Pattern of income and spending, Household Rice Farmers in Ubon Ratchathani Province, Thailand

Supawadee Khunthongjan

Faculty of Business Administration and Management,
Ubon Ratchathani Rajabhat University,
Ubon Ratchathani, Thailand.
Corresponding Author: supawadee.khunthongjan@gmail.com

Abstracle

Rice is one of the main foods and sources of nutrition for Thai citizens and much of the world's population. As globalization influences economics and household rice farmers, this research aims to (1) compare self-adjustment for production processes and for living between rice farmers whose income is less than or equal to the average and the ones whose income is greater than or equal to the average, (2) compare self-adaptation to reduce expenses between farmers whose income is less than or equal to the average and the ones whose income is greater than or equal to the average, and (3) study effective factors on spending pattern of household rice farmers for making a living. The sample size was determined using the method of Krejcie and Morgan with simple random sampling. The study was conducted for one year and looked at a population of 384 of rice farmers. The research tool was questionnaires. Collected data was analyzed using frequency, percentage of income and expense, and a t-test. The comparative results of effective factors to change the spending pattern of household rice farmers for making a living were analyzed using the Tobit model. The findings were that (1) self-adjustment of farmers by cultivating industrial crops showed a statistical significance of 0.05. Farmers whose income is greater or equal to the average were better self-adjusted than those whose income is less than or equal to the average. Self-adaptation for making a living with supporting money

from a descendant was 0.01 of statistical significance, (2) self-adaptation for reducing expense by looking for food from natural resources had a statistical significance of 0.01 with farmers whose income is less than or equal to the average better self-adjusted than the ones whose income are greater than or equal to the average, and (3) effective factors on spending patterns of household rice farmers were dependent on the gender of the household head. That is, if the household head is a man, its income and spending pattern will be reduced. When household rice farmers can make more money, their income and spending pattern will be less with statistical significance 0.05.

Keywords: Rice farmers; Source of income; Income and spending pattern of household; Factors on income and spending pattern of household

Introduction

Known as a primary producer, agriculture in Thailand is important to national security and economic well-being. Over one third of the overall area of Thailand is dedicated to rice farming for the purpose of domestic consumption and international export. The latter is for the country's income. It is also regarded as the largest labor market. In 2013, the agriculture sector employed 42.10% of the working population (Office of Agricultural Economics, 2012). The country's economy and production effectiveness are on the rise because of the rising diversity and demand for agro-products and food by Thais and people throughout the world. As such, rice farmers are important in the production of rice as the main food for Thai people and for world citizens.

The country's northeastern most province, Ubon Ratchathani is one of 76 provinces in Thailand covering an area of 16,112 sq. km. It is subdivided into 25 administrative areas. It borders the Lao PDR. The Mun river is an aorta for farmers, acting as an important source of water for irrigation in the agricultural sector. The total population is 1,813,088 or 3.70 persons per household (Ubon Ratchathani Statistic Office, 2010). The annual income per household is 59,965 Baht. 68% of the total working population works in the agricultural sector, particularly growing wet season rice as an economic crop over much of the city which covers a large area of 4,116,728 rai. In addition to growing wet season rice, farmers also plant some vegetables to supplement their ordinary income. Though the province's strength as a main source of rice cultivation in the region should be supported continuously, its weaknesses that need to be addressed include the farmers' abilities in marketing management, the shortage of opportunities to find supplemental work, the shortage of opportunities to find more capital, and their indebtedness from rice cultivation and from making a living (Department of Rice, 2012).

To survive, rice farmers in Ubon Ratchathani province have to battle poverty and consider some adjustments in the face of globalization, namely (1) the creation of diversity in agro-products, (2) the selection of plant varieties in accordance with their local environment, marketing

trends, and technology development, (3) the reduction of market risk, and (4) the shifting the of farming season, to preserve humidity and fertility in soil, and allow for diversification of products. Though rice farmers are trying hard to follow the steps mentioned above, the problems still occur as shown by Pipat Yodprudtikan (2013) who reported that what caused the grass-roots level unbalanced economy involved an improper balance between consumption and production, and income and spending resulting in indebtedness.

