CHAPTER VII
CONCLUSION AND RECOMMENDATION

This chapter attempts to summary findings presented in previous chapters so as to provide an overview of the study. Conclusion and recommendations are drawn to suggest further researches and applications.

7.1 Summary

The study attempts to document the existing rice production environment and analyze the profitability and price responses of rice farmers in the dry season 1992/93 in the Mekong Delta-Vietnam. A total of 180 farm households located in 22 villages of 6 subdistricts, 4 provinces were interviewed.

Sample farmers are growing rice under the poor endowment. The arable land available per person is 1000 m² per person, and most of the land is devoted to rice double-cropping a year. All farmers are given certificates of land use following the Law on Land issued in the past few years. Aside from traditional and simple farm tools, sprayer is the only equipment that more than two-third of farmers owned.

The average education level of family members (over 15 years of ages) is about grade 6 (first grade in secondary school). There is an average of 3.5 labor members in farm households, and they have experienced in rice farming for more than 26 years. Education level, and years of experience are significantly different between groups of farmers.

Agricultural support systems namely, extension and rural credit are not operated equally in the study area. Models of extension, Integrated Pest Management, rural credit in the two subdistricts of Angiang province, Nhimy and Tanphutrung subdistricts are good enough for further considerations. However, due to limited budget of the local authorities, extension activities are mostly in the technological aspect, especially in pest control. Rural credits are mainly for rice production, and short term loan. Proximity to markets may have influences on input and output prices.

Rice cultivation technology is rather advanced in terms of rice varieties, method of crop establishment, and harvesting. Hundred per cent of sample farmers adopted threshing machine and modern rice varieties with short growth duration. Most of farmers prefer direct seedling to transplanting. This preference is caused by much less labor input in direct seedling than in transplanting method. Some farmers responded to our question that direct seedling would bring them equal or more yield per unit area, but in reality this is different. In NhiMy subdistrict where about two-thirds of farmers followed transplanting method the rice yield is higher than those of other locations where more than 90 percent of farmers followed direct seedling method.

The rates of seed, fertilizer, pesticide and labor used per acre are 21.14 kg, 16.41 kg NPK, 0.45 kg a.i., and 8.8 mandays respectively. The NhiMy farmers use as less as half the amount of seeds, but higher rates of fertilize and labor per acre in compared to others. Farmers owned farms less than 9 acres (small farms) have a tendency to invest larger amount of labor,

fertilizer and pesticide per acre than those of farmers owned farms equal or more than 9 acres (large farms).

Input for rice production is available in all villages. No shortage in input supply are reported during the 1992 growing season. However, according to the sample farmers, the prices of fertilizers and pesticides are quite high relative to the current rice price. Labor wage and input prices faced by the small farmers and large farmers are rather similar, except the price of pesticides which is significantly different at 5 per cent level.

Rice price at farm gates during the survey varies from 864 VN dong to 1184 VN dong/kg in study subdistricts. The highest rice prices received by Nhimy farmers. This may due to the proximity to Hochiminh central market of Nhimy subdistrict. On the other hand, the lowest rice price is found in Vinhmy which is the farthest study subdistrict from Hochiminh central market. No significant difference is observed in the rice price between groups of farmers. The rice price is at trough in April and at peak in December.

Production cost analysis reveals that the average cost of rice production in the dry season is 300,900 VN dong per acre. This cost is highest in NhiMy due to high level of fertilizer and labor utilization. The family income is reasonably large in all sub-districts. Farm family income shares more than 50 percent of gross value of production. Though small farmers obtained higher yield and incurred in high cost of production, there are no significant difference (p<0.05) in gross return, gross return, family

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income, and value added between two groups of farmers. .

All return to labor are greater than return to material input in all locations and farmers' groups. This indicates that labor investment in rice production would result in higher return. The return/cost ratio in six subdistricts varies from 1.78 to 2.45 with an average of 2.07. This means that every VN dong invested in rice production would provide a total of 2.07 VN dong, or a profit of 1.07 VN dong after deducing cost. The difference in return/cost ratio between groups of farmers is not significantly different at 5 percent level. This may be said that investment in rice production on large farms and small farms provide equal returns.

Seemingly Unrelated Regression Estimator (SURE) is employed to estimated jointly the system of normalized restricted translog profit function and input share equations. Results from the Wald test and Likelihood ratio test show that the null hypothesis of symmetry and parametric constraints imposed in the system can not be rejected at 1 per cent level. This implies that farmers cultivate WS rice in both small farms and large farms are maximizing their profits. There is equal relative economic efficiency between the small and large farms. The Cobb–Douglas functional form is not fit to the data in this study.

