

The Study on Effects of Concurrent Business on Cultivated Land Use Efficiency *-Based on Empirical Analysis of Gansu and Qinghai Province*

Jian Qiang Li¹, Lu Jia Yang², Tao Zhu³ & Jie Fu⁴

¹ College of Economics and Management, Sichuan Agricultural University, Chengdu 611130, China

² Leshan Vocational & Technical College, Leshan 614000, China

³ Sichuan Agricultural Bank of China Leshan branch, Leshan 614000, China

⁴ College of Economics and Business, The University of Sydney, Sydney 2006, Australia

Correspondence: Lu Jia Yang, Financial Management Department, Leshan Vocational & Technical College, Leshan 614000, China. Tel: 86-158-8229-2150. E-mail: aluaka@126.com

Received: May 2, 2012 Accepted: June 15, 2012 Online Published: July 3, 2012

doi:10.5539/sar.v1n2p7

URL: <http://dx.doi.org/10.5539/sar.v1n2p7>

Abstract

This paper uses the farmer household's model to structure the analytical framework of concurrent business cultivated land use behavior and its efficiency and then uses group comparison analysis and data envelopment analysis (DEA) to analyze the diversity of cultivated land use behavior and efficiency, among different types of concurrent business farmer which is based on the promise of separation not established and investigation data of farmer household. The results demonstrate that the concurrent business types have a significant influence on utilization patterns and farmer household's behavioral options, different types of farmers' investment, management and land scale have a big difference. Generally speaking, capital and labor input of concurrent business farmer household are high than that of specialized farmer, concurrent business farmer household Class II are higher than that of Class I; and different utilization patterns lead to the difference of cultivated land use efficiency. Moreover, technical efficiency of specialized farmer household is higher than that of concurrent business farmer household Class I based on the separation was not established, and both of them are higher than that of concurrent business farmer household Class II. That illustrates land use efficiency of farmer household will reduce as the level of concurrent business increase.

Keywords: concurrent business farmer, separability, cultivated land use behavior, efficiency

1. Introduction

With the constant changing of rural economic structure and the implement of Household Contract System, farmer households' means of production have changed, and farmer households' resource endowment characteristic appeared diversities, which lead to the heterogeneity of farmer household showing. Compared with specialized farmer household, concurrent business farmer household is a single production unit, puts part of the labor force into industrial or service and others into non-agricultural sectors in order to pursue maximization of family utility, so they engage in both agriculture and non-agricultural activities in a diversified management way. As the big differences of farmer households, for some farmer households, only a small part of income comes from non-agricultural business, meanwhile, for others, major income comes from non-agricultural business. Hence, many countries make the specific division according to level of concurrent business, generally, it is divided into two classes, one is the farmer household who make major income from agricultural business, named the first class (Class I); the other is the second class (Class II) whose major incomes come from non-agricultural business.

No matter observed from the theory or from experience data, the positive influence of the process in which farmer household get involved in non-agricultural sectors is unquestionable. But, many studies on the influence of the degree of concurrent business to land use behavior have much confusions and disputes. It is generally believed that concurrent business farmer spend less fund and labor, which lead to a negative relationship

between level of concurrent business and farm productivity. But some researchers found that part-time farmer's farm productivity are higher than that of specialized farmer (Gao et al., 2000). The empirical research on developed regions farm household from Liang Liutao and Qu futian et al (2008) shows the efficiency of land use of Class I is slightly higher than that of specialized farmer, and both of them are higher than that of Class II which suggests farm efficiency can be increased when farmers take concurrent business properly, but land use efficiency will be influenced negatively when the level of concurrent business reaches to a certain degree. The author believes that the reason of confusions and disputes can be divided into two kinds, one is that there are many factors influencing land use behavior and efficiency, such as land scale and farm households' characteristics, so it is important to control variables. The other is that all the studies are based on a hypothesis that considering farm household as the rational people and measuring output with maximization income, which ignored farmer household's double roles of both producers and consumers. Producers pursue maximization profit, but consumers chase maximization utility, and to fulfill the unanimity of them two needs to establish conditions that is the separation of farmer's decision about production and consumption. However, in reality most situations do not satisfy the hypothesis of separability. As a result, many researches' hypothesis and sample selection are not suitable for the condition, which led to a deviation of the results.

