RICE CONTRACT FARMING – THE POTENTIAL KEY TO IMPROVE RICE GROWERS' INCOME: A FARM LEVEL STUDY IN AN GIANG PROVINCE

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ABSTRACT

This paper compares profitability of rice production between contract and non-contract farmers in An Giang province of the Mekong delta in order to measure the role of contract farming in economic performance of rice growers. The present paper also analyzes households' characteristics associated with participation in rice contract farming and explores constraints to contract farming practice by farmers' perspective. The findings showed that contract farmers are likely to get significantly higher net return than non-contract farmers but their production costs are also much higher; particularly, labor cost is remarkably higher. We also found not a few evidences that there is a sharp association of joining farmer's organizations with participation in rice contract farming, large farmers and farmers residing in favorable location are more likely to be selected for contract participation, implying that small farmers will be marginalized in the contract scheme.

Keywords: Economic performance, profitability of rice production, rice contract farming, rice households' characteristics.

Sản xuất lúa gạo theo hợp đồng – chìa khóa để nâng cao thu nhập cho người trồng lúa: Một nghiên cứu cấp độ nông hộ ở tỉnh An Giang

TÓM TẮT

Nghiên cứu được thực hiện nhằm so sánh hiệu quả sản xuất lúa giữa nhóm hộ nông dân trồng lúa có hợp đồng và nhóm hộ nông dân sản xuất tự do, qua đó nhằm đánh giá hiệu quả kinh tế của việc sản xuất lúa gạo theo hợp đồng mang lại cho người dân. Nghiên cứu này được thực hiện tại tỉnh An Giang thuộc vùng đồng bằng sông Cửu Long. Nghiên cứu đã phân tích mối liên hệ giữa đặc điểm kinh tế-xã hội của nông hộ với việc tham gia vào sản xuất theo hợp đồng và xác định các trở ngại khi nông dân tham gia vào sản xuất lúa gạo theo hợp đồng. Kết quả nghiên cứu cho thấy nông dân sản xuất theo hợp đồng đạt được hiệu quả kinh tế cao hơn so với nông dân sản xuất tự do, tuy nhiên chi phí đầu tư của họ cũng cao hơn nông dân sản xuất tự do, đặc biệt là về chi phí lao động. Kết quả nghiên cứu cũng chỉ ra có mối liên quan giữa việc tham gia vào các tổ chức của nông dân với việc tham gia vào sản xuất theo hợp đồng của người dân; nông dân có qui mô sản xuất lớn và có vị trí sản xuất thuận lợi thường dễ được các doanh nghiệp lựa chọn tham gia thực hiện hợp đồng hay nói cách khác những nông dân có qui mô sản xuất nhỏ dễ bị đứng "bên lề" của việc sản xuất theo hợp đồng.

Từ khóa: Đặc điểm của nông hộ trồng lúa, hiệu quả kinh tế, lợi nhuận sản xuất lúa, sản xuất lúa gạo theo hợp đồng.

1. INTRODUCTION

There is a rising concern that small-scale and marginal farmers may find it difficult to compete in market economy under the context of market liberalization, globalization and expansion of agribusiness and such farmers are becoming marginalized as the scale of economies assumes increasing importance for profitable crop production (Kumar and Prakash, 2008). Thus, the role of modern supply chains involving contractual

agreements between farmers and agribusiness or their agents is growing in the global marketing integration (Schipmann and Qaim, 2011). Contract farming has been considered one of the potential systems for providing a way to link small-scale farmers in developing countries to export and processing markets and to modern economy (Kristen and Sartorius, 2002). Many researchers have interested in contract farming. In fact, there are numerous economic studies on contract farming conducted (Tripathi et al., 2005; Bolwig et al., 2009; Senthinathan et al., 2010; Dodamani and Kunal, 2010). More specifically, Miyata et al. (2009) examined the impact of contract farming on farmers' income in China, where they found that contract farming can help raise small farmers' income though small farmers are not likely to be preferred to contract rather than large farmers by entrepreneurs. Contract farming scheme creates for farmers favorable conditions to access to credit providers, inputs suppliers, market information and technical advance and helps farmers improve their technical knowledge and guarantees market outlet to farmers with small-scale production as well (Minot, 1986; Rehber, 1998; Arumugam et al., 2010).