Indebtedness of rice farmers in Ubon Ratchathani involves both inside factors and outside factors some of which are uncontrollable. The uncontrollable factors include the rising cost of living and rising production costs. Rising production costs combined with declining product prices result in a reduction in the rice farmer's quality of life. Doing additional side work is a preferable option but wages are limited by their level of compulsory education. Strengthening the agricultural sector at all levels including production, production management, income-expense management, and sufficiency-based living support for self-dependence is important to solve the problem because those factors are at least able to help decrease some risks, particularly controllable ones resulting from household adaptation and self-adaptation – doing additional side work and decreasing wasted expenses. To have good a income and spending pattern is also important in the reduction of production costs, rising surplus, and security in life.

Problems of rice farmers are likely to be problem of people throughout the country because rice consumers all rely on them; without farmers without rice as for making living for Thai people and world citizen. All concerned people, particularly government sector, should pay intense consideration on how to solve those problems permanently by releasing policy and supportive production mechanism. When private business sector gains benefit from rice deal some profits should be shared to develop production skill for rice farmer. The academic officer at the education institute can also help rice farmers by distributing training course or any technical services and importantly rice farmer itself should

lead their life carefully and independently.

As aforementioned, an interesting aspect to be studied further is that life with well-being comes from a well-managed income and spending pattern without the pressures of economic change. Development of self-reliance at an individual level, and the strengthening and improving the farmer's quality of life empowers them to be able to do their jobs as citizens in a country that is developing in both agricultural and industrial sectors. If farmers live healthy, rich lives secure in the necessities of life, they can provide a permanent mechanism for food security to preserve themselves and also their occupation as the kitchen and backbone of the nation.

Objectives

1. To compare self-adjustment of production processes and living between rice farmers whose income is less than or equal to the average and those whose income is greater than or equal to the average

2. To compare self-adaptation to reduce expenses of farmers whose income is less than or equal to the average and those whose income is greater than or equal to the average

3. To study effective factors on the spending pattern of household rice farmers in Ubon Ratchathani to make a living

Scope of the Study

The scope of the study is to look at rice farmers in 25 districts in Ubon Ratchathani that can be representative of rice farmers throughout Thailand because of the similarity in the way of life, production processes, production factors, living factors, and the rice pledging scheme of the government by looking at expenditures of rice farmers in each household that involve cash. Cash payments include labor costs, materials, fertilizers, chemical insecticides, transportation fees, and fuel. Non-agriculture payments include electricity, water, and telephone. In addition, it includes the payment for food infrastructure, schooling, medical treatment, and clothes. The period of the study was from September 2013 to August 2014

for a total of 12 months.

Research Questions

1. What are the self-adjustments in the production process and in living style between rice farmers whose income is less than or equal to the average and the ones whose income is greater than or equal to the average?

2. What self-adaptations can reduce expenses between farmers whose income is less than or equal to the average and the ones whose income is greater than or equal to the average?

3. What are influential factors on income and spending patterns of household rice farmers to balance economics?

Literature Review

General Information of Ubon Ratchathani

The country's easternmost city, Ubon Ratchathani is one of 77 provinces in Thailand covering an area of 16,112 sq. km. It is about 600 km away from Bangkok. The province is subdivided into the 25 studied districts as follows: Mueang Ubon Ratchathani, Warin Chamrap, Det Udom, Phiboon Mangsahan, Khemarat, Khueangnai, Trakan Phuet Phon, Muang Sam Sip, Nam Yuen, Buntharik, Si Mueang Mai, Khong Chiam, Kut Khaopun, Na Chaluai, Tan Sum, Pho Sai, Samrong, Sirindhorn, Dong Mod Dang, Thung Si Udom, Na Year, Natan, Lao Suea Kok, Sawang Weerawong, and Nam Khun. Regarding demographic statistics in 2010, overall household rice farmer is 228,866 (or 50.02% of all households in the province) which can be calculated that 966,811 of them working in agricultural sector (54.13% of all population); 488,337 are regarded as men and other 508,474 are women. Growing wet season rice is known as the economic plant of the city using a large area of 4,116,728 rai. The annual income per household head is 59,965 Baht. Important expenditures for agricultural sector of people living in rural area are as follows:

1) Production cost includes seeds and animal breed, chemical substance e.g. fertilizer, pesticide etc., labor, general rental cost, machinery rent, and gas etc.

