

## 論文の要旨

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論文題目 Study on Trade Effects of Food Safety Standards: Export Promotion, Measure Protection and Trade Duration (食品安全基準の貿易効果に関する研究: 輸出促進, 措置保護および貿易持続期間)

### 論文の要旨

This thesis studies the food safety standards that need to be complied in international trade, e.g. maximum residue limits for pesticides (MRLs), and their effects on food trade exports, trade protectionism and trade duration, thus enriching the understanding of international trade effects.

Chapter 2: Are China's food safety standards driven by trade protectionism? - Empirical analysis of maximum residue limits

Mandatory food safety standards, including maximum residue limits, may be used to replace substantially reduced agricultural tariffs as new non-tariff measures in international trade. China is the world's largest importer of agricultural products, and there is a question whether the maximum residue limits promulgated and implemented over the years have led to protectionism. Scholars have proposed "protectionism indices" to quantify the trade protectionism of non-tariff measures. This thesis collects and collates a relatively new and complete data set of maximum residue limits in China and the Codex Alimentarius Commission. This is used to demonstrate the evolution of China's maximum residue limits, and measure their protectionism indices relative to international standards. Regression analysis shows that China's maximum residue limits have tended not to replace tariffs as a new tool for trade protection. The motivation for the rise of protectionism indices appears to stem from public demand for improved food safety and the government's active response to food safety incidents. There may be some misleading implications to using the term "protectionism indices" in relation to maximum residue limits. The use of the term "stringency indices" may be more neutral and objective.

Chapter 3: Influence of maximum residue limits for pesticides on agricultural food exports: analysis based on a quality heterogeneous firms trade model

Some studies suggest that maximum residue limits (MRLs) discourage

imports by increasing compliance costs for exporters, similar to other non-tariff measures. This study analyzes the impact of MRLs on trade by constructing a quality heterogeneous firms trade model, with data of agricultural food products exported from China to the European Union (EU) from 2008 to 2020. The results show that the trade impact depends on the comprehensive effects of three factors: demand, variable cost, and fixed cost. Heterogeneity indexes, which combine the standard quantity and level, are used to measure the difference in MRL standards between China and the EU. The Poisson pseudo maximum likelihood fixed-effect estimator is applied in the regression to investigate the impact of MRLs on the exports of agri-food products. The results indicate that more stringent MRLs, whether formulated by the EU or China, promote China's agri-product exports to the EU. When China (the exporter) actively raises its MRL standards, there is an even more significant promotion effect on its exports than when China only follows the strict MRLs of the EU (the importer). The results are consistent with the rapid development of China's food safety standards and significant improvement in food safety levels over the past decade.

Chapter 4: Influence of the exporter's food safety standards on trade duration: An empirical study of agricultural food products from China

Previous studies have revealed the duration of most international trade combinations is unexpectedly short. Focusing on improving the trade duration may be more critical than simply exploring diversified markets to boost trade. Based on a set of export data from 2008 to 2019, the trade survival analysis shows the average trade duration of China's agri-food export