CHAPTER 5

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Summary

After the GMS economic cooperation was created in 1992 by six members, the regional economy developed with great speed. This study was motivated by the analysis of border trade impacts on the economic growth of Yunnan and other GMS members from 1999 to 2010. In this study, five standard panel unit root tests were used to assess all of the variables. Panel co-integration tests based on the Pedroni and Kao residual panel co-integration models were also applied. Furthermore, estimations of the fixed-effects and random-effects model as panel data were used to investigate long-term equilibrium relationships between border trade and the economic growth of Yunnan and other GMS members. The Granger causality test and ECM were also used to determine bi-directional relationships among the variables. The ECM term indicates the adjustment speed from non-equilibrium to equilibrium.

5.2 Findings

This study took four steps to examine the relationships among border import, border export, and economic growth.

Step 1: This study used panel unit root tests to examine whether the time series are stationary or non-stationary. The results of the panel unit root test showed that all of

the time series, including lnGDPi,t, lnImi,t and lnExi,t are non-stationary at the level. As well as after the author took the first difference for all time series, all time series are stationary.

Step 2: This study used panel co-integration tests to determine whether or not all of the variables are co-integrated with each other. The Group-PP, Group-ADF, and Kao tests showed that all of the variables, including lnGDPi,t, lnImi,t, and lnExi,t, are co-integrated.

Step 3: This study estimated the panel co-integration model to determine the long-term relationships among border import, border export, and the economic growth between Yunnan and other GMS members. The results indicated that the time and fixed-entity model is the best model in this study. The time and fixed-entity model suggests that the border imports of all of the GMS members (including Yunnan) have significant negative effects on their economic growth.

Step 4: This study used the Granger causality test and ECM to test whether or not bi-directional causality exists among border imports, border exports, and economic growth. The results of these analyses showed that no bi-directional causality relationship exists among border imports, border exports, and the economic growth between Yunnan and other GMS members. Only a one-way causality relationship between border imports and economic growth was found. Long- and short-term relationships between border imports and economic growth were determined.

5.3 Conclusions

1. The coefficients between border imports and the economic growth of all of the GMS members (including Yunnan) are negative, which suggests that their border

imports have significant negative effects on their economic growth. The time and entity fixed effects model indicates that when border imports are increased by 1%, the economy will decrease by 0.7995%.

2. The coefficients between border exports and the economic growth of all of the GMS members (including Yunnan) are positive, indicating that their border exports have positive effects on their economic growth. However, these effects are non-significant. The entity fixed effects model suggests that when border exports increase by 29.36%, the economy increases by only1%.

3. Based on redundant fixed effects tests, the time and entity fixed effects model is the best model for use in this study. It means that during the different time, the different country to do the border trade. The border trade will have the different fixed effects on economic growth with each country.

4. The relationships among border imports, border exports, and the economic growth of the GMS members (including Yunnan) do not show a bi-directional relationship. The Granger causality test and ECM results indicate that only a one-way Granger causality relationship exists between border imports and the economic growth of the GMS members. This means that the border imports of the GMS members (including Yunnan) have long- and short-term effects on their economic growth. In the GDP equation, the ECM term was negative, which means that the short-term adjustment parameter exists in this study. The short-term adjustment speed is 25.26% each year. This speed means that given a deviation of the GDPi,t from its long-term equilibrium, as defined by its co-integration relationship, the Imi,t border imports of all of the GMS members act in a dynamic manner to correct the non-equilibrium.

5.4 Recommendations

1. Border trade is not the only way to motivate economic growth. Border exports have non-obvious positive effects on economic growth and border imports have significant negative effects on economic growth. The governments of GMS members should conduct more activities to enhance economic growth, such as direct foreign investment, education, technique innovation, and so on.

2. Import is not just import. All of the GMS members must recognize the benefits of imports. Imports can help countries address shortages in resources. These countries can then reduce production costs to obtain more profit. For example, Japan performs well in the automobile industry but lacks resources of steel and iron. If Japan uses its own steel and iron to produce automobiles, higher production costs will be incurred. Thus, Japan imports steel and iron to produce automobiles and obtains higher profits in the automobile industry.

Imports can also promote technological innovations. GMS countries must pay attention to studying new techniques while conducting border trade with each other. New techniques can help the countries improve their productivity and quality of goods.

Finally, imports can speed up adjustments in industrial structures. According to the innovation of the technology, the industries would be revision the industrial structure. In summary, GMS members must learn how to change the negative relationship between border imports and economic growth. Once the negative effects are transformed into positive ones, border imports can help promote economic growth.

5.5 Further Studies

In this study, we studied the impacts of border trade on the economic growth of Yunnan and GMS members. The GMS economic cooperation is going to expand. It would be interesting to further study the effects of border trade and international trade on the economic growth of Thailand or any other country within the GMS.