Like other countries, contract farming scheme has also been applied and practised in Vietnamese agriculture sector and this scheme has drawn a great concern to the Vietnamese government. For instance, the government promulgated the Decision No.80/QĐ-TTg on encouraging and promoting farm production and distribution via contract scheme in June 2002. Yet the contract scheme has not been applied widely as expected. In reality, (MP4, 2005) and MARD (2008) reported that the proportion of rice produced and distributed under contract was relatively small, accounting for only 6 – 9 percent of the total rice production in Vietnam. In fact, contract farming has been introduced to rice practice in the Mekong delta since 1996 and strongly promoted in this region in recent years, which significantly contributes to transformation of rice production and distribution from conventional farming to marketing approach in the delta.

According to DOC (2012) there exist some types of contract farming in the Mekong delta recognized as the rice bowl of Vietnam including four-actor linkage, input supply and output purchase model, model of large-scale paddy field. Rice contract farming in the delta is also known by different names such as Long An with high quality rice program, Dong Thap with modern paddy field model, Can Tho with GAP rice production program, Hau Giang with "3 reduction, 3 gain" program, and An Giang with "paddy rice producing zone supplying directly to food companies". An Giang province is also considered as one of the leading rice-producing provinces and the first one applies rice contract farming in the Vietnam's Mekong delta (Pha, 2011).

To our knowledge, currently there is no study available that examined the role of contract farming in raising rice growers' returns in the Mekong delta. In that sense, the objectives of this paper are to provide the basic information and development of rice contract farming in An Giang province of the Mekong delta, to investigate socio-economic characteristics of contract and non-contract farmers, and to analyze economic returns in rice cultivation for contract and non-contract growers.

2. METHODOLOGY

2.1. Data collection and methods

The household survey of contract farmers and non-contract farmers used a structured questionnaire was administered to the heads of rice farmer households by trained enumerators. Collected information covered household demographics; farm size; costs of fertilizer, agro-chemical, seed; labor costs for land preparation, planting, application of pesticide and fertilizer; irrigation cost; harvesting cost as well as rice yield and output prices, constraints on contract farming practice and subjective reasons for farmers not paticipating in contract

scheme. Two groups of households were purposively chosen to reflect in rice production with and without contract. Sixty three dependent farmers or rice growers with contract were randomly selected from the list provided by contract entrepreneurs. Sixty independent farmers or rice growers without contract, residing under the same geographical setting with dependent farmers, were also randomly selected from the list prepared by hamlet leaders. In addition, timeline analysis and focus group discussion were applied to examine the formation and development of rice production and distribution under contract scheme in the study site.

The household survey was carried out in all six hamlets of Vinh Nhuan village, Chau Thanh district of An Giang province in August 2012. Vinh Nhuan is one of the villages with the highest proportion of paddy planted area under contract in the province, accounting for 10.4% of the total rice planted area of the village (8,201 ha) and has a number of entrepreneurs operating (UBND Vinh Nhuan, 2011).

2.2. Data analysis and methods

Benefit-cost analysis was employed in order to measure the profitability of rice production under contract and non-contract farming at farm level. The costs incurred and returns obtained were computed for individual growers in order to arrive at benefit-cost ratio for one rice crop season per hectare. Benefit-cost ratio is displayed by the following formula:

$$BCR = AGR/ATC$$

Where, BCR = Benefit-cost ratio; AGR = Average gross return; ATC = Average total variable cost

The income of a rice farmer household is recognized by gross return or net return from rice production. The economic returns of rice cultivation is measured by budgetary technique based on profit or profit cost ratio as the following formulas:

$$ANR = AGR – ATC$$

$$PCR = ANR/ATC$$

Where, ANR = Average net return; PCR = Profit cost ratio

PCR expresses economic performance on rice production of a farmer household. When PCR > 0, the production of a farmer household is economically efficient; when PCR < 0, the production of a farmer household is economically inefficient and when PCR = 0, the production of a farmer household is at the breakeven point.

