

**Economic Analysis for Competitiveness of
Thai Fruits in Globalized Asian Market**

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Pongthai THAIYOTIN

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Pongthai THAIYOTIN

Summary

Objective of this dissertation

Thailand can produce many kinds of tropical fruits and exports many of these to international markets, where the demand is higher than in the case of domestic consumption. According to Office of Agricultural Economics (2011a), around 3%, 40% and 25% of longans, durians, and mangosteens, respectively, are consumed domestically. Therefore, studying the relationship between farmers' prices and export market prices is necessary, including managing price reduction problems during the peak harvest periods. In addition, studying imports can explain the relationships among exporting countries' prices and demand. Furthermore, the competitiveness and adjustment mechanisms under bilateral agreements such as FTAs or economic partnership agreements (EPA) need to be compared under trade liberalization. On the other hand, domestic fresh fruit consumption should not be neglected because Thailand also imports fruits such as apples, grapes, pears, kiwis, and oranges, which compete with domestic fruits. Therefore, it is essential to understand consumer preferences and issues associated with FTAs, including quality and food safety issues. This will help to maintain the competitiveness of Thai fruits domestically, as well as to enhance the food safety standards for Thai fruit being exported. Furthermore, the target of being the kitchen of the world, by the Ministry of Agriculture and Cooperatives, means Thailand must improve food safety standards to respond to the food safety awareness of consumers (Supaphol 2010). In addition, to succeed in this target and to gain an advantage from trade liberalization, the speed of delivery, reliable quality, and price competitiveness are essential factors.

Therefore, the main objective of this study is as follows:

“To evaluate the effect of trade liberalization on Thai fruits”

Based on this objective, the background of Thai fruit production, marketing, trade liberalization, and the FTA framework of Thailand with partner countries have already been described in section 1.1. Furthermore, we analyze the market implications for trade competition, including the relationship between farm prices and export market prices, market structural changes, and the effect and adjustment mechanism of FTAs, in order to explain how trade liberalization affects Thai fruits. In addition, we evaluate consumer preferences and issues. Therefore, to accomplish the main objective, we examine three major research areas:

Firstly, we examine the asymmetric price transmission of the longans farm gate price to the export market price by estimating the asymmetric price transmission and adjustment mechanism to the long-run relationship, as well as evaluating the structural changes to the market.

Secondly, we conduct an import demand analysis and investigate the effect of the FTA on banana exports to Japan. This study evaluates the structure of import demand by estimating the long-run own-price elasticity and cross-price elasticity among competitors in the Japanese market. It also measures the adjustment mechanism of the FTA effect on banana exports.

Lastly, consumer preferences are analyzed for fruit consumption in Thailand. This study is conducted to examine Thai consumers' preferences and their willingness to pay for food safety in the fresh fruit market.

Methodology for Analysis

In this study, both qualitative and quantitative analyses are adopted. The qualitative analysis is utilized to describe the general production and marketing of fruits in both domestic and major export markets in terms of percentages, trends, and average figures.

The quantitative analysis is applied to analyze the results of the study objectives using the following key approaches:

(1) Augmented Dickey–Fuller test

when time-series data are used to analyze and estimate the results of the study. The time-series data will be tested for stationarity (unit-root test) by using the augmented Dickey–Fuller approach.

(2) Co-integration Approach

If time-series data are nonstationary at $I(0)$, the co-integration of Engle and Granger is used to estimate in the study of asymmetric price transmission, based on two variables: the farm gate price in Thailand, and the wholesale price in China. At the same time, the Johansen methodology is used to analyze the import demand structure, which has many variables.

(3) Vector error-correction model

The threshold vector error-correction model is adopted to evaluate the asymmetric price transmission, and the vector error-correction model is adopted to estimate the import demand function and the price elasticity from the co-integration relationship. In addition, it is used to evaluate the adjustment mechanism and the effect of EPAs.

(4) Conditional logit model

Because individual consumer preferences and characteristics are heterogeneous, consumers' preferences for food safety standards and their willingness to pay are estimated by using the conditional logit model approach. This approach emphasizes the characteristics of alternatives rather than the attributes of individuals.

Outline of the Dissertation

Chapter 2 is a literature review of relevant issues, including previous studies related to the effect of trade liberalization and FTA agreements in Thailand. The study examines fruit production and marketing, particularly of longans, bananas, and oranges, which are the main products in the case study.

Chapter 3 focuses on the price transmission and adjustment mechanism and the long-run relationship of the farm gate price to the export market price. It also includes a case study on the asymmetric price transmission of Thai longan exports to China. This study points out the structural changes in the market that have occurred during the study period. An augmented Dickey–Fuller test is used to identify stationary and non–stationary time-series data, and the Engel–Granger procedure is adopted for the co-integration test. The threshold vector error correction model (Threshold VECM) at 0 and the threshold value are used to examine the asymmetric price transmission.

Chapter 4 evaluates the import demand structure, the long-run own-price elasticity, and the effect of EPAs on import demand. These are conducted within a case study of banana exports to Japan. An augmented Dickey–Fuller test is used to identify stationary and non-stationary time-series data. Johansen’s rank test is adopted for the co-integration test, and the import demand function is derived for the co-integration relationship. Finally, the vector correction model (VECM) is used to estimate the adjustment mechanism for the long-run relationship and to measure the effects of EPAs among the exporting countries.

Chapter 5 evaluates consumer preferences on food safety in Thailand using a case study of fresh orange consumption. This study is based on an interview survey of Thai consumers in Bangkok, Thailand. A conditional logit model and the marginal willingness to pay are adopted to examine consumers’ preferences and their willingness to pay for food safety.