This paper selects survey region and farmer elaborately based on the farmer model of separability not established, and provides a new angle of confusion above.

2. Theoretical Model and Data Sources

2.1 Productivity and Efficiency

Productivity is the ratio between input and output during the process of production. In specific researches, according to its overall degree measuring, it can be divided into single factor productivity, multi-element productivity and total factor productivity. And, modern efficiency researches define efficiency according to the ideological of production frontier based on PARETO. Economist Farrell (1957) held that efficiency include technology efficiency and configuration efficiency: the technology efficiency is used to measure the ability of economic unit to minimize the investment cost or maximize the output, which means under the promise of stable technology, the close degree of practical production movement and frontier (cost or optimal value of output). The closer degree indicates greater technology efficiency, higher utilization rate and less efficiency loss, and vice versa; the configuration efficiency is the rate of practical input or output and input or output of production configuration in significant condition, in other words, it is the ability to achieve the optimal combination of input and output under appointed technology and price (Table 1).

Table 1. The difference between productivity and efficiency

	productivity	efficiency
definition	Rate of input and output	Ability of productive efficiency of resource
expression	single factor:total output/single element input Multi-factors:total output/multi-output	Term of capital investment:Optimal investment/practical investment Term of output:practical output/optimal output
Value rage	$[0, +\infty]$	$[0, 1]$
dimension	yes	no
advantages	Easy to calculate,applicable to compare among industries	Be able to measure the degree of efficiency to use input factors
disadvantages	Cannot reflect the influence of the cooperation with other factors	Relative complex to calculate,variable results according to different angles

During the process of practical research, as the promise condition of allocation efficiency is difficult to satisfy, and all elements' price are hard to get, the research and measurement of efficiency are based on technical efficiency in most situations. This essay is built on the basic research thinking mentioned above, and brings technical efficiency theory to the research of cultivated land use efficiency as the core theory of cultivated land use efficiency evaluation. Besides, farmer land use behavior is a comprehensive produce activity, and much investment are putted into during specific production process, it is more reasonable to consider total input during measuring efficiency. In order to overcome disadvantage of the method of individual element efficiency, data

envelopment analysis (DEA) is introduced to measure land use efficiency. Not needed a prime known production equation is the best advantage of this method, because it is not influenced by input and output data, and can choose multiple input and output production indexes.

2.2 Farmer Household Model

The earliest works about farmer household system analysis was written by A·Chayanov (1996) who was an agricultural economist of former Soviet Union. He believed that households' labor input are limited by the subjective evaluation on labor and consume. If it can not keep balance between them, such as, the evaluation of hard labor is lower than that of satisfy consuming, farmers will keep invest labor. Actually, it is to use the standard of maximization efficiency to study farmer household's behavior. The introduction of farmer household model stems is used to explain a phenomenon that increasing price of agricultural products does not bring the corresponding rise in its market supply. After that, with continuous deepening researches on households' behavior by economists, the formal mathematics model was established stepwise. Moreover, the research method of farmer household model was influenced deeply by Becker (1998), he first proposed the modern economic theory of household production. Now, this model is an important tool to analyze households' behavior, particularly households' behavior in developing countries.