Descriptive statistics including mean, ratio, frequency, percentage was employed to analyze the collected data on household characteristics, profitabiity of rice production and farmers' statements on constraints of contract farming and reasons for non-participation in contract scheme. In fact, we mainly used two tests for data anlysis such as compare –means by independent-sample T – Test employed to explore significant differences of variables related to household characteristics and economic returns between the two groups of farmers, and Chi-square test applied for finding out the association of household characteristics with participation in rice contract farming.

2.3. Limitations to the study

Although the study was attempted to carry out, there exist some limitations. Consequently, the study only focused on farmers side as one of main actors in chain of rice production and distribution for both contract and non-contract farming scheme, which did not cover the other actors involved such as middlemen and entrepreneurs in order to explore constraints of participation in rice contract practice and to measure the benefits and costs from their own perspective. Besides, the authors ignored the different characteristics of rice varieties and farming methods in comparing economic performance between contract and non-contract farmers.

3. RESULTS AND DISCUSSION

3.1. Formation and development for rice production and distribution under contract in An Giang province

Contract farming scheme was initially introduced to rice production and trading in An Giang province by a joint venture company between a Japanese company and a Vietnamese one in 1996 (Table 1). In the initial stage, the company directly signed contract for Japanese rice cultivation with a great deal of rice individual farmers, which resulted in high transaction cost for contract arrangement and monitoring the contract implementation and enforcement. To remove constraints on direct contract arrangement with a great number of farmers, Farmers' Association of An Giang province representing for farmers directly negotiates and signs contract with the company and, thereafter, the Farmers' Association at grass root level under the direction of the provincial level's signs contract directly with individual farmers and takes charge of monitoring and enforcing the signed contract. The company is responsible for supplying Japanese rice seed, technical guidance and purchasing the output.

Four years later, the People's Committee of An Giang province realized that the contract farming scheme potentially brings rice growers highly economic performance. Hence, the provincial people's committee officially launched the "four actors" linkage program in rice production and distribution. The linkage program is defined as the integration of "farmer, entrepreneur, scientist and state" in rice farming activities. It makes a great significance since the Decision No. 80/QĐ-TTg was issued, which creates the legal framework for rice cultivation and marketing via contract in Vietnam generally and in the Mekong delta particularly. Until 2007 the first Vietnamese company applied contract farming scheme to rice farmers in An Giang province and another Vietnamese company also adopted contract farming system in its business in 2010 (Table 1).

It is clear that under the contract scheme the entrepreneurs supply contract farmers almost all inputs including seed, fertilizer and pesticide, supervise farming technique, and purchase paddy rice from the farmers with fixed

Table 1. Formation and development of rice production and distribution under contract in An Giang province

Timeline	Important events	Notes
1996	Angimex- Kitoku joint company first singed contract with farmers to produce Japanese rice. In 2011 over 1,400 ha of rice planted area contracted by the company	The company supplies seed, production technique and purchases rice products with fixed price determined when signing contract
2000	An Giang province people's committee launched the "four actors" linkage program in rice producing and trading	"Four actors" linkage program is defined as the integration of "farmer, entrepreneur, scientist and state" in rice farming activities
2002	Vietnamese government issued the Decision No. 80/QĐ-TTg on promotion to farm products produced and traded via contract	Basic content of the decision is understood as a type of contract farming in Vietnam
2007	Angimex company started the application of contract farming system for rice farmers. In 2011 over 1,000 ha of rice planted area contracted by the company	The company supplies seed, fertilizer and purchases rice products with a little higher-market price determined at harvest time
2010	An Giang plant protection joint stocks company also developed the model of "large-scale paddy field" or input supply and output purchase scheme. In 2011 over 9,400 ha of rice planted area contracted by the company	The company supplies all farming inputs, technical assistance and purchases rice products with market price or prevailing price determined at harvest time

Source: Timeline analysis from the survey in An Giang province in 2012

price or market price mechanism. In contrast, independent farmers have to manage by themselves including inputs, technique and outlet. For example, independent farmers often purchase farming inputs from fertilizer and pesticide shops, and sell their rice products to middlemen.

