

早稲田大学大学院アジア太平洋研究科

博士論文審査報告書

論 文 題 目

原題名 Original Title	The Impacts of FTAs on Latin America's Agricultural Exports to East Asia: A Gravity Model and Computable General Equilibrium Model Analysis
英訳 In Japanese	中南米農産品の東アジアへの輸出における自由貿易協定の影響 重力モデルおよび応用一般均衡 (CGE) 分析

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1. Abstract of the Dissertation

Agriculture plays a very important role for the economic development/growth of many Latin American countries. Being richly endowed with natural resources, many Latin American countries have a very competitive agricultural sector. Indeed, for many Latin American countries, agricultural exports have been an important source of obtaining foreign exchange, which enables them to import not only consumer goods but also investment goods and other items required for economic development such as technology.

The member countries of the Pacific Alliance (PA), Chile, Colombia, Mexico, and Peru, are no exception, as large shares of their exports consist of agricultural and food products including coffee (Colombia), fish (Chile, Peru), meat (Mexico). The United States of America and the members of the European Union (EU) have been major destinations of the PA members' agricultural exports. However, their agricultural exports to East Asian countries including China, Japan, and Korea have been increasingly notably in recent years, reflecting their high economic growth rate.

One of the important developments that have affected foreign trade in recent decades is rapid proliferation of free trade agreements (FTAs), under which tariffs and non-tariff barriers trade involving FTA members are eliminated or reduced. This trend is observed for many Latin American countries. Indeed, the PA, which was established in 2012, is an FTA. Besides the PA, its members have established FTAs with various countries including those in East Asia.

Against this backdrop, this dissertation asks mainly two important questions regarding the impacts of various FTAs including the PA with a focus on agricultural exports of the PA members. One is the impacts of seven FTAs with East Asian countries, which have been in force, on agricultural exports of the PA members, while the other is a simulation study to examine the possible impacts of FTAs involving Colombia with China and Japan. The former analysis is characterized as ex-post study, while the latter as ex-ante study.

The ex-post study, which applied the gravity model (GM) estimation, found that expected positive impacts of FTAs on the PA's agricultural exports are found in approximately a half of the cases selected for the analysis. The author argues that possible reasons for the absence of positive impacts are due to the presence of non-tariff barriers such as SPS regulation and the limited knowledge of FTAs by agricultural exporters from the PA members. The ex-ante study, which utilized a computable general equilibrium (CGE), revealed that Colombia would benefit in terms of economic welfare and export expansion from its FTAs with China and Japan.

2. Outline of the Dissertation and Summary of the Chapters

The chapter outline of the dissertation is as follows.

Chapter 1. Introduction

Chapter 2. Trade in Agricultural Products between Latin America and East Asia

Chapter 3. The Impacts of FTAs on Latin America's Agricultural Exports to East Asia:
A Gravity Model Analysis

Chapter 4. The Impacts of Colombia-China and Colombia-Japan FTAs on Colombia's
agricultural exports: A Computable General Equilibrium Analysis

Chapter 5: Conclusions

Chapter 1 presents the background, objectives of the study, hypotheses, research questions, significance of the study, contribution of the research, and the organization of the dissertation. Background, objectives of the study, hypotheses, and research questions were presented in the previous section (abstract of the dissertation) and thus the significance of the study and contribution of the research, which are closely related to each other, are briefly introduced here. The study provides a detailed analysis of agricultural exports of the PA countries to East Asia with a focus on China, Japan, and Korea. It also attempts to examine the impacts of FTAs on agricultural exports of the PA countries to East Asian countries by adopting two different approaches, ex-post and ex-ante approaches. The ex-post approach adopts the GM model to see the impacts of FTAs on the PA members' agricultural exports to China, Japan, and Korea. The analysis is applied at three different levels of aggregation; total, sectoral, and product levels. In the analysis at the product level, the information of the tariff rates, both MFN and FTA tariff rates, is explicitly taken into consideration. The ex-ante approach was conducted by simulating the impacts of Colombia's FTAs with China and Japan on the Colombian economy using the CGE model.

Chapter 2 presents a descriptive analysis of the agricultural trade between Latin America and East Asia, and it discusses their trade policies on agricultural products. Agricultural trade balance between Latin America and East Asia is in favor of Latin America, reflecting relative competitiveness of Latin America vis-à-vis East Asia in agriculture. The PA's food exports to China, Japan, and Korea are concentrated in few products. They include salmon, pork, beef, wine, grapes, cherries, avocados, coffee, flowers and fish flour. Despite some similarities in the Latin America's export composition in their exports to East Asia, each country of the PA members has a different comparative advantage in certain agricultural products. East Asia's agricultural imports from Latin America are not significant compared to those from the world. Factors such as the rapid urbanization and changes in lifestyle have affected the trend in food consumption for East Asia. China is the main importer of agricultural products from the world and Latin America is a main provider. China also leads the food imports from the PA, followed by Japan and Korea. Agricultural protection remains the most difficult challenge for the PA in its agricultural exports to China, Japan, and Korea. Non-tariff measures such as import quotas, sanitary and phytosanitary (SPS) and technical barriers to trade (TBT) measures restrict PA's agricultural exports to these countries.