An agricultural household's standard model includes family effective equation and budget constraint of whole family asset to produce. At first, to consider the situation of all markets are perfect. In this condition, problems faced by farmer households are:

$$\max U(c, l) \quad (1)$$

Constraint condition:

$$P_c c + wLh + rAh + pNh = PFF(L, A, N) + wLm + rAm + pNm \quad (2)$$

$$L = L^f + L^h \quad A = A^f + A^h \quad N = N^f + N^h \quad (3)$$

$$E^L = L^f + L^m + l \quad E^A = A^f + A^m \quad E^N = N^f + N^m \quad (4)$$

Where, P_c is commodity price, households use the concavity function $F(L, A, N)$ to produce, its production price is P_F , A is cultivated area, L is labor used to producing agricultural production, N is other production factors, w is labor wage, r is land rent, p is other factors' price, E^L , E^A , E^N are households' time endowment, land endowment, and other endowment individually. And households' consume, leisure; employing labor, rent land from market, supplying labor to market, other factors purchase from market, rented land to market, own family labor, land and other factors are c , l , L^h , A^h , N^h , L^m , A^m , L^f , A^f , N^f individually.

Equation (1) shows households' efficiency equation, and the efficiency depends on consume and leisure; Equation (2) illustrates budget constraint: the expenditure of consume, hiring labor and land rent equals to the income of cultivated land production, labor export and rent land. Equations (3) and (4) are resources constraint.

Equations (3) and (4) are introduced into (2), the constrain condition of maximization household efficiency becomes to:

$$P_c c + wl = \Pi^* + wE^L + rE^A + pE^N \quad (5)$$

Where:

$$\Pi^* = \max P_F F(L, A, N) - wL - rA - pN \quad (6)$$

equation (6) is household production profits, equation (5) is named "complete income" constrain (Becker, 1998): consumption value cannot exceed the sum of value of family endowment and profit of cultivated land production. It is not difficult to find produce decision can use a simple maximization profit condition (6) to describe, and it is irrelevant with its endowment and preference. That is households' separability characteristic, in other words, a household's produce decision and consume decision are separated. That means, at first, based on (6), a farmer household choose land and labor to maximize land produce profit; after that, to realize maximization efficiency under complete income condition (5).

2.3 Mechanism

Capital, land, labor and technology are the four production factors in economic activities, difference of different types of farmer land use behavior reflect in input of labor, capital and technology and farmland scale. These will lead to different land output, and different types of farmer land use efficiency further (Figure 1).

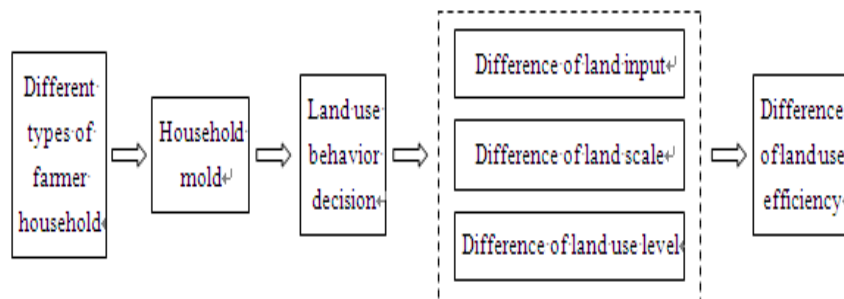


Figure 1. The action mechanism of concurrent business on the land use efficiency impact

According to derivation of farmer model, the basic hypothesis is existed a perfect labor market when the separability was established (Cai, 2005). Based on economic definition, under this situation, labor market supply is equal to demand, not lacking of labor. The only reason of taking concurrent business is family labor division, family members who are suitable to non-agricultural jobs move out for employment, while, unemployed members stay at country to go in for agricultural production. Thus, land produce efficiency is not influenced at least.

However, because of the common existence of over labor population in China, the labor market is multiplicity, it is impossible to realize a perfect labor market. So, we only discuss the farmer household that separability is not established, at first, whether unit input element and technology is homogenous should be considered. Then, it should be meet a requirement of a constant returns to scale of production, moreover, it limits to the crop-planting. Because only homogenous input elements have the same produce equation among farmer household. If constant returns to scale can limit land productivity to input of unit land (land intensity), and food purchase regulation can get rid of majority of unsteady factors, making food crops as a stable indicator to measure famers' agricultural output. Under hypothesis above, the influences of concurrent business can be divided into three parts: land scale, labor input, and land investment.