To sum up, although contract farmers are likely to get more benefits than non-contract ones and An Giang local governments strongly support and promote the application of the rice contract farming, the share of paddy rice produced and distributed under contract is still limited, accounting for over 8% of total rice production in the province (Sanh et al., 2011).

3.2. Comparison of socio-economic characteristics between contract farmers and non-contract farmers

The socio-economic characteristics of contract and non-contract rice households are presented in Table 2. The results indicated that the household head's average age is relatively high, over 46 years old and there was no remarkable difference in age between the two groups. The household head's education level of the two groups is relatively low, contract and non tractract farmers taking at 5.86 years and 6.05 years of schooling, respectively; yet there was also no statistically significant difference between the two groups. These clearly suggest that the rice growers have low level of education and are the elderly, which can make them difficult in access to and application of advanced technologies for their rice farming. However, both two groups have rich experiences in rice farming, over 20 years, in other words nearly half of their whole life has tied to rice cultivation.

Farmers have established a long-term relationship with middlemen in selling their own rice. Indeed, both two groups have transacted with middlemen in rice business over 17 years, meanwhile they have also just started to sell their rice to enterprises through contract scheme in a short term, around 2.7 years. It seems that contract farming here is completely new to rice farmers and they are not familiar with such a new farming arrangement.

Household size of contract and non-contract farmers is medium-sized, standing at 4.81 members and 4.68 members, respectively, of which two members were involved in rice farming. Statistical analysis indicated no association of the number of household labors with participation in rice contract farming. In terms of rice production scale, the land size of contract farmers and non-contract ones is relatively large, in comparison with the average land size of the delta's households, 1.98 ha and 1.90 ha, respectively (Table 2), of which around 93% of land area used for rice cultivation. This implies that rice production is the main farming activity to generate income for the households. The result revealed that contract farmers own more rice land than the others, which may imply that large farmers are more likely to be selected for rice contract farming.

Contract farmers seem to reside in more favorable location characterized by closer distance to the commune people's committee, which suggests that contract entrepreneurs tend to select farmers living in areas with good transportation system.

Contract farmers are more likely to join farmers' organizations such as farmers club, group, extension club, farmers' association and cooperative. The result showed that the share of contract and non-contract farmers entering farmer organization is 38.1% and 20%, respectively (Table 2), with statistically significant differenence at 5% level. The Chi-square test ($P = 0.027 < 0.05$) revealed that there is a strong association of joining farmers' organizations with contract participation, which could be because the farmers joining organizations would have more opportinities to contact and communicate with entrepreneur staff and local officials as well as entrepreneurs are likely more interested in contract with a group of farmers rather than each individual farmer.

Table 2. Socio-economic characteristics of rice farmer households

Variables	Non-contract farmer (n= 60)	Contract farmer (n=63)
Age of household head	46.65	46.87
Education of household head in years of schooling	5.6	6.05
Household head's experience in rice farming (year)	20.77	20.46
Household size (person)	4.68	4.81
Agricultural labor (person)	1.92	1.94
Total land area (ha)	1.90	1.98
Rice land area (ha)	1.78	1.85
Length of selling rice to middlemen (year)	18.45	17.13
[1]Length of participating in contract (year)	0	2.73
Share of households participating in farmer organizations (%)	20	38.1*
Share of households getting a loan from bank for rice (%)	65	54
Distance to the commune people's committee (km)	3.34	2.88

Source: The household survey at Vinh Nhuan village, Chau Thanh district of An Giang province in 2012, n = 123
*Note: * Difference is significant at the 5 % level; [1]the variable is not included in difference analysis*

Non-contract farmers regularly take more loans than contract ones. Indeed, it was found that over half of rice farmers surveyed get loan from banks for their rice farming, 54% and 65% of contract and non-contract farmers, respectively (Table 2). Contract farmers get fewer loans than the others, it is because the entrepreneurs advanced farming inputs to them; yet contract farmers also have to spend other things in their rice cultivation such as costs for labor, irrigation, ploughing and so on.