2) Consumer products include food, clothing, dwelling, medical treatment fee, medicine, education, transportation fee, electricity and water bill, communication, personal expenditures, entertainment cost, gambling, cigarette, liquor, and miscellaneous (Ubon Ratchathani Provincial Agricultural Extension Office, 2013). To develop economy, people working in agricultural sector all really need to get developed too because the ratio of farmers to people working in industrial sector is quite a lot.

Overall rice cultivating in 2009 of Ubon Ratchathani is as follows: cultivated area 4,108, 833 rai, crops damaged 69, 274 rai, crops harvested 4,039,599 rai, total production 1,656,349 tons, production cost 19,834 million baht. Those are subdivided, namely, rice 2,634,193 rai, average production 405 kg per Rai, total production 589,865 tons per rai, production cost 16,000 million baht, sticky rice 1,474,640 rai, average production 400 kg per rai, total production 589,865 tons per rai, production cost 3,834 million baht. Cost of rice cultivation in 2009/ 2010 is as follows: total cost per rai 2,761 baht per rai, cost per kilogram 6.11 baht, and average production 403 kg per rai (Ubon Ratchathani Provincial Agricultural Extension Office, 2013)

As mentioned, it indicates that rice farmers likely to confront with some risks from production process; more investment in production process and some damages of nature-based production. Related to the living, there is some uncontrollable expense of consumption goods resulting unbalance

The Effect of Economy in Globalization

Though Thailand is capable of producing an adequate amount of agro-products with a surplus for export, it affects the farmer's wellbeing and quality of life due to the difference in production factors and the cost of living. Farmers remain in an unstable situation and lack the liberty to make a regular living because of educational limitations. To strengthen the whole agriculture system, farmers themselves need to improve the production process, production management, income and spending management, and consider a sufficiency-based livelihood so that they will

be able to stand on their own. If they are not able to rely on themselves, they will never escape the poverty cycle. In addition to adjusting their way of working in order to survive globalization trends, farmers consider need to work harder and look for natural food. Finally, the farmer's income can provide a surplus that can help improve their quality of life.

To exist, farmers have to battle with poverty and do some sufficiency economy-based adjustments to consider in the face of globalization, namely (1) creation of diversity in production process and agro-products, particularly the change from plant monoculture or animal monoculture to crop rotation as the research conducted by Bureau of Agricultural Economic Research or OAE (2013: ABSTRACT). It studied career path structure and self-adaptation of farmers living in the repetitive flooded area in the southern part of the north. The study was supportive to diversity of product that 70% of people working on only a single job as rice farmers could not of course earn enough money for family, though the government has regularly launched the policy supporting farmers, particularly pledged rice scheme payments. On the contrary, they will not either be suffered from shortage of income or the damage of natural disaster, plant pest, drought, and flood damage if they wisely take a consideration of cultivating field crop, horticulture, home vegetable garden, flowering plant, ornamental plants, and feeding animal; (2) selection of some plant varieties in accordance with their local environment, marketing trends, and technology development in order to reduce production cost and save time of farmers (3) reduction of market risk by studying marker demand, and rather emphasizing quality of product than quantity of product (4) shifting the time of farming, preserving humidity and fertility in soil, and producing varieties of products.

To exist in globalization, briefly, rice farmers should adjust some methods of agricultural-based activities to match the natural context and reduce risk in order that when one is damaged by natural phenomena some other productions could be substituted.

Life Based on Sufficiency Economy

Life based on the sufficiency economy philosophy is getting popular among people throughout Thailand in both industrial and agricultural sectors. Pipat Yodprudtikan (2007) states that it is particularly important to the survival of latter group to balance farmers' livelihood while producing an intensive crop. Farming based on the philosophy of sufficiency economy should begin with consideration of production factors, namely land, labor, material, and costs. First, land should be owned mortgage free; it is unnecessary to incur extra rental costs. Next, production resources should be locally sourced in order to decrease transportation costs. All production costs are important in considering sufficiency. To be in debt for unnecessary factors is an avoidable behavior. Last, the philosophy of sufficiency economy emphasizes that labor is important and should include a collaboration among people and include the personal practices of being harmless to self, animals and the environment under all conditions. This can provide the strength to build a reasonable immune system against shocks from the outside or from the inside. For example farmers can do freelance work and they also have an opportunity to work off shore and in the foreign-outsourcing service sector while they continue to maintain their rice farms which eases of some risks.