Under perfect land market, as existing researches demonstrate perfect land market has the leveling effect of margin output, all farmers' productivity will be the same (Yao Yang, 2004). We take all land markets are imperfect for instance to analyze the influence of concurrent business for productivity. First, all other factors market are hypothesized as perfect, agricultural produce function is $F(L, A, N)$, as the returns to scale is stable, so:

$$F(L, N, A) = Af\left(\frac{L}{A}, \frac{N}{A}\right) \quad \text{now,} \quad F_L = f_1 > 0, \quad F_N = f_2 > 0, \quad F_A = f - \frac{L}{A}f_1 - \frac{N}{A}f_2 > 0,$$

$$F_{LL} = \frac{f_{11}}{A} < 0, \quad F_{NN} = \frac{f_{22}}{A} < 0, \quad F_{LA} = f_{11}\left(\frac{-L}{A^2}\right) + f_{12}\left(\frac{-N}{A^2}\right) > 0, \quad F_{NA} = f_{21}\left(\frac{-L}{A^2}\right) + f_{22}\left(\frac{-N}{A^2}\right) > 0, \quad F_{LN} = \frac{f_{12}}{A} > 0$$

If all other factors are from market, for easy expressing, we set $PF=1$, take rent land as an example (lease will be the opposite symbol), the problem of farmer household is:

$$\max U(c, l) \quad (7)$$

Constraint condition:

$$c = F(L, A, N) - pN - rA + rE^A + wM = F(L, A, N) - pN - rA^h + wM \quad (8)$$

where, M is the most off-farm work time that the farmer want to get the wages.

As other factors markets are perfect, so:

$$f_2 - p = 0 \quad (9)$$

The first order condition of maximization efficiency:

$$U_{f_1} - U_l = 0 \quad (10)$$

Using implicit function group theorem to (9) and (10):

$$\frac{dL}{dA} = \frac{\frac{L}{A} \frac{U_c}{A^2} (f_{11}f_{22} - f_{12}^2) - U_{cc} \frac{X}{L} f_1 f_{22} + U_{lc} f_{22} \frac{X}{L}}{\frac{U_c}{A^2} (f_{11}f_{22} - f_{12}^2) + \frac{f_{22}}{A} Y} \quad (11)$$

where, $Y = U_{cc}f_1^2 - 2U_{lc}f_1 + U_{ll} < 0$. The influences of land scale have two conditions situation,

when E^d is different, where $X = f - \frac{L}{A}f_1 - \frac{N}{A}f_2 > 0$;

when A^h changes, as rent land of farmer is not reach desired quantity, $X = f - \frac{L}{A}f_1 - \frac{N}{A}f_2 - r > 0$ And $F_{LA} > 0$, $F_{NA} > 0$, we can get $f_{11}f_{22} - f_{12}^2 > 0$, so the two conditions have: $dL/dA < L/A$. Similarly, also:

$$\frac{dN}{dA} = \frac{N \frac{U_c}{A^2} (f_{11}f_{22} - f_{12}^2) + \frac{f_{22}}{A} Y + \frac{f_{12}}{N} X U_{cc} - \frac{f_{12}}{N} U_{lc} X + \frac{L}{NA} f_{12} Y}{\frac{U_c}{A^2} (f_{11}f_{22} - f_{12}^2) + \frac{f_{22}}{A} Y} < \frac{N}{A} \quad (12)$$

$$\frac{dL}{dM} = \frac{-\frac{f_{22}}{A} (U_{cc}Mf_1 - U_{lc}f_1 - U_{lc}w + U_{ll})}{\frac{U_c}{A^2} (f_{11}f_{22} - f_{12}^2) + \frac{f_{22}}{A} Y} < 0 \quad (13)$$