Chapter 3 examines the impacts of seven FTAs on agricultural trade between the PA member countries and China, Japan, and Korea, using the gravity model (GM) estimation. The analysis was conducted for the data covering the 2003-2015 period at three different disaggregation levels (aggregate, sectoral and product level). The results of the estimation show some expectedly positive relationship but some unexpectedly negative relationship. More specifically, based on the results using aggregate data, the results show positive impacts on PA's exports to East Asia for four out of seven FTAs. Concerning East Asia's agricultural imports from the PA members, unexpected negative impacts were found in five out of seven FTAs. The author argues that these unexpected results, which reflect the low utilization of FTAs by exporters and importers, are mainly due to the presence of non-tariff barriers such as SPS and TBT as well as lack of knowledge of FTAs by firms engaged in trading.

Chapter 4 examines the possible impacts of FTAs involving Colombia on the one hand and China and Japan on the other hand by applying a CGE model. The model is a one-country model with detailed sectoral disaggregation, 26 sectors in total, of which 16 are agricultural

and food sectors. The model is calibrated for the 2014 data. Five different scenarios were considered: (Scenario A) tariff reduction reached for other PA (Chile and Peru) FTAs and 50 percent NTB reduction on Chinese imports from Colombia, (Scenario B) the same as scenario A except that Chinese imports are replaced by Japanese imports, (Scenario C) combination of A and B, (Scenario D) 100% tariff reduction and 50% NTBs reduction on Chinese and Japanese imports from Colombia, (Scenario E) 100% tariff and NTBs reduction of Chinese and Japanese imports from Colombia. As one would expect, Scenario E yields the maximum benefit for Colombia, but this scenario is not very realistic, given agricultural protection policy by China and Japan. Scenario C, the most likely scenario, results in 0.03 percent gain in economic welfare for Colombia and 47.7 and 28.4 percent increase in agricultural exports to Japan and China, respectively. The analysis also found the importance of reducing NTBs in Japan and China for the expansion of Colombian exports to these countries.

Chapter 5 summarizes major findings from the study and draws several policy implications. It further discusses the limitations of the study and brings out future research agenda. The following two findings are of notable importance. One is the limited usage of FTAs by the agricultural exporters from the PA countries to East Asia, possibly because of the presence of non-tariff barriers including import quotas, SPS, and TBT by the importing countries such as China, Japan and Korea. The other important finding is possible expansion of Colombia's agricultural exports to China and Japan if Colombia can successfully enact FTAs, which eliminate or reduce tariff as well as non-tariff barriers, with these countries. These findings would lead to some important policy implications for the Colombian government. First, the Colombian government should make effort to inform the agricultural exporters/producers of the availability and benefits of using FTAs. Second, the Colombian government should try hard to include the elimination/reduction of non-tariff barriers in its FTA negotiations. Third, the Colombian government needs to adopt export-oriented trade policy such as providing agricultural exporters with market and other information on important agricultural destinations. The author points out several limitations of the study. They include the limited availability of necessary data for the trade analysis, especially the data on tariff and non-tariff barriers. A limitation of the GM and CGE models is their limited availability in dealing with drastic structural transformation such as the introduction of new sectors or products, because these models are constructed on the existing economic/sectoral structure. Finally, the author discusses several future research agendas, which include an expansion of product coverage for the GM analysis and inclusion of liberalization of investment and trade in services for the CGE model analysis.

3. Discussions of Oral Defense Examination

The examination committee conducted the oral defense examination on November 1, 2018 after carefully reading the dissertation. The examination lasted approximately two hours. Main points of the deliberation are as follows.

Discussions in the dissertation are not well connected. For example, the discussions on Latin America's agricultural exports to East Asia in section 2.3 should be connected to the discussions on agricultural policies in East Asia and the PA countries in sections 2.4 and 2.5. Similarly, the discussions on the results of the analysis from the GM and CGE model analyses should incorporate the information/data provided in the descriptive analysis of agricultural trade in Chapter 2. On the GM analysis, one of the notable contributions of the dissertation is to conduct an empirical analysis at three levels of aggregation, overall, sectoral,

and product-levels. However, sufficient discussions are not given on the benefits/merits of the analysis by comparing the results from three different approaches. Quite a few results are not consistent with the expectation. But the possible reasons for the unexpected results are not explained satisfactorily. Turning to the CGE model, several questions are asked about the CGE model that is used for the analysis. Specifically, questions were asked about the merits of one country model rather than multi-country models and the use of GAMS instead of GTAP, commonly used software for the analysis. Suggestions were made to conduct a sensitivity analysis, in order to check the robustness of the results. In one of the simulation scenarios, 50% reduction in non-tariff barriers is assumed. This number seems arbitrary and needs explanation.

4. Evaluation and the Result of Examination

The examiners find that this dissertation makes a number of important and interesting contributions to the research of agricultural exports of Latin American countries to East Asian countries using three different approaches, descriptive analysis, GM estimation (ex post analysis of FTAs), and CGE model analysis (ex ante analysis of FTAs). The examiners evaluate this dissertation very highly because it conducts a rigorous analysis by applying the up-to-date quantitative methodologies. The findings make important contributions to empirical research on agricultural trade and provide very useful information for policy makers.

Considering the results of careful assessment of the submitted dissertation, whose summary is presented in sections 1 and 2 of this report, the oral presentation of the dissertation, subsequent discussions and revisions made to the dissertation, the committee members came to a unanimous decision that Adriana Roldan Perez, the author of the submitted dissertation, should be granted a Ph.D.

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