In conclusion, it was evident that there was no significant difference of socio-economic characteristics between contract and non-contract farmers, except the variation in joining farmers' organizations. Furthermore, variable study results may be attributed to the fact that selection criteria for contract participation may be different from place to place. In fact, some entrepreneurs often relied on households' location and labor availability for selection rather than farm size and education level (Miyata et al., 2009). In contrast, Arumugam et al. (2011) reported that land ownership, land size and education influence farmers' participation in contract farming. The present study reveals that groups of farmers or farmers entering social networks are more likely to participate in contract scheme and small farmers could be marginalized in rice contract farming.

3.3. Economic performance in rice cultivation of contract and non-contract growers

Table 3 shows comparative profitability of rice production per hectare under contract and independent farming scheme. It was found that the total production cost for contract farmers was 7.8% higher than that for the others with statistically significant difference at 1% level. The increase in the total production cost incurred under the contract scheme is due to the remarkable increase in cost for labor (47.3%), fertilizers (8%), pesticides (4.4%) and land preparation (2%), which tend to be mostly affected by farming skills or certain farming practice. It could be found that all contract farmers utilize farming inputs with high quality standards supplied by entrepreneurs because the entrepreneurs often require strictly for inputs and output quality standard, and apply high technology such as Global GAP (Good Agricultural Practices) or Vietnamese GAP. Farmers' production would increase risks when they apply

new technologies transferred by entrepreneurs since those who have been familiar with traditional methods cannot adopt the new technologies due to limited ability (Rehber, 1998).

In fact, contract growers must apply certain fertilizers and pesticides with low level of toxic residue; or organic fertilizers and bio-pesticides; and use certified seed under the direction and guidance of the entrepreneurs' staff to meet high quality standards of rice products or the entrepreneurs may take their monopoly to advance much more inputs, which may result in higher costs.

Considering seed cost, contract growers often use fewer amounts of seed than non-contract ones due to applying seed drum for sowing and transplanting; but certified seed price is also much higher, as a result of no great difference in seed cost.

Remarkably, labor cost under contract scheme is significantly 47.3 % higher than that independent scheme because contract growers regularly need more man-day to take more carefully their rice cultivation including rice sowing by seed drum or transplanting not sowing by hand and they must remove off-types plants in the field to make rice more uniform, which takes a lot of time compared to conventional rice farming practice. Indeed, there were 40% and 6% contract farmers contrary to 5% and 50% independent farmers applying transplanting and broadcasting, respectively. It was noted that all family labor and household's machine used is converted to hired cost. By contrast, other variables including irrigation and harvesting costs showed no significant differences between two groups because farmers of both groups reside and cultivate under the same geographical setting.

It was also found that there was no significant difference in paddy yield between two groups, which may be explained that the winter-spring rice cropping season is the most favorable growing season of the year for rice. The winter-spring rice crop was chosen to measure profitability of rice production for the farmers because it is the latest season of the survey period so that respondents could well remember all details in their production process.

Table 3. Profitability of winter-spring rice crop cultivation per hectare between contract and non-contract growers

Variables	Non-contract farmer (n=60)	Contract farmer (n=63)	% increase (+) or decrease (-)
Total costs of production (USD/ha)	951	1,025**	+ 7.8
Land preparation (plowing)	105	107	+ 2
Irrigation (water pumping)	27	24	- 11
Seed cost	78	76	- 2.5
Fertilizer cost	300	324*	+ 8
Pesticide cost	203	212	+ 4.4
Labor costs (family and hired)	93	137**	+ 47.3
Harvesting cost (combined tractor)	141	142	- 0.70
Paddy yield (ton/ha)	8.51	8.63	+ 1.41
Paddy rice price at farm gate (USD/ton)	246	287**	+ 16.67
Gross return (USD/ha)	2,082	2,461**	+ 18.2
Net return (USD/ha)	1,131	1,435**	+ 26.88
Benefit cost ratio (gross return/total cost)	2.22	2.42*	+ 9

Source: The household survey at Vinh Nhuan village, Chau Thanh district of An Giang province in 2012, n = 123
*Note: ** differences are significant at the 1 % level; * differences are significant at the 5 % level; 1 USD is taken here as 20,000VND, based on foreign exchange rate of Vietnam state bank at the time of the survey*