Lastly, Chapter 6 concludes the dissertation, presenting the main findings, policy implications, limitations of the study, and areas of future research.

pply chain management would also enhance Thailand's advantage from trade liberalization in term of competitiveness on price, quality, and food safety.

Previous studies show that fruit is a major source of agricultural trade in the world markets, and that transnational companies play an important role in marketing distribution and logistics management, as well as in production in many developing countries. Intermediate players also influence the asymmetric price transmission, especially in countries that emphasize exports more than domestic consumption, as in Thailand. At the same time, competition under trade liberalization among exporting countries is challenging them to adjust in order to maintain their competitiveness in importing countries. In addition, concerns about food safety standards are increasing.

This study extends previous studies. First, it investigates the implications of price transmissions between farm gate prices and export prices. It also conducts an import demand analysis on how exporting countries adjust to maintain their competitiveness under FTAs and EPAs by focusing on the major tropical fruits produced in Thailand and exported in Asia and the world market. Second, the food safety issue is analyzed in the Thai market to find consumers' perspectives and their preferences for food safety standards, including their willingness to pay on this issue for domestic and imported fruit.

Main Findings

1 Asymmetric price transmission of longans' farm gate price to export market price

China imports large quantities of fresh longans from the world market, and

particularly from Thailand. However, fresh longans are mainly bought on consignment. In 2003, Thailand and China signed an FTA under the early-harvest framework agreement, in which both countries reduced import tariffs for fruits and vegetables to 0%. Thus, their markets are located in the same territory, and the prices in these markets are related.

According to the price transmission study on longans, the market structural change for Thai longans being exported to China and an asymmetric price transmission occur between the farm gate price in Thailand and the wholesale price in China, although they are different in these two periods. For example, in the first period (a higher regime case), the price level in China in the long run is excessively high, although it can adjust for this deviation. However, the farm gate price in Thailand does not. In contrast, in the lower regime case, the price in Thailand can decrease significantly for an excessively high price in Thailand or for a lower wholesale price in China. This adjustment function of the wholesale price in China can be identified in the lower regime as well. The adjustment process differs in the second period when it is not the wholesale price in China, but the farm gate price in Thailand can adjust in a higher regime for an excessively high price level in China. In the lower regime, the farm gate price in Thailand does not work, but the wholesale price in China can adjust for a deviation from the co-integration relationship. This study also found that the competition between Thailand and Vietnam is increasing, and this is why there is a price adjustment effect for Thai longans in the Chinese market.

2 Import demand analysis and effect of the FTA on banana import to Japan

This study identifies the import demand structure and the effect of the FTA on Japanese imports of bananas. This study estimates the long-term negative and significant own-price elasticity of bananas from China, Ecuador, and Thailand, and finds that bananas from China and Thailand, and those from Mexico and the Philippines are substitutes. At the same time, bananas from Mexico and Thailand and those from China and the Philippines seem to be complementary. In addition,

bananas from Thailand are considered to be a more of a luxury product because Japanese consumers have a high food expenditure (higher income), and prefer to increase purchases of banana from Thailand. Nevertheless, they oppose those from the Philippines and China. With regard to the effect of the FTA on banana imports in Japan, this study found a decrease in imports of bananas from China after Japan concluded EPA agreements with Mexico and Thailand. The Philippines tried to maintain its competitiveness by lowering their price after Japan had signed the EPA with Mexico, and tried to export more after Thailand signed an EPA with Japan. This leads to better quality bananas from the Philippines, enabling them to maintain their exports and their market share, despite competitors having signed EPAs with Japan.

3 Consumer preference analysis for fruit consumption in Thailand

This study analyzes Thai consumers' preferences for consuming fresh fruit. In particular, it examines how food safety labels and packaging or being able to select oranges themselves will affect their preferences, as well as their willingness to pay on this issue. As mentioned in the previous section, Thailand can produce many kinds of the tropical fruit, However, some fruit is imported into Thailand via FTA agreements as well. The results of a consumer survey conducted at a Thai farmers' market (Aor Tor Kor market) show that Thai consumers prefer Thai and Chinese oranges, and that changes in the price are caused by their preferences, as general demand behavior. A food safety label would be beneficial for their choice, and they prefer to select orange themselves. From the consumer characteristics analysis on this issue, it is found that people who are younger and who have high household income prefer Chinese fruits, guaranteed by the food safety label. However, consumers who buy fresh fruit at the supermarket prefer Thai oranges with a food safety label and prefer to select the oranges themselves. Interestingly, Thai consumers are willing to pay for Thai oranges and Chinese oranges that have a food safety label. Therefore, providing information on food safety standards and inspections is useful and required by Thai consumers.

In conclusion, few studies have focused on tropical fruits in Thailand. There is a structural change in the wholesale price of longans in China owing to increasing competition between Thailand and Vietnam. This was shown using the threshold vector error correction model. In addition, the adjustment mechanisms in the long-run relationships between two periods differ, and asymmetric price transmissions occur in the longans market. Secondly, the import demand structure was investigated using the co-integration approach and the vector error correction model, which identified the long-run own-price elasticity and the price elasticity for bananas exported to Japan. It describes the short-run adjustment mechanism to the long-run relationship in terms of quantity adjustments and price adjustments in each country exporting bananas, and includes the effect of EPAs as well. Finally, improving Thai farmers' ability to produce under food safety standards and to provide information on food safety for both domestic and imported fresh fruit would be valuable for Thai consumers, because they are willing to pay for food safety information. Therefore, the Thai government ought to emphasize food safety certifications.

The views expressed here are those of the authors', and should not be attributed to the ministry of Agriculture and Cooperatives, Thailand, and their affiliated organizations.