Chaiyarat Pranee et.al. (2007) conducted a study on "HM the King's Sufficiency Approach for Sustainable Poverty Solving." Regarding the basic minimum needs, the study aims to relieve farmers whose household income is substandard from the poverty by conducting the directions as follows:

1. inspire the needy household to end indebtedness cycle by leading sufficiency economy-based life
2. cultivate rice adequately as required by household consumption
3. cultivate home-grown vegetable or raise animal for household consumption
4. use manure or home-made organic fertilizer
5. make food preservation

6. cultivate herb for basic need

7. do additional side work

8. save money with the cooperatives or the bank

9. do joint plantation

10. share experience about agricultural production with other community people

Nakhon Yimsiriwatthana (1998) conducted a study on "An analysis of farm households consumption behavior in central region of Thailand". The purpose of the study was to investigate the consumption income expenditure and saving of farm household in central region of Thailand and the relations among the consumption and factors. The data collected from 11,587 farm household in the central region of Thailand in 1992. The result of this research reveals that the farm households size are 4 persons per household and 2 labor forces per household. The most of farm leaders are male. The most of education level of farm household leader are compulsory level. The age of farm household leader is between 40-49 years old. The on-farm cash income was 71,464.36 baht per household. The on-farm cash expenditure was 59,915 baht per household. The net income was 10,712.43 baht per household. The consumption was 55,508.47 baht per household. Off-farm investment was 15,025.67 baht per household. Farm household's saving was 11,034.33 baht per household. Influential factors toward consumption behavior were cash income, cash income from assets, farm household leader's age, the number of farm household, liabilities at initial stage, and liabilities during the year. The consumption and saving was related oppositely. Some interesting points of Nakhon Yimsiriwatthana's study that identified the consumption are age of household head, number of household members, and household indebtedness which is similar to the variables of author's study that the results of it will be to compare that how those factors different or similar.

Through literature review, people living in Ubon Ratchathani work in agricultural sector, but many are still confronting difficulty and in living and in production process. The rising ratio of debt to income is found. So, they rely on almost all kinds of government supportive proj-

ect, particularly financial aid. Depending on conditions and context, there are 2 of self-adjustment to sustain the living of rice farmer – increasing additional income and decreasing unnecessary expenses. Those will be done differently and individually. To have income and spending pattern will be beneficial to reduction of production cost. Leading sufficiency-based life to sustain income is appropriate to social context in Thailand that focuses on individual self-reliance. This is supportive to national policy on the aspect of strengthening capacity of farmers

Methodology

This research was conducted quantitative type to obtain statistical information that can be checked on the validity of the findings. Open-end questionnaire was employed for additional discussion

Population and Sample Group

Population was 198,187 households of wet-season rice farmers and off-season rice farmer in Ubon Ratchathani who registered with Ubon Ratchathani Provincial Agricultural Extension Office (Ubon Ratchathani Provincial Agricultural Extension Office, 2013).

Sample size was 384 rice farmers in Ubon Ratchathani determined by simple random sampling and the calculation of Krejcie and Morgan (1970) with error .05.

Research tools

The tool employed in this study was questionnaire that was consistent with objective and concept of this research. It was categorized into four aspects as follows:

Part 1 General information of farmers

Part 2 Economic and social context, and source of income

Part 3 Expenses and indebtedness of household farmer

Part 4 Open-end questionnaire for additional discussion

Data Collection

384 sets of questionnaire were employed to collect primary data from the sample group in 25 districts in Ubon Ratchathani.

Data Analysis and Statistics

1) Percentage was used to analyze general data of rice farmers.

2) An average income of household rice farmer was calculated total annual income and number of household rice farmer.

3) The expense of household rice farmer was calculated from total annual expense and number of household rice farmer.