Table 4. Economic performance of a rice-farming households per one rice crop

Variables	Non-contract farmer (n=60)	Contract farmer (n=63)	% increase (+) or decrease (-)
Rice land (ha)	1.78	1.85	+ 3.93
Total cost of production (USD)	1,646	1,856	+ 12.75
Production (ton)	14.66	15.58	+ 6.27
Household gross return (USD)	3,764	4,440	+ 17.96
Household net return (USD)	2,118	2,584	+ 22
[1]Profit cost ratio (net return/total cost)	1.22	1.42*	+ 16.39

Source: The household survey at Vinh Nhuan village, Chau Thanh district of An Giang province in 2012, n = 123
*Note: * significantly different at 5 % level of probability; 1 USD is taken equivalent to VND 20,000VND based on foreign exchange rate of Vietnam state bank at the time of the survey*

It was measured that although contract growers spent much higher production cost, they also obtained much higher economic returns than the ocounterpart (Table 4). In fact, the contract farmers sold almost their rice products with 16.7% higher prices than independent farmers, which brought about added returns for contract farmers in terms of gross return (18.2%) and net return (26.88%)... In addition, rice profitability for contract growers was also increased by 9% compared with that for non-contract ones. Farmers participating in contract farming scheme are more likely to get higher revenue than independent farmers with the same planted area and the same kind of plant (Kumar and Prakash, 2008; Miyata et al., 2009), thus, they often get higher net revenue than that of the non-contract farmers (Senthinathan et al., 2010).

With regard to rice farm income, it was found that rice production is recognized as the major income source of rice farming households because their incomes from other farm activities and non-farm activities are less than 10% of the total incomes. Based on such income sources, economic performance of rice farming households is computed and analyzed through rice production efficiency at farm level. Contract farmers' production efficiency is much higher than the others in terms of net return and profit cost ratio (Table 4). Profit cost ratio of the contract growers was 16.39 % higher than that of non-contract growers and the difference is statistically significant at 5% level, which implies that economic performance of the contract growers is economically higher than the others. Based on such findings, it could be concluded that contract farming scheme is likely to be a potential means to help rice growers increase income.

3.4. Constraints to rice contract farming practice from farmers' perspective

Some constraints to rice contract farming identified by contract respondents are displayed by Table 5. More than half of the respondents' statements mentioned there were hardly any problems to contract farming practice because the entrepreneurs assigned their staff to directly supervise and monitor farmers' rice practice as well as advanced inputs and purchased output for farmers.

However, there existed four constraints to contract farming application directly pointed out by contract growers. The most mentioned constraint is considered as the most difficult.

First, famers often get trouble in late collection of paddy by entrepreneurs. In fact, the entrepreneurs hardly handle to collect all farmers' paddy rice timely at the peak time of harvest, which make farmers wait their turn to harvest their paddy in the field while the paddy is over ripened, causing crop loss sometimes.

Second, the entrepreneurs often require high farming technique and strict quality standards of inputs and output which some farmers hardly

Table 5. Constraints on contract farming practice from contract growers' perspective

Items	Frequency	Percentage	Rank*
No constraint	33	52.4	I
Late collection of paddy	13	20.6	II
Strict requirement for inputs, output and technique	9	14.3	III
High price of farming inputs	8	12.7	IV
Late payment (later more 1 week after product delivery)	5	7.9	V

Source: The household survey at Vinh Nhuan village, Chau Thanh district of An Giang province in 2012, n = 63
*Note: * Rank according to the most repeated statements*

meet due to their low level of education and farming skill. For this reason, not all contract farmers can perform the contract scheme successfully. Farmers may not adopt fully the new technological progress transferred by entrepreneurs and in some cases they apply the new technique but not highly effective because farmers are likely to be farmiliar and experienced with conventional farming, which will affect productivity and quality of rice products required from entrepreneurs (Minot, 1986).

Third, contract growers stated that inputs prices supplied by entrepreneurs is relatively high, which could be due to better quality of the inputs to meet output quality standard required or entrepreneurs sometimes may take advantage of their monopoly to impose prices on farmers.

Finally, the entrepreneurs regularly gave payment later one week after paddy rice delivery compared to cash payment at product delivery by middlemen. Famers face several constraints during contract implementation because entreprenuers often set high requirements of quality and technique, and inconvenient dilevery of product, making rice contract farming not attractive to farmers (Roberts and Khiem, 2005).