As function of utility has: $U_c > 0$, $U_{cc} < 0$, $U_{ll} < 0$, $U_{lc} > 0$, so:

$$\frac{dN}{dM} = \frac{\frac{f_{12}}{A} (U_{cc}Mf_1 - U_{lc}f_1 - U_{lc}w + U_{ll})}{\frac{U_c}{A^2} (f_{11}f_{22} - f_{12}^2) + \frac{f_{22}}{A} Y} < 0 \quad (14)$$

$$\frac{dL}{dw} = \frac{-\frac{f_{22}}{A} (U_{cc}Mf_1 - U_{lc}w)}{\frac{U_c}{A^2} (f_{11}f_{22} - f_{12}^2) + \frac{f_{22}}{A} Y} < 0 \quad (15)$$

$$\frac{dN}{dw} = \frac{\frac{f_{12}}{A} (U_{cc}Mf_1 - U_{lc}M)}{\frac{U_c}{A^2} (f_{11}f_{22} - f_{12}^2) + \frac{f_{22}}{A} Y} < 0 \quad (16)$$

Obviously, if farmer land is stable, companying with growing level of concurrent business, agricultural land productivity will reduce (land intensive degree reduces). Under the situation of all other conditions are stable, companying with growing level of concurrent business, land use efficiency will decrease.

2.4 Data Source

The research involves GanSu and QingHai provinces, located in the northwest plateau area in China. The two provinces are relative high altitude, full sunshine, strong solar radiation, big diurnal amplitude, rare rainfall and so on. Planting industry is relative outstanding in agricultural economics, and food crops are major in wheat, corn and potato. All data in this paper comes from random sampling investigation of food crops farmer in GanSu and QingHai suburbs in 2011, including DingXi and ZhangYe in GanSu and HuZhu and PingAn in QingHai, 8 administrative villages in 4 towns. This choice meets the requirement of theoretical assumptions: small sample regions can approximately consider input factors and technology are homogenous, one-year cross-sectional data can suppose returns to scale are constant and the main production crop prices are relatively stable in the two provinces.

200 samples were delivered during the investigation, and 177 effective farmer surveys were collected finally, and

the efficiency reaches to 88.5%. DingXi has 47 samples, numbers in ZhangYe, HuZhu, and PingAn are 48,43,39, individually. In these samples, specialized farmer are 17 households, and famer class I is 151 households, famer class II is 109 households (Figure 2). It can be found farmer from sample regions prefer to take jobs in cities as major resource of family income.

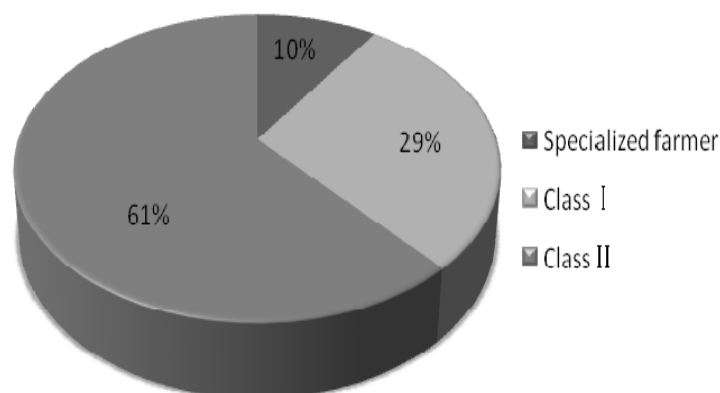


Figure 2. Structure of sample farm household

3. Empirical Test

3.1 Cultivated land Input Characteristic of Different Concurrent Business Farmer Household Types

Analyze cultivated land investing character of different household types from farmland scale, labor input, capital input and so on. Table 2 illustrates all investigation farmer character of average cultivated land input and output in sample region. Labor input per unit is the sum of farmer household own labor and hiring labor per unit area; Capital input includes famer household investment per unit of chemical fertilizer, seed, farm chemical, agricultural film, water rate and sum of agricultural expense of construction equipment. Compared with traditional way of including intermediate input of chemical fertilizer, seed, agricultural construction equipment and so on into production equation, this processing method alleviates perplex of multicollinearity, and it is more suitable for the principle of the economic (Li Gucheng, 2008); The rate of labor and capital per unit reflects basic substitute relation between labor input and capital input among different types concurrent business household's input configuration in cultivated land, the smaller the value is the stronger substitutability for labor per unit is, vice versa; Total output value means the product of purchase price in current year and output of major food crops (including corn, wheat and potato).

