettlement, and obtained regression analysis results of five models.

Table 4 The results of regression analysis

Variable	Satisfaction with land requisition				
	Model 1	Model 2	Model 3	Model 4	Model 5
Age	0.093	–	0.242	0.231	0.156
	(0.546)		(1.526)	(0.894)	(0.231)
Annual family income	0.045*	–	0.067**	0.144**	0.086**
	(2.576)		(4.976)	(4.687)	(6.064)
Educational level	0.125	–	0.153	0.121	0.164
	(1.287)		(1.556)	(1.443)	(1.365)
Proportion of requisitioned land to total land in the family	−0.114**	–	−0.464**	−0.357**	−0.250**
	(8.086)		(3.635)	(5.044)	(6.411)
Compensation procedure	0.583**	0.423*	0.385**	0.223	0.496*
	(4.325)	(5.643)	(4.563)	(0.975)	(7.342)
Compensation standard	0.502	0.321*	–	0.442*	0.331**
	(0.986)	(8.543)		(11.321)	(6.421)
Compensation content	0.375**	0.185*	0.532	–	0.576*
	(6.866)	(9.356)	(1.452)		(12.654)
Compensation and resettlement	0.531*	0.732*	0.653*	0.693**	–
	(15.367)	(13.643)	(10.552)	(7.543)	
Absolute fit index					
GFI (standard >0.9)	0.932	0.911	0.897	0.925	0.890
RMSEA (standard <0.08)	0.073	0.032	0.068	0.211	0.032
Relative fit index					
CFI (standard >0.9)	0.972	0.942	0.963	0.953	0.958
IFI (standard >0.9)	0.976	0.915	0.953	0.975	0.982
Simplified fit index					
CMIN/DF (standard: 1 – 3)	1.897	2.765	2.325	1.896	2.643
PNFI (standard >0.5)	0.875	0.976	0.735	0.644	0.567

Note: value in parenthesis under the estimation coefficient is t value; * and ** denote significant at 5% and 10% level respectively.

From Table 4, we can see that CMIN/DF values of five models are in the range of 1 to 3, respectively 1.897, 2.765, 2.325, 1.896, and 2.643; CFI values of five models are higher than 0.9, respectively 0.972, 0.942, 0.963, 0.953, and 0.958. Besides, GFI, RMSEA, and IFI values conform to requirements, indicating excellent fitting effect.

In Model 1, age of farmers, annual family income, educational level, and the proportion of requisitioned land to total family land, and land requisition compensation procedure, compensation standard, compensation content, and compensation and resettlement are taken as independent variables, we made regression analysis on them and obtained the influencing effect of satisfaction with land requisition. Regression results indicate that (i) the annual family income and the proportion of requisitioned land to total family land pass the significance test, and the significance level is 5% and 10% respectively. The regression coefficient of annual

family income is 0.045 (positive), indicating that annual family income of farmers exerts positive influence on satisfaction of farmers with land requisition to a certain extent. In other words, the higher the annual family income, the higher willingness of them for land requisition, and the higher satisfaction with land requisition. The regression coefficient of the proportion of requisitioned land to total family land is negative (−0.114), indicating that the proportion of requisitioned land to total family land has adverse influence on satisfaction of farmers with land requisition. The higher this proportion, the more the unwillingness of farmers for land requisition, and the lower the satisfaction of farmers with land satisfaction. (ii) The age and educational level of farmers fail to pass the significance test, possibly because most respondents in out study are old people and young people are doing migrant work in cities. These old people barely have no education or just have primary school education. Therefore, changes in age and educational level are little and have little influence on results. (iii) Land requisition compensation procedure, compensation content and compensation resettlement pass the significance test and the significance level is 10%, 10%, and 5% respectively. The regression coefficient of land requisition compensation procedure, compensation content, and compensation and resettlement is positive, and respectively 0.583, 0.375, and 0.531, indicating that these three indicators exert positive influence on satisfaction of farmers with land requisition. In other words, if land requisition compensation procedure is perfect and legal, compensation content is complete and compensation and resettlement of government is put in place, farmers will accept land requisition and their satisfaction with land requisition will be higher. In Model 2, the age, annual family income, educational level, and the proportion of requisitioned land to total family land are used as control variables, and land requisition compensation procedure, compensation standard, compensation content, and compensation and resettlement are taken as independent variables to make regression analysis. Compared with Model 1, the compensation standard passes significance test, the significance level is 5%, and its coefficient is positive (0.321), indicating that land requisition compensation standard exerts positive influence on satisfaction of farmers with land requisition. If the compensation area and amount meet expectation of farmers, and compensation types are diversified, farmers will accept land requisition and their satisfaction with land requisition will be higher. In Model 3, excluding the influence of compensation standard, we took age of farmers, annual family income, educational level, the proportion of requisitioned land to total family land, compensation procedure, compensation content, and compensation and resettlement as independent variables to make regression analysis. Compared with Model 1, the significance level of annual family income changed from 5% to 10%, its regression coefficient rose from 0.045 to 0.067, and the regression coefficient of the proportion of requisitioned land to total family land rose from −0.114 to −0.464, showing that the influence of annual family income and the proportion of requisitioned land to total family land on satisfaction of farmers with land requisition increased. Besides, the significance level of land requisition compensation procedure was changed, the regression coefficient dropped from 0.583 to 0.385, showing a declining action. The regression coefficient of land requisition compensation and resettlement rose from 0.531 to 0.853, showing the influence of land requisition compensation and resettlement on satisfaction of farmers with land requisition increased. In Model 4 and Model 5, we took compensation content and compensation and resettlement as control variables separately, and made regression analysis on the rest variables. Empirical results of Model 4 indicate that the significance level of annual family income rose from 5% to 10%, and its regression coefficient rose from 0.045 to 0.144, indicating the higher the annual family income, the more likely of farmers to accept land requisition, and the more the willingness for land requisition. In Model 4, the coefficient of land requisition compensation procedure dropped, and the regression coefficient of land requisition compensation and resettlement rose, indicating the influence of land requisition compensation and resettlement has a greater role in satisfaction of farmers with land requisition. In all variables, the regression coefficient of compensation and resettlement is highest (0.793). When farmers'land is requisitioned, they will urgently hope to solve their household registration, housing, and employment problems, thus government should take overall consideration of these problems in land requisition. In Model 5, the coefficient of land requisition compensation content dropped, while the regression coefficient of compensation standard is the highest, showing the highest influence on satisfaction of farmers with land requisition.

