

# Impact of Rural-Household Differentiation on the Action of Farmland Transfer

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**Abstract—Objective:** The research analyzed empirically the impact of rural-household differentiation on the action of farmland transfer by Logistic model; **Methods:** Logistic Model; **Results:** It turned out that rural household vocational differentiation degree and rural household income differentiation degree existed significant positive impact on rural household behavior of outward transfer farmland, rural household vocational differentiation degree existed significant negative impact on rural household behavior of inward transfer farmland, rural household income differentiation degree existed significant positive impact on rural household behavior of inward transfer farmland. In addition, in the other control variables, householder culture degree, non-agricultural employment skills existed significant impact on rural household behavior of outward transfer farmland, householder age existed significant impact on rural household behavior of inward transfer farmland; **Conclusion:** Develop non-agricultural industries vigorously, strengthen the training of farmers employment skills, promote employment ability, change the structure of household income, expand income channel, increase the driving force of land transfer, realize the separation of rural household and farmland; Provide timely accurate agricultural market information, enhance the effect of agricultural science and technology on agricultural production, realize agriculture moderate scale management.

*Keywords-Rural-Household Differentiation; Outward Transfer Farmland; Inward Transfer Farmland; Influence Factor; Logistic Model*

## I. INTRODUCTION

In the early 1980s, China introduced the household contract responsibility system in rural areas, realized the separation of farmland ownership and management rights. In a certain period, it increased the farmers' income, but this small-scale decentralized management mode brought farmland fragmentation. Farmland Transfer is one of the effective ways to resolve current our country rural area farmland fragmentation. Some scholars had done the related empirical studies on impact of rural household farmland transfer. These factors contained rural

household's own characteristics and resource endowments[1], high transaction costs[2], incomplete farmland property rights[3] and absent rural social security mechanism[4].

Along with the advancement of rural marketization reform, the institutional obstacles of rural household participating in production were gradually resolved, especially the labor resources' flow enhanced significantly between urban-rural region. The difference of technical level and market participation ability between rural household led to a big difference on rural household's labor force employment structure and income structure, and rural-household differentiation occurred gradually through the cycle of difference self accumulation[5]. In the period of rural social differentiation increasingly prominent, it had a strong practical significance to study rural farmland transfer behavior from the perspective of rural-household differentiation. Using 385 rural household questionnaire survey data of Tieling, the research analyzed empirically the impact of rural-household differentiation on the action of farmland transfer, in the hope of offering reference for policy making to realize agriculture moderate scale management.

## II. DATA SOURCES AND RESEARCH METHODS

### A. Samples and Data

The data was from rural household questionnaire survey of Changtu county and Tieling county Tieling city during November to December, 2013. Tieling city is located in the north of Liaoning province, which is rich in agricultural resources and known as the granary of northern Liaoning province, has four national commodity grain base counties, is the national major grain-producing area and national key commodity grain production base. In 2012, the farmland area was 8.2 million mu, grain output reached 3.867 million ton, and rural resident average net income reached 10569 yuan. The investigation adopted method of questionnaire and interviews, selected four towns, five villages in every town, 12 questionnaires in

every village, sent 240 questionnaires, took back 220 effective questionnaires, questionnaire efficient reached 91.67%. The questionnaire content mainly included householder characteristic, family characteristic, rural-household differentiation characteristic and rural-household behavior of farmland transfer.

In 220 samples, outward transfer farmland was 118 which accounted for 53.64%, inward transfer farmland was 46 which accounted for 20.91%. Householder average age was 47 in which 46~60 years old accounted for 49.09%; cultural degree of elementary school and junior high school were the vast majority (56.37%); there were 147 agricultural labors and migrant workers which accounted for 66.82%; family labor quantity of 2~3 was 162 which

accounted for 73.64%; annual household income of 10000~30000 yuan was 118 which accounted for 53.64%; family cultivated land area of 10~50 mu was 150 which accounted for 68.18%; having non-agricultural employment skills was 86 which accounted for 39.09%. The basic situation of rural household sample were shown in table 1.