Table 2. Cultivated land input-output characteristic of sample farmer household

Farmer type	Area input average cultivated land (mu)	Labor input per unit (labor/mu)	Capital input per unit (yuan/mu)	Labor/ Capital per unit	Output per unit (yuan/mu)
Class II	12.32	15.19	533.37	0.03	1022.25
Class I	9.90	15.51	446.57	0.03	1134.60
Specialized farmer	19.76	13.85	270.24	0.05	1128.01
Total sample	12.34	15.16	483.08	0.03	1064.78

From the table above, it can be found that for specialized farmer whose income is simple, agricultural production is an important part of making a live, in order to increase income, they usually adopt traditional utility methods, such as expanding planting area, intensifying cultivation, intercropping and interplanting and so on to reduce cost and increase land yield. Besides, scarcity of capital is ubiquity, they adopt labor intensive input to instead of

capital intensive input, for example, using organic fertilizer to substitute chemical fertilizer.

Compared with specialized farmer, Class II of part-time farmer have relative higher rate income from non-agricultural production, they can easily pay no attention to agricultural production, which can be found in land management and strength. The distinct manifestation is reducing own labor, and increasing hiring labor. If hiring labor are converted to capital input, it is obviously to see that labor input decrease and capital input grow. Furthermore, they use more equipments and new technology to make up for the deficiency of own energy and management. Also, some farmers use extensive management, but as their income are higher, they prefer to put part of non-agricultural income into agriculture to heighten agricultural income, including supply relatively better quality and higher price chemical fertilizer, seed, farm chemical agricultural film and other means of production, to make up for the deficiency of labor time and management.

Income of Class I is between specialized farmer and Class II, but compared with the two groups, they put the lowest land and greatest input for agricultural production, capital input and total output value are between the two. That is to say that Class I is more closer to Class II in mode of agricultural production, whose land is only slightly less than the chief industry of household II.

3.2 Selection of Evaluation Index

For grain plant, input index can use labor, capital, land input quantity to characterize. Among them, labor input can use own and hiring labor to represent, including plough, sow, spray insecticides, harvest and other labor cost used in field management; land input can use farmer land owned by farmer to represent; capital input can use the expense of directly and indirectly spent on land by farmer, including chemical fertilizer, seed, farm chemical, agricultural film, water rate, agricultural expense of construction equipment and other expense. Output index uses land gross product to represent (Table 3).

Table 3. Cultivated land utility input-output index

Index type	Output index		Input index	
	Y	X1	X2	X3
Index name	Farmer agricultural output	Labor input	Land input	capital
unit	yuan	gong	mu	yuan

Note: a gong= one person 8 hours per day

3.3 Result Analysis

The software of DEAP2.1 is used to process data, and calculate comprehensive technology efficiency, pure technology efficiency and scale efficiency of different types of households, after that, calculated comprehensive efficiency is classified and summed to get all types households average land use efficiency (Table 4). Average land use efficiency of surveyed farmer households is 0.713, observing from its constitution, specialized technology efficiency is 0.857, scale efficiency is 0.843. From the table, we can get specialized farmer has the highest technology efficiency, Class I takes the second place, and Class II is the lowest group, demonstrating with the rise in the level of concurrent business, cultivated land use efficiency shows a reducing tendency.