5 Conclusions and recommendations

5.1 Increasing farmers' income Empirical results indicate that annual family income of farmers passed the significance test, and it positively influences satisfaction of farmers with land requisition. In other words, the higher the annual family income, the more willingness of them for land requisition, and the higher satisfaction with land requisition. Therefore, government should be devoted to formulating policies to further increase farmers'income. Besides, government should work well in employment of farmers, provide free training of employment, focus on training quality and quantity, help more farmers to grasp employment skills, expand employment channels, and provide more jobs, to help and support farmers and unemployed people to find jobs. It is recommended to actively respond to the call of the party and the state, and energetically advocate Mass entrepreneurship and innovation. In addition, it is recommended to actively encourage and help migrant workers or graduates to establish micro-enterprises, to realize mass entrepreneurship and maximally increase farmers'income.

5.2 Improving land requisition compensation procedure Farmers strongly hope government can implement legal provisions at the time of land requisition. Before land requisition, government must ask farmers about willingness of land requisition, issue

land requisition notice in advance, and formulate land requisition compensation scheme in time. For farmers unwilling to accept land requisition, government should promptly communicate with them, patiently explain related land laws and regulations, to satisfy demands of farmers as much as possible. Government should not take force in land requisition, to avoid more land requisition disputes and conflicts. Besides, before land requisition, government should invite farmer representatives to discuss matters about land requisition, encourage farmers to put forward suggestions, jointly discuss land requisition compensation procedure and scheme, and reduce information asymmetry as much as possible, to raise satisfaction of farmers with land requisition.

5.3 Improving land requisition compensation and resettlement and increasing compensation standard Regression results indicate that land requisition compensation and resettlement have significantly positive influence on satisfaction of farmers with land requisition. In regression coefficient of all variables, the compensation and resettlement have the largest regression coefficient, indicating farmers care much about compensation and resettlement. After losing land, farmers lose dependence and thus urgently hope government can solve the problems of their employment, housing, household registration, and children education. Farmers stated that the compensation standard is relatively low, so most of them do not accept land requisition. Therefore, government should formulate land requisition compensation standard as per supply and demand relationship of land market. When formulating the compensation standard, government should take full consideration of opinions of farmers, meet their expectations as much as possible. Farmers are weak groups and need certain time to adjust and adapt to new life and new jobs after losing land.

5.4 Enriching land requisition compensation content to promote diversified compensation ways At present, many places implement lump-sum monetary compensation and rapidly implement compensation. Although this can rapidly complete the problem of land requisition compensation payment, the lump-sum monetary compensation is not favorable for long-term livelihood of farmers. Lump-sum monetary compensation only provide monetary compensation for farmers, but offer no guidance about employment or undertaking, and related social security is not well established. If farmers have no plan about the compensation amount, they will use up rapidly, leading to hard living and decline of living conditions. Therefore, government should promote diversified land requisition compensation ways, such as buying social insurance for farmers, allowing farmers to participate in bonus share through pooling of land as shares, or making them share bonus of land appreciation, so as to realize sustainable development of farmers and promote construction of new socialist countryside.

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