4) T-test was used for comparing the difference of self-adjustment for adding extra income between rice farmers whose income is less than or equal to the average and those whose income is greater than or equal to the average

5) To consider the Tobit model for finding influential factors on income and spending pattern of household rice farmer is suitable for metric variables, but it is sometimes discrete and that probably comes from the invisibleness. So, the dependent variable will be zero. This model is similar to the Tobit model (Wiboonpongse, 2006) as follows:

$y^i = X_i' \beta + u^i$
$y^i = y^* 0$ if $y^*_i > 0$
$y^i = 0$ if $y^* \leq 0$

The coefficient of maximum likelihood estimator (MLE) to find the β coefficient and σ^2 variables indicated in this Tobit model are:

$y^{*i} = \beta_0 + \beta_1$ (Gender) $+ \beta_2$ (Age) $+ \beta_3$ (Member)$+ \beta_4$ (Education) $+ \beta_5$(Aggregation)$+\beta_6$ (Household account) $+ \beta_7$ (Income) $+ \beta_8$ (Saving)$+ \beta_9$ (Debt)

y^*_i refers to latent variable or proportion between household expense and total household income
$y_i = 0$ if $y^{*i} \leq 0$ is without spending pattern
$y_i = 0$ if $y^*_i > 0$ is with spending pattern
β_1 is the Tobit model coefficient
u^i is the error

(1) y_i refers to household spending pattern

β_0 refers to the constant

$\beta_1, \beta_2 \ldots \beta_i$ refers to variables coefficient

GENDER refers to the gender of the household lead rice farmer
= 1 male
= 0 female

AGE refers to the age of household lead rice farmer (years)

MEMBERS refers to number of household members (people)

EDUCATION refers to the education background of household rice farmers (years)

AGGREGATION refers to a cluster of household members
= 1 cluster
= 0 no cluster

HOUSEHOLD ACCOUNT refers to managing household account
= 1 do household accounting
= 0 no household accounting

INCOME refers to total household income (Baht)

SAVING refers to household savings
= 1 possess saving
= 0 no savings money

DEBT refers to household debt (Baht)

GENDER refers to a dummy variable as gender of household lead rice farmer.

It is defined the gender as a positive influential factor on income and spending pattern of household rice farmers. Either social activities or religious ceremonies are favorable for men. A dummy variable represents as a numerical value as follows:

Male is arbitrarily assigned the value of 1

Female is arbitrarily assigned the value of 0

AGE refers to leader of household rice farmer's age (years). Here, AGE is defined as a positive influential factor on income and spending pattern of household rice farmer. This means the older the leader of household rice farmers is, the higher the income and spending pattern of household rice farmers will be.

MEMBER refers to the number of members in the rice farmer's household (people). It is defined as a negative influential factor on income and spending pattern of household rice farmers. It means the number of family members with influence on the income and spending pattern of household rice farmers.

EDUCATION refers to educational background of the household rice farmer's leader (years). It is defined as a positive influential factor on income and spending of household rice farmers. High education background will have an influence on income and the spending pattern of household rice farmers.

AGGREGATION refers to dummy variables as a cluster of household members. It is defined as a positive influential factor on the income and the spending pattern of household rice farmers. If there is a cluster of household members, it will influence the income and spending pattern of household rice farmers. The dummy variable is represented as a numerical value as follows:

= 1 household cluster

= 0 non household cluster

HOUSEHOLD ACCOUNT refers to dummy variables as household account. It is defined as a positive influential factor on income and spending pattern of household rice farmers. That is, doing household accounts will influence the income and spending pattern of household rice farmers. A dummy variable is represented as a numerical value as follows:

= 1 do household account

= 0 not do household account

INCOME refers to a total household income (10,000 THB per month). This is defined as a negative influential factor on income and spending pattern of household rice farmers. That is, the household rice

farmers with income over 10,000 THB per month will influence the income and spending pattern of the household.

SAVING refers to dummy variables with reference to money saving of household rice farmers. It is defined as a positive influential factor on income and spending pattern of household rice farmers. That is, if there is more money saved in the household, this will influence the income and spending pattern. The dummy variable is represented as a numerical value as follows:

= 1 household rice farmers have saving money

= 0 household rice farmers do not have saving money

DEBT refers to a household debt (Baht). Debt is defined as a positive influence factor on the income and spending pattern of household rice farmers. That is, more household debt will influence the income and spending pattern of the household.

Results

Background of Rice Farmers in Ubon Ratchathani

Most of the rice farmers in Ubon Ratchathani are women (60.94%) who have graduated from primary school (71.40%) with an average age of 48.60 years. The age of farmers seem to be rising as farmers' descendents who study further, leave the agricultural sector because it's regarded as a low-pay job requires hard work with no good welfare. There are approximately four people in a family. Two of them do rice farming, another one is studying at school, and the last has left for another job. See Table 1.