Table 4. Different types farmer household average cultivated land use efficiency

Household Type	Technology Efficiency(TE)	Pure Technology Efficiency(PTE)	Scale Efficiency(SE)
Class II	0.652	0.779	0.850
Class I	0.728	0.849	0.867
Specialized Farmer	0.760	0.944	0.811
Average	0.713	0.857	0.843

Table 5. Different types farmer household cultivated land use efficiency distribution

Household Type	0.5~0.6		0.6~0.7		0.7~0.8		0.8~0.9		0.9	
	sample	Proportions	sample	Proportions	sample	Proportions	sample	Proportions	sample	Proportion
Class II	20	18.3	65	59.6	18	16.5	4	3.7	2	1.8
Class I	4	7.8	12	23.5	30	58.8	3	5.9	2	3.9
Specialized Farmer	0	0	5	29.4	7	41.2	3	17.6	2	11.8

In order to acquire further understanding of internal structure of different types household land use efficiency, the distribution of land use efficiency is made a statistical analysis (Table 5). If taking 0.7 and 0.8 as cut-off point, the figure of efficiency is more than 0.8 taking as high efficiency, and less than 0.7 means low efficiency. So, 29.4% of specialized farmer household are high efficiency, 29.4% of them stay at low efficiency, and the efficiency of left 41.2% is between 0.7 and 0.8; Among Class II of concurrent business farmer households, 9.8% are high efficiency, 31.4% are low efficiency, and 58.8% are in the middle; As for Class I, only 5.5% is high efficiency, 16.5% place in the middle, but low efficiency farmers account for 78%. Furthermore, observing from the stage of returns to scale, 11.8% of specialized farmer household are in the stage of increasing returns to scale, farmer household in decreasing stage make up 76.5%; the number of increasing stage of Class I is 41.2%, and 54.9% of them are in decreasing situation; as for Class II, the percent of farmer in increasing returns to scale is 40.4, the number of decreasing stage is 56.9%. It illustrates that the majority of farmer household is in the stage of decreasing returns to scale, as produce scale is generally bigger.

4. Conclusion and Discussion

Based on the farmer household model, this paper discussed the influence of farmer concurrent business on land use efficiency under the two conditions, The results shows that: for farmer household who meet the promise of established separability, land use efficiency may be increased if they take concurrent business, but, at least, it will keep stable. For farmers who do not meet the promise, from the view of unit output, with concurrent business level increasing, it shows first increase and then decrease. But from the view of land use efficiency, under the situation of land scale is relative small and stable, companying with increasing level of concurrent business, land use efficiency will be decreased. And the empirical conclusion demonstrates specialized agricultural production is helpful to enhance the produce efficiency. Further study showed that, with the increasing level of concurrent business, the improvement of the land market, labor market and land scale management have great significance for improving the efficiency of cultivated land use. In addition, concurrent business can promote family total utility. Whether farmer household can reach the position of non-agricultural business, or move back from part-time to full-time business depends on family decision.

References

- A·Chayanov. (1996). *Farmer economic organization*. Beijing: China Compilation and Translation Press.
- Becker. (1998). *Treatise on the Family*. Beijing: The Commercial Press.
- Cai, J. (2005). An answer on the controversial of the agricultural land size and the of concurrent business degree to land output rate - based on the Household Model. *Quantitative & Technical Economics*, 3, 28-37.
- Farrell, M. J. (1957). The Measurement of Productive Efficiency. *Journal of the Royal Statistical Society*, 120, 125-281.
- Gao, Q., & Zhao, Z. (2000). Eight Characteristics of China's Farmers' Diversified. *The World of Survey and Research*, 4, 29-31.
- Li, G., Feng, Z., & Zhan, S. (2008). An Empirical Analysis about the Effect of Household Endowments on the Technical Efficiency of Farmer's Household Management-Evidence from the Farmers of Hubei Province. *Statistical Research*, 1, 35-42.
- Liang, L., Qu, F., Zhu, P., & Ma, K. (2008). Analysis of Land Use Behavior and Efficiency of Different Farm Household Types. *Resources Science*, 25(1), 1525-1532.
- Yao, Y. (2004). *Land, institutional and agricultural development*. Beijing: Peking University Press.