### B. Model Selection

This research adopted Logistic regression model for quantitative analysis impact of rural-household differentiation on the action of farmland transfer. Householder characteristic, family characteristic, rural-household differentiation characteristic were independent variables, and rural-household behavior of farmland transfer (y) was dependent variable. The function in (1):

$y = f(\text{householder characteristic, family characteristic, rural-household differentiation characteristic}) + \text{random perturbed variable}$  (1)

The basic form of model was as follows:

$$P(y = 1) = \frac{\text{Exp}(\mathbf{b}_0 + \mathbf{b}_1x_1 + \mathbf{L} + \mathbf{b}_jx_j)}{1 + \text{Exp}(\mathbf{b}_0 + \mathbf{b}_1x_1 + \mathbf{L} + \mathbf{b}_jx_j)} \quad (2)$$

In (2), If rural household had the behavior of inward (outward) transfer farmland, the dependent variable was 1, if not, the dependent variable was 0;  $\mathbf{b}_0$  was constant term;  $x_j$  were impact factors of rural household farmland transfer;  $\mathbf{b}_j$  was partial regression coefficient of  $x_j$ .

### C. Variable Selection

The independent variables were divided into the following several aspects[6-9].

- Householder and family characteristic variables were householder age, householder cultural degree, householder health, farmland area, non-agricultural employment skills.
- Rural-household differentiation characteristic variables were rural household differentiation type, rural household vocational differentiation degree and rural household income differentiation degree. Referring to the research of Xueyi Lu[10], rural household differentiation type included agricultural labor, migrant worker, farmer intellectual, individual business, private enterprise, rural administrator. Rural household vocational differentiation degree was the proportion of non-agricultural labor force accounts for the total labor force. Rural household income differentiation degree was the proportion of non-agricultural income accounts for the total income. Variables were defined in table 2.

TABLE 1 RURAL HOUSEHOLD SAMPLE BASIC SITUATION

Variable	Option	Sample	Proportion(%)
Farmland transfer behavior	Outward transfer farmland	118	53.64
	Inward transfer farmland	46	20.91
	Without transfer farmland	56	25.45
Householder age	Less than 30 years old	23	10.45
	30~45 years old	73	33.18
	46~60 years old	108	49.09
Householder culture degree	More than 60 years old	16	7.27
	Less than primary school	43	19.55
	Primary school	59	26.82
Householder health status	Junior high school	65	29.55
	More than junior high school	53	24.09
Householder professional types	Yes	208	94.55
	No	12	5.45
Family labor quantity	Agricultural labor, migrant worker	147	66.82
	Farmer intellectual, individual business	43	19.55
	Private enterprise, rural administrators	30	13.64
Annual household income	0~1 people	9	4.09
	2~3 people	162	73.64
	More than 3 people	49	22.27
Family cultivated land area	Less than 10000 yuan	7	3.18
	10000~30000 yuan	118	53.64
	More than 30000 yuan	95	43.18
Non-agricultural employment skills	Less than 10 km	29	13.18
	10~50km	150	68.18
	More than 50km	21	9.55
	Yes	86	39.09
	No	134	60.91

TABLE 2. FARMLAND TRANSFER BEHAVIOR INFLUENCE FACTOR VARIABLES

Category	Variables	Mark	Variable Definition
Farmland transfer behavior	Outward transfer farmland	y	Yes=1; No=0
	Inward transfer farmland		Yes=1; No=0
Householder characteristic	Householder age	x <sub>1</sub>	Numeric variables
	Householder cultural degree	x <sub>2</sub>	Numeric variables
	Householder health	x <sub>3</sub>	Yes=1; No=0
Family characteristic	Farmland area	x <sub>4</sub>	Numeric variables
	Non-agricultural employment skills	x <sub>5</sub>	Yes=1; No=0
Rural-household differentiation	Rural household differentiation type	x <sub>6</sub>	Agricultural labor=1, migrant worker=2, farmer intellectual=3, individual business=4, private enterprise=5, rural administrator=6
	Rural household vocational differentiation degree	x <sub>7</sub>	Proportion of non-agricultural labor force accounts for the total labor force
	Rural household income differentiation degree	x <sub>8</sub>	Proportion of non-agricultural income accounts for the total income

