

# 博士論文（要約）

論文題目 Economic Analysis of Taiwanese Rice Market: Consumption,  
Trade and Policy

（台湾における米の消費・貿易・政策に関する経済分析）

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## 論文の内容の要旨

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The objectives of this study are summarized in the following four points: (1) elucidate the mechanism by which the rice price has been maintained at a high level in Taiwan even after its accession to the World Trade Organization, (2) examine the potential impact of tariff reductions on the rice market and the environment of Taiwan, (3) evaluate the potential impact of the Japan-Taiwan free trade agreement on both rice markets, and (4) examine the potential businesses opportunity for Japan to export rice to Taiwan.

To achieve these goals, a modeling analysis was first conducted with a system of equations and inequalities model considering three government prices levels—the planned purchase price, guidance purchase price, and surplus purchase price—and two growing seasons. The model adopts a novel approach to replicate Taiwanese farmers' decision on their sales channel by using an auxiliary equation linking the uptake of government purchase to the price gap between the government offer and the private offer. After that, this seasonal model is modified to an annual one and then linked to the econometric model of Japanese rice industry built by Suzuki (2008) to assess the impact of Japan-Taiwan FTA on both rice markets. Findings from these analyses offer insights not only for the two countries but also for others suffering from a decline of their industry and shed light on the future of FTA and WTO negotiations. Following these analyses, a linear approximate/almost ideal demand system (LA/AIDS) is estimated to investigate the substitution relationships in Taiwan's rice market between Taiwanese rice and imported rice. Here, the consumption pattern of rice in Taiwan after WTO accession is examined. Given that studies in this area is extremely limited, the findings will be helpful for Taiwan and other rice exporting countries in their strategy making process.

The results show that the flexible double cropping system and the government strategy to maintain both the guaranteed purchase and the set-aside programs have been the keys to stabilize the domestic rice price and production without excessive government expenditures. Meanwhile, the reduction of tariff rate brings wide and severe impacts on not only rice market, off-farm benefits, government budget but also the nation's food security. Under the worldwide free trade, the support price would need to be raised to NT\$20.7/kg in order to maintain the current level of self-sufficiency, causing a budgetary burden of some NT\$5,040 million. In the case of Japan-Taiwan free trade agreement, Japanese rice production drops to 5.70 million tons and the self-sufficiency rate of rice decreases from present level (100%) to 50% with the removal of all policies under tariff exemptions. Results also imply that the present policy is not sufficient to sustain domestic rice market in Japan and a deficiency payment with a constant price could be an effective way to support Japanese farmers so as to maintain a higher level of self-sufficiency. On the other hand, Japan-Taiwan FTA is mostly beneficial to Taiwanese rice industry in terms of production, export and market price; nevertheless, with the adoption of support program, part of the advantages will shift from Taiwanese rice farmers to Japanese rice farmers. As for the analysis of rice consumption in Taiwan, the expenditure elasticity in the demand system was found to be at a value of 0.6 for rice and 2.9 for wheat; the own-price elasticity was 0.58 for rice and 0.84 for wheat. The expenditure and price elasticities for imported rice was statistically insignificant. However, the price elasticity and cross-price elasticity of demand estimated by a single equation for Japanese rice were found to be -3.52 and 4.05, respectively. The implication is that there are significant business opportunities in Taiwan for Japanese rice farmers and exporters if they manage to cut the production cost, or if Taiwanese rice becomes more expensive in the future.

**Keywords:** free trade, price support, consumption, rice market, Taiwan, Japan