Table 1: Background of rice farmers in Ubon Ratchathani

Characteristics	No. of people	%
1. Gender		
1.1 male	143	39.06
1.2 female	234	60.94
total	384	100.00
2. Age		
2.1 ≤ 50	220	57.29
2.2 ≥ 51	164	42.71
total	384	100.00
3. Education background		
3.1 non-educated	18	4.60
3.2 primary school	274	71.40
3.3 junior secondary school	35	9.10
3.4 senior secondary school	46	12.00
3.5 equal to or higher than diploma	11	2.90
total	384	100.00
4. number of member in family		
4.1 ≤ 3 people	81	21.09
4.2 4 – 5 people	214	55.73
4.3 more than 5 people	89	23.18
Total	384	100.00

Sources of Income for Rice Farmers' Families in Ubon Ratchathani

Categorized by type, income on average per year of rice farmer is from main occupation 85,503.51 Baht and from extra side work 44,819.57 Baht. When those categorized by it source, it is revealed that the main income comes from rice farming (68,702.39 Baht), followed by doing additional work 61,629.69 Baht).

Great Expenditure for Production Process and Living

as follows: fertilizer and chemical 10,325.29 baht, labor employment 10,094.95 baht, agriculture tools 6,871.60 baht, and misc. 9,813.16 baht. Fertilizer was the highest expense in the production process since it is believed that fertilizer will make the land more productive. This is consistent with some farmers that decided to borrow money to make their production higher resulting in a high rate of expenditure. This information is in linewith the study of the Office of Agricultural Economics (2006) that 49% of total investment cost is in the form of fertilizer.

Annual non-agricultural expenditures of rice farmers were for food and drinks (27,772.16 baht), children's tuition fees (20,019.71 baht), infrastructure (6,879.73 baht), cigarettes, liquor, and gambling (7,574.93 baht), and clothes and medical care (5,326.67 baht). Paying for food and drinks is regarded as a simple matter in the present situation. An interesting issue is that tuition fee was reported second after food and drinks. This leads to the assumption that farmers are aware of the importance of their children studying further in order that after graduation they will be able to come back to support them in the future.

Comparison of Self-Adjustment for Additional Income between Farmers Whose Income Is Less Than or Equal to the Average and the Ones Whose Income Is Greater Than or Equal to The Average

If farmers have no idea of how to do self-adjustment when their family expenditures are rising, they will definitely face difficulty in living. Self-adjustment between the two groups of rice farmers was at a critical level of 0.05 where the ones whose income is greater than or equal to the average were better self-adjusted that the ones whose income is less than or equal to the average. The living allowance from family was at critical level 0.01 revealing that farmers whose income were less than or equal to the average were better self-adjusted than the ones whose income are greater than or equal to the average. Lastly, there was no statistical difference among these following activities: joint plantation, additional livestock farming, value-added production, selling crops obtained from

nature, and obtaining government subsidies as in Table 2.

Farmers whose incomes were greater than or equal to the average were better self-adjusted in cash crop plantation than the other group because they have more investment funds to flow into the production system. On the other hand, farmers whose incomes were less than or equal to the average were better self-adjusted in receiving living allowance from relatives because some of their investment fund paid for children's tuition fees and those were expected to give the money back when working after graduation. So, the combination between money from family and money from selling products can be additional income to maintain the living.

Table 2: Comparison of self-adjustment for additional income between farmers whose income is less than or equal to the average and the ones whose income is greater than or equal to the average

Farmer self-adjustment	Household income ≤ average		Household income > average		t	Sig.
	$\overline{X}$	S.D.	$\overline{X}$	S.D.		
Joint plantation	3.115-	1.253	3.027	1.199	.609	.543
Additional livestock farming	2.708	1.180	2.706	1.173	.012	.991
Cash crop plantation	2.973	1.215	3.269	1.287	-1.962	.050*
Value-added product	2.801	1.052	2.913	1.080	-.868	.386
Selling crop or product from nature	2.450	1.145	2.528	1.072	-.572	.568
Living allowance from family	2.520	1.367	2.029	1.014	3.172	.002**
Government subsidy	2.435	1.314	2.218	1.154	1.377	.170
Total	2.824	0.906	2.763	0.746	0.638	0.524

Notes: average annual household income =130,350.08 baht

* Statistically significant at the 0.05 level
** Statistically significant at the 0.01 level

Comparison of Self-Adjustment for Payment Reduction between Farmers Whose Income Are Greater Than or Equal to the Average and the Ones Whose Income Are Less Than or Equal the Average

If farmers have no idea of how to do self-adjustment when their family expenditures rise, they will definitely face difficulty in living. Self-adjustment to reduce expenditures between these two groups of farmers revealed at a critical level of 0.01 that the ones whose income are less than or equal to the average were better self-adjusted in looking for food from nature as in Table 3.