### III. MODEL RUN

The article used Logistic model to analyze the related data of rural household farmland transfer behavior by SPSS 16.0 statistical software. The independent variables were put into the regression model, and it got the not standardized coefficient. The results were shown in table 3, and the model test results were significant.

### IV. RESULTS ANALYSIS

#### A. Behavior Analysis of Outward Transfer Farmland

##### 1) Rural-household differentiation variables

The results showed that, rural-household differentiation type had no significant influence on behavior of outward transfer farmland. Rural household vocational differentiation degree had significant positive influence on behavior of outward transfer farmland. It showed that the higher rural household vocational differentiation degree, the higher the proportion of non-agricultural labor force accounts for the total labor force, the more possibility of outward transfer farmland. The reason was that rural household who had less labor force engaging in agricultural production were more likely to outward transfer farmland. Rural household income differentiation degree had significant positive influence on behavior of outward transfer farmland. It showed that the higher rural household income differentiation degree, the higher the proportion of non-agricultural income accounts for the total income, the more possibility of outward transfer farmland. The reason was that the family labor

force of higher non-agricultural income proportion was insufficient in Agricultural production.

TABLE 3. MODEL ESTIMATE RESULT OF RURAL HOUSEHOLD OUTWARD (INWARD) TRANSFER FARMLAND BEHAVIOR

Variables	Outward Transfer Farmland			Inward Transfer Farmland		
	$\beta$	Sig.	Exp( $\beta$ )	$\beta$	Sig.	Exp( $\beta$ )
Householder Age	0.041	0.327	1.042	0.329**	0.038	1.390
Householder Cultural Degree	0.126**	0.021	1.135	0.393	0.174	1.482
Householder Health	-0.092	0.168	0.912	0.372	0.166	1.451
Farmland Area	0.298	0.227	1.348	-0.051	0.241	0.950
Non-agricultural Employment Skills	0.279**	0.036	1.322	-0.640	0.246	0.527
Rural Household Differentiation Type	-2.189	0.618	0.112	-2.407	0.100	0.090
Vocational Differentiation Degree	0.289**	0.039	1.336	-0.116*	0.094	0.890
Income Differentiation Degree	0.927**	0.028	2.528	0.165**	0.016	1.180
Constant Term	-3.352	0.003	0.035	-0.923	0.524	0.397
-2Log likelihood				88.726		
Nagelkerke R <sup>2</sup>				0.383		
Sig.				0.000		

Notes: \*, \*\*are respectively significant under 10%, 5%levels.

##### 2) The other control variables

Householder culture degree, non-agricultural employment skills existed significant impact on rural household behavior of outward transfer farmland. The higher householder culture degree, the more possibility of outward transfer farmland. The reason was that the householder with high culture degree was more likely to enter into the non-agricultural employment field. The higher non-agricultural employment skills, the more possibility of outward transfer farmland. The reason was that the rural household with higher non-agricultural employment skills was more likely to ether into the non-agricultural fields and obtain higher income.