All elasticities of output supply, demand for labor, fertilizer and pesticide have meaning full signs as expected. In both the small and large farms, own–price elasticities of demand for labor are slightly elastic while those for fertilizer and pesticide are inelastic. The cross price elasticities

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of demand show that the relationship between labor, fertilizer, and pesticide are complementary in production in all farms except for the substitution of labor and fertilizer in the small farms. The effects of change on land quantity and education level in output supply and demand for variable inputs are positive and not symmetric across input share equations. The influence of land quantity on output supply of the large farms is quite high (3.38).

For policy prescription purposes, cost-effectiveness was performed to examine the effect of 15 alternative policy instruments calculated on the basis of input utilization and output responses from the estimated price elasticities. All 15 policy alternatives provide high rate of return to the cost of subsidy. Given the current limited budget, price subsidy policies for increasing farmers' income and rice production in the Mekong Delta should focus on fertilizer and pesticide prices. However, rice quality and environmental acceptance should be taken into account if these policies to be imposed. If the government wish to acquire a great increase in rice production despite the cost-effectiveness, then the policy with increase in rice price would be appropriate.

7.2 Conclusion and Recommendation

Vietnam's re-acquired status as a rice exporter after the United States and Thailand is one of the significant achievements of the performance of agricultural sector under current economic reform. With the high rate of population growth, there is a need for further increase in food supply to

meet the domestic demand. Moreover, if the country is to sustain and to be competitive in the world rice market, exploring opportunities to raise efficiency and profitability of paddy production seems necessary since given the current technology and rice infrastructure the prospects for further productivity growth are reportedly limited in some studies. Rice production in the Mekong Delta, the biggest paddy growing region of the country, holds major possibilities for supporting national food procurement and surplus paddy for export. Especially, the Winter–Spring rice grown in the dry season usually results in high yield and high quality.

The current study shows that high yield and low cost are vital factors making Winter–Spring rice production profitable. Farmers cultivating rice in small and large farms could generate almost equal profit, family income, and value added regardless high yield and high input investments. Thus, at present increasing the level of labor and material inputs use could still raise productivity, but not significant profits. Alternative managements practiced in some locations such as recommendations of better input allocation and applications, technological innovation in varieties, integrated pest management projects, and demonstration rice fields are much helpful to the farmers in increasing productivity or reducing unit cost. Any increase in the output/input ratio will benefit the farmers.

The huge quantity of rice going to markets and the current pricing policy which allow the free market to adjust the rice price by itself are among reasons for low rice prices and their variation across locations in the delta. As a consequence, the relatively high prices of agricultural inputs as

compared to rice prices reduce the farmers' adoption of inputs and the effectiveness of input availability for production. Advantages in road transportation and proximity to the central market may cause higher rice prices, and lower input prices. This will certainly lessen the incentives in rice production for those who live in remote areas in the long run.

In addition, limited accessibility to credit and agricultural extension systems also affect the profitability. Models practiced in Nhimy, Tanphutrung and two subdistricts of Angiang province are worth considering for adaptation. Long term credit would be highly appreciated since it could provide opportunities for farmers to store their rice products and sell them when the price is high, and encourage them to purchase farm machinery and other farm assets. Planting non-rice crops and fruit trees, and animal husbandry are other substantial sources of income for rice farmers. Hence, current efforts of research centers in Vietnam to diversify rice farming systems for sustainable agriculture need to be continued.

In terms of price subsidy, cost-effective policies set up for each group of farms consider both farmers' responsiveness to prices and response of rice supply to change into input utilization. The government may have several choices in making decision which alternative policy is more appropriate to improve farmers' income and to increase rice production. Rice price subsidy would provide more benefit to the farmers but it needs more detail investigations in rice marketing, world rice market, and profitability of other crops. Given the current economy, however, price subsidy policies on fertilizer and pesticide prices seem possible due to limited budget and the

ease in management, but the environmental impact of pesticide residual should be considered.

From the above conclusion, it is hoped that the findings in this study would contribute some valuable information for more detailed understanding of rice production and farmers' responses to variable input and output price changes in the Mekong Delta–Vietnam. Wide distribution of the sample farmers made the study results possible to represent the whole region. However, elasticities and policy alternatives are calculated only for rice production in the dry season. Similar studies might be conducted for rice production in the wet season, and other crops to compare the patterns of input use and substitution.

Due to some logistic limitations, the study used the mean of the farm sizes as the cut–off point to classify sample farms as "small" and "large". The weakness of this conventional approach cited by Doran (1985) somehow lies in the arbitrary nature of the division, and the results may be different to other groupings. Therefore, the approach of using a cumulative normal or logistic function to replace the dummy variable (a step function) in regression models suggested and applied by Doran is worth trying in future researches.