Chapter 5

Study Limitations, Conclusions and Recommendations

5.1 Study limitations

5.1.1 Study data quality

Primary data was obtained by questionnaires and interviews. Because of lack of knowledge, memory bias, information in questionnaires sometimes was not accurate. Local government and village leader influence villagers' answers, especially when giving feedback on policy. Farmers had to finish interviews at times under stressful and sorrowful conditions. Labor input data for crop and livestock production was not collected from each farmer. Village leaders gave general, average information.

In term of saving and credit, farmers often give inaccurate information with regards to questions about bank accounts. They don't want to a stranger to know it. The reason can be that firstly, rich households are afraid of getting robbed or creating jealousy. Also, relatives of rich households would like to borrow money from them.

All of these might have an effect on the consistency of data analysis.

5.1.2. Model limitations

The Linear Programming model used in the research is an average year model. For all of long-term productions (output needs more than one year), data was calculated by NPV. However, long-term productions are involved in several periods, so a year model still has distance with reality. It cannot show the difference between the beginning of forest productions and the end of them.

The primary idea of this research is the economic benefit of farmers, so some natural indexes were not involved in. If more natural indicators were added such as soil erosion index and climate change factors, the model would be better for both livelihoods improvement and environment protection.

5.1.3. Recommendation for future research

For building a perfect model, the quality of primary data needs to be better. It should be detailed and accurate. For future research, following-up interviews are needed. In terms of LP model, multiple-period models should be used. It may show more realistic results.

Moreover, the objective function of this research is single, only the maximization of income. In order to produce a win-win situation, economically and environmentally, a multiple objective function should be used. Using natural indexes, such as minimum soil erosion index, an optimal function for environment should be designed.

5.2 Conclusions and recommendations

5.2.1 Conclusion of Chinese forest policies from 1949 till now

From 1949 till now, several generations of policy-makers have continued to explore suitable forest tenure systems for China, so a lot of forest policies have been launched in China. This research reviewed changes of forest policies in China from 1949-2010 and provided a general outline of conditions of different forest policies implemented in difference periods of China.

Reviewing the whole process of the changes of forest policies, forest tenure systems have changed many times. But a trend can still be observed. Although there is no clear boundary between privatization and collectivization, forest tenures in China

went from high privatization to high collectivization, and then turned towards privatization again. The trend moves in a “U” form (see Figure 2).

With social and economic development, some good forest policies in the beginning turned out to be unsuitable for the society; they even hindered continued development sometimes. Regular updating of policies to meet social and economic development is very important. Therefore, using Linear Programming or other methods to simulate different possible situations is a good to guide recommend how to adjust policies.

5.2.2. Conclusion of economic analysis

Economic Analysis was used to estimate crop productions’ and forest activities’ current contribution for rural livelihoods. For annual crops, gross margins were analyzed. For long-term investment, NPV and AEV were used. Results of economic analysis indicated that traditional annual crops have higher gross margins than new forest products. Nowadays, annual crops still have higher contribution for family income than forest products.

5.2.3 Conclusion from with Reform of Collective Forest Use Rights

With RCFUR, forests can be used more flexibly. More production activities are available in collective forests. The LP model shows that these activities play a role in the improvement of farmers’ household income. Forest potential can be explored more efficiently when these productions are carried out. From the Scenario 1a, the increase in income is obvious, and income from forest activities goes up sharply. But, because a base of forest is small at the beginning, crop productions still contribute

most of income resources. Although more forest land can be used and more forest activities can be selected, the model suggested that most of forest land should be rented out instead of developing production by farmers themselves.

In brief, the ability of RCFUR's contribution of increasing farm income is obvious but limited currently. Forest can be used as a supplemental activity for farmers' agricultural production but it cannot be the main income resource for local farm households in recent years in the study village. Traditional crop productions are still the main resource of income. Farmers still rely on crop planting, they cannot be replaced. On the other hand, some other factors still restrict development of forestry, such as low technology, poor capitals and absent labor. Only giving use right of collective forest is not enough, government still need to implement other assorted supporting policies as a package with RCFUR, such as subsidy and technological training for forestry activities.

5.2.4 Conclusion of implement of Reform of Collective Use Rights with Slopping Land Conversion Program

Slopping Land Conversion Program purposes to deal with serious soil erosion. Planting perennial trees instead of annual crops on slopping lands is to fix soil. In the study village, the model suggests that 3 mu of arable lands transferring to forest lands will not effect farmers' livelihoods. This is an averaged number, which can be a reference when the government implements SLCP. The government needs to consider real conditions in practice. Implementing SLCP cannot decrease farmers' economic benefit, and otherwise, farmers will not support the program.

If it is very necessary to control soil erosion, but farmers' economic benefit would be lost. One solution can be that the government could increase subsidies of SLCP. The 600yuan subsidy is too small to make up the loss of farmers' economical benefit. At the same time, because of inflation occurs every year, the amount of subsidy should also increase.

5.2.5 Conclusion of Reform of Collective Forest Using Right and planting mulberry trees in forest lands

With planting mulberry trees in forest, total net family income almost has no change. Although more arable land can be used to plant other crops, planting mulberry trees in forest lands is very costly. Any profits received from crop productions were cancelled out.

5.2.6 Conclusion of Reform of Collective Forest Use Rights with changing logging quotas

Nowadays, strict logging quotas control the amount for timber extraction, but this scenario tested the results of family income when 13 m^3 woods can be cut instead of 0.02 m^3.

The result shows that widening logging quotas greatly affect the net income of a family. When more trees can be harvested, income increase follows. So, when harvesting more trees doesn't affect the whole forests' health and damage the environment, the logging quotas should be widened.

5.2.7 Conclusion of impact of Reform of Collective Forest Use Rights with forest certification mortgage credit in each scenario

5000 yuan more loan for development of forest activities in each scenario is very useful. All of the results of scenarios increase a lot. The model shows that for adding loan for forestry, farmers' net incomes have a sharp increase.

It is known that most of forest activities are long-term productions, which have no profits at the beginning. Initial capital is very important for developing forestry. Therefore, it is necessary to give loans to develop forestry. If farmers only have the right to use forest, but they have no money and technology to develop production, the right is abstract and impractical. The certification mortgages are highlighted recommendations.

Forest certification mortgage credits are also good for supporting other policies or activities carried out in the study area. For example, the model indicates that only 3 mu arable lands should be transferred to forest lands when there is not forest certification mortgage credit, but net family income keeps increasing until 8 mu arable land is transferred when forest mortgage credit involved in. It can be explained that with forest mortgage credit, farmers have more initial capital to develop forest productions, so farmers don't rely on crop production as much as without forest certification mortgage credit. Finally, farmers still can handle this when 7 mu arable lands decrease.

Due to higher costs, the idea of planting mulberry trees on forest lands should not be carried out. But, when adding forest mortgage credit, the net family income has a large increase. Because traditional cropping productions are still the main resources of family incomes, more lands used to plant these annual crops is good. Therefore, if monetary capital is enough, planting mulberry trees on forests lands is a good style of land using.