#### B. Behavior Analysis of Inward Transfer Farmland

##### 1) Rural-household differentiation variables

The results showed that, rural-household differentiation type had no significant influence on

behavior of inward transfer farmland. Rural household vocational differentiation degree had significant negative influence on behavior of inward transfer farmland. It showed that the higher rural household vocational differentiation degree, the higher the proportion of non-agricultural labor force accounts for the total labor force, the less possibility of inward transfer farmland. The reason was that rural household who had less labor force engaging in non-agricultural production (more labor force engaging in agricultural production) were more likely to inward transfer farmland. Rural household income differentiation degree had significant positive influence on behavior of inward transfer farmland. It showed that the higher rural household income differentiation degree, the higher the proportion of non-agricultural income accounts for the total income, the more possibility of inward transfer farmland. The reason was that rural household who had more income were more likely to inward transfer farmland to achieve scale management.

## 2) *The other control variables*

Householder age existed significant positive impact on rural household behavior of inward transfer farmland. The higher householder age, the more possibility of inward transfer farmland. The reason was that the householder with high age was more likely to expand the scale of agricultural production to increase income by inward transfer farmland.

## V. CONCLUSIONS AND POLICY IMPLICATIONS

The research analyzed empirically the impact of rural-household differentiation on the action of farmland transfer by Logistic model. It turned out that rural household vocational differentiation degree and rural household income differentiation degree existed significant positive impact on rural household behavior of outward transfer farmland, rural household vocational differentiation degree existed significant negative impact on rural household behavior of inward transfer farmland, rural household income differentiation degree existed significant positive impact on rural household behavior of inward transfer farmland. In addition, in the other control variables, householder culture degree, non-agricultural employment skills existed significant impact on rural household behavior of outward transfer farmland, householder age existed significant impact on rural household behavior of inward transfer farmland.

Based on the above conclusions the article gives the suggestion. Develop non-agricultural industries vigorously, strengthen the training of farmers employment skills, promote employment ability, change the structure

of household income, expand income channel, increase the driving force of land transfer, realize the separation of rural household and farmland; Provide timely accurate agricultural market information, enhance the effect of agricultural science and technology on agricultural production, realize agriculture moderate scale management.

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## REFERENCES

- [1] Kechun Liu and Weihua Su. "Rural-household resource endowment, transaction cost and farmland transfer behaviour--based on rural-household survey in Jiangxi province". *Statistical study*, May 2006, pp.73-77.
- [2] Tao Li, Yiguang Ye and Wenhua Sun. "Transaction cost analysis of rural collective land ownership circulation". *China's rural economy*, Dec. 2004, pp.10-15.
- [3] Taiyang Zhong, Xinjin Huang and Ping Kong. "Research of farmland property rights and rural-household land leasing intention." *China's land science*, vol. 19, Jan. 2005, pp.49-55.
- [4] Xiaohuan Yan and Xuexi Huo. "Peasant employment, rural social security and farmland transfer--based on the analysis of 479 farmers in Henan province". *Agricultural technology economy*, Jul. 2013, pp.34-44.
- [5] Xianbao Li and Qiang Gao. "Behavior logic, differentiation result and development prospects--based on the investigation of rural-household differentiation behavior in China since 1978". *Agricultural economic problems*, Feb. 2013, pp.56-65.
- [6] Zhaorong Dong and Changyun.Jiang "Impact of rural-household internal factors on rural-household type selection and differentiation". *Journal of anhui agricultural university (social science edition)*, Jan. 1996, pp.37-40.
- [7] Wenhua Sun. "Rural-household differentiation: microscopic mechanism and empirical analysis". *Jianghai journal*, Apr. 2008, pp.114-119.
- [8] Ge Wei. "Causes and evaluation on formation of concurrent-business farmers in China". *Journal of huazhong university of science and technology (social science edition)*, Mar. 1998, pp.65-68.
- [9] Heng-zhou Xu and Shuqin Shi. "Impact of Farmer Differentiation on Farm Households Willingness in Farmland Transference" *China population resources and environment*, vol. 22, Feb. 2012, pp.90-96.
- [10] Xueyi Lu and Houyi Zhang. "Peasant differentiation, problems and countermeasures". *Agricultural economic problems*, Jan. 1990, pp.16-21.