The reason why they did better self-adjustment in looking for food from nature was because they have better, closer access to larger areas of land with abundant natural products resulting in more opportunity to have more food from nature that directly helps decrease expenditure.

Table 3: Comparison of self-adjustment in payment reduction between farmers whose income are less than or equal to the average and the ones whose income are greater than or equal to the average

Self-adjustment for payment reduction	expenditure ≤ average		expenditure > average		t	Sig.
	$\overline{X}$	S.D.	$\overline{X}$	S.D.		
1. Cut off unnecessary expenses	3.00	1.09	3.13	1.020	-0.73	0.46
2. Be economical	3.08	1.06	3.21	0.923	-0.76	0.62
3. Do additional side-work	3.28	1.09	3.20	0.881	0.51	0.25
4. Home-grown vegetable	3.42	1.04	3.21	1.126	1.12	0.263

Self-adjustment for payment reduction	expenditure ≤ average		expenditure > average		t	Sig.
	$\overline{X}$	S.D.	$\overline{X}$	S.D.		
6. Use household labor to reduce employment cost	3.59	1.19	3.48	0.99	0.59	0.55
7. Home-made fertilizer	1.93	0.97	1.72	1.01	1.13	0.26
Total	3.24	0.73	3.04	0.62	1.73	0.08

Notes average of annual expenditure 104,678.23 baht

** Statistically significant at the 0.01 level

Effective Factors toward Pattern of Income and Spending of Household Rice Farmers

Total household income comes from the combination of money from the main occupation and some from extra activities to eke out a living. The total household spending comes from the combination of money spent in the agricultural sector (growing rice + livestock + crop of vegetables) and money spent in the non-agricultural sector. Regarding the Tobit model, some influential factors on the spending and the total household income with statistical significance consist of the dummy variable of household head with the critical level 0.05 and the total income of household rice farmer with the critical level 0.001. That is, the household having a male as its head tends to spend less than the one having a female as its head. Additionally, it revealed that the more household rice farmers earn the less the spending they have.

Regarding the econometrics, having the variables of income, saving, and debt together probably causes multicollinearity. To avoid this, the correlations among those variables were examined and found its result at less than 0.5 which could be reliable as Table 4.

Table 4: Tobit Model Estimation

Variables	The coefficients	Marginal effects
Numerical value of constant	1.044	0.775
	(1.000)	(0.744)
Dummy variable (Male=1) (GEN)	-0.366*	-0.272*
	(0.189)	(0.140)
Age (years) (AGE)	0.005	0.004
	(0.008)	(0.006)
Household member (persons) (MEM)	0.020	0.015
	(0.053)	(0.040)
Education of household head (years) (EDU)	0.019	0.014
	(0.115)	(0.085)
Dummy variables; household cluster (AGG)	0.535	0.397
	(0.810)	(0.601)
Dummy variables; household account (ACC)	-0.002	-0.001
	(0.238)	(0.177)
Total household income (Baht) (INCOME)	-0.0000049***	-0.0000036***
	(0.000)	(0.000)
Dummy variable; household saving (SAV)	-0.174	-0.129
	(0.159)	(0.118)
Household dent (Baht) (DEBT)	0.00000039	0.00000029
	(0.000)	(0.000)
Sigma	1.791***	-
	(0.065)	
Log likelihood	-768.607	

* Statistically significant at the 0.05 level

** Statistically significant at the 0.001 level

Summary and Discussions

1. Rice farmers in Ubon Ratchathani were mostly found to be women under 50 years of age who finished primary school, junior secondary school, and diploma, respectively.

2. Annual incomes of household rice farmer were firstly from main work and additional side-work. If categorized by its source, it was found that the main work was rice cultivation, working outside the agricultural sector, and from relatives.

3. The largest expense for household rice farmers is in the agricultural sector: fertilizer and chemicals, and labor expenses.