It could be concluded that contract arrangement mechanism by the entrepreneurs has not created much more convenience for the farmers than by middlemen's such as cash payment mechanism and rice collection at farm gate. Thus, improving such mentioned constraints seems to be a promising solution for the better scheme.

3.5. Subjective reasons for non-participation in rice contract farming

Some reasons for non-participation in rice contract farming reported by non-contract respondents are presented in Table 6. The frequent repeated statements by the respondents are considered most important. In this sense, seven reasons for non-participation in the contract farming were identified such as no company coming to contract, selling rice to middlemen more easily and being depended on entrepreneur's arrangement are considered as the first, second and third important reason, respectively.

Other reasons that are less important were also reported including strict standard requirements from entrepreneurs, familiarity with trading to middlemen, transport of paddy rice to entrepreneur and late payment by entrepreneurs. Some farmers do not want to be depended when doing their own farming activies and they also like simple procedure in rice business, so that farmers regularly trade their rice with middlemen (Nhan and Takeuchi, 2012). In fact, most rice growers are familiar with rice procurement by middlemen including paddy collection at farm gate instead of shipping paddy rice to entrepreneurs' storage, payment in cash at product delivery and flexible requirements for quality standard to which they are customary in spot market.

Table 6. Reasons stated by farmers for non-participation in rice contract farming

Reasons	Frequency	Percentage	Rank*
No company coming to contract	20	33.3	I
Selling paddy rice to middlemen more easily	17	28.3	II
Depended (losing the degree of freedom)	12	20	III
Strict requirements of production process	9	15	IV
Familiar with selling paddy to middlemen	9	15	V
Transporting paddy rice to entrepreneur	7	11.7	VI
Late payment (later more 1 week after product delivery)	6	10	VII

Source: The household survey at Vinh Nhuan village, Chau Thanh district of An Giang province in 2012, n = 60
*Note: * Rank according to the most repeated statements*

Moreover, some non-contract respondents feel that they run high risks in financial matter due to payment given later at least one week after paddy rice delivery and non-contract growers also think that they hardly meet completely contract entrepreneurs' requirements for technique, input and output quality standards. Contract forms signed by entrepreneurs sometimes hardly compete with benefits and services supplied by middlemen, which may cause farmers not interested in contract scheme (Roberts and Khiem, 2005).

4. CONCLUSIONS

Rice contract farming has not been adopted widely in the study site and it seems to be relatively new to most rice farmers and not a few entrepreneurs as well, which implies that both farmers and entrepreneurs are not familiar with the application of rice contract farming, particularly farmers are still customary to spot market.

Socio-economic characteristics of contract and non-contract households are not significantly different except the variable of participation in farmers' organizations. In fact, farmers participating in farmers' organizations and large farmers are much more likely to be selected for contract farming scheme than other farmers, implying that entrepreneurs tend to be interested in contract with a group of farmers rather than individual farmers; and small farmers will be marginalized in the contract scheme.

Contract farmers are much likely to be benefited from inputs provision, technical guidance and product purchase by contract entrepreneurs although they seem to be completely depended on the entrepreneurs' arrangement; and their paddy rice could be purchased with the best prices in comparison to independent farmers. Yet not all farmers can fulfill strict requirements for production process and output quality standard because of their limited education and working capital.

Rice growers entering into contract farming scheme capture sharply higher net return and profit cost ratio than those of non-contract ones as a result of positive impact of participation in rice contract farming. This implies that the contract farming scheme potentially raises rice farmers' income in the Mekong Delta. By contrast, the contract growers could easily bear debt to contract entrepreneurs or lose in economic returns because they often suffer from higher production cost in case they fail in their crop mostly affected by weather uncertainty. Entrepreneurs may take advantage of their monopoly to cause difficulties for farmers and the farmers are likely to get involved in debt, due to production risk, harvest loss, and entrepreneurs' oversupply of inputs to them (Eaton and Shepherd, 2001). Thus, such constraints caused by contract entrepreneurs to farmers need to be reduced and solved for better realization of rice contact farming in the Mekong Delta of Vietnam in the near future.

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