4. Self-adjustment between the two groups of rice farmers was at a critical level 0.05 where the ones whose income is greater than or equal to the average were better self-adjusted than the ones whose income is less than or equal to the average. The living allowance from relatives was at critical level 0.01 revealing that farmers whose incomes were less than or equal to the average were better self-adjusted than the ones whose income are greater than or equal to the average. Last there was no statistical difference among these following activities: joint plantation, additional livestock farming, value-added production, selling crops gained from nature, and obtaining government subsidy.

5. Self-adjustment to reduce expenses between these two groups of farmers revealed at critical level 0.01 which the ones whose income are less than or equal to the average were better self-adjusted in looking for food from nature.

6. The household having a male as its head tends to spend less than the one having a female as its head. Additionally, it revealed that the more household rice farmers earn the less the spending they have.

Recommendations

1. Self-adjustment between the two groups of farmers that revealed the statistical significance was the cultivation of cash crops. To adapt this kind of activity rice farmers have to allocate cultivation area properly together with keeping up with the crop cultivation. Receiving

some living allowance from family was an alternative to make the living but the ones without the family support were able to make a living by doing joint plantation and livestock farming.

2. Self-adjustment between the two groups of farmers that revealed the statistical significance was looking for food from nature. To achieve this, rice farmers should dwell close or near to forests and natural water but at present the source of food from nature is decreasing. So, some options for household rice farmers to save the money were to cut off unnecessary payment and to cultivate home vegetables.

Recommendation on policy

Effective factors toward pattern of income and spending were that gender, The male head of the household make income and spending patterns are reduced. He spend on something that does not benefit as well such as liqueur, cigarette and gambling. The Bank for Agriculture and Agricultural Cooperatives (BAAC) as the most accessible source of investment fund for farmers should approve the loan by considering those conditions carefully, particularly for the purpose of agricultural-related loans. Female borrowers were likely to spend money more carefully than males. If the household were able to earn more money, they should be privileged to minimum retail rate.

References

Bureau of Rice Research and Development, Rice Department. (2012) *Rice Production Potential* [Online URL: www.brrd.in.th.] accessed on May 12, 2013.

Department of Rice. (2012). *Rice Knowledge Bank.* [Online URL: http://www.brrd.in.th/rkb/] accessed on May 12, 2013.

Pranee, C. et al. (2007) *Following in my father's footsteps (King of Thailand): The Management of Agricultural Network that based on Sufficiency Economy to Solve the Poverty Sustainably.* Research Paper by Thailand Research Fund.

Economic Research. (2011) *The Study on Occupational Structure and Agricultural Adaptation of Rice Production and Farmers in the Repetitious Flooding Areas in the Lower Northern Region.*

Faculty of Social Science, The Graduate School Kasetsart University. (2006) *The Study on Poverty of Farmer.* Research Paper by Economic and Agricultural Household Research Division, Bureau of Agricultural Economic Research.

Krejcie, R. V. and Morgan, D. W. (1970) Determining Sample Size for Research Activities. *Education and Psychological Meaasurement* 30(3): 607-610.

Yimsiriwatthana, N. (1998) *Report Research. The analysis of household consumption behavior Central.* Ramchamhang University.

Research Paper by Economic and Agricultural Household Research Division, Bureau of Agricultural Ubon Ratchathani Statistic Office. (2013) *History of Ubon Ratchathani Thailand.* [Online URL: http://ubon.nso.go.th/ubon/about/GeneralUbon1.html] accessed on October13, 2013

Ubon Ratchathani Provincial Agricultural Extension Office. (2013) [Online URL: www.ubonratchathani.doae.go.th] accessed on October 13, 2013

Ubon Ratchathani Statistic Office. (n.d.) *History of Ubon Ratchathani Thailand.* [Online URL: http://ubon.nso.go.th/ubon/about/GeneralUbon1.html] accessed on October 13, 2013.

Wiboonpongse, A. (2006) *Applied Econometrics for Agricultural Marketing*. Faculty of Agricultural Chiangmai University.

Wiboonpongse, A. (2012) *Econometric modeling for the analysis of household informal personal debt and building warning indicators towards policy formulation to manage and prevent the debt based on sufficiency economy philosophy.* Final report of National Research Council of Thailand (NRCT).

Yodprudtikan, P. (2007) *What is Sufficiency Economy?* Bangkok: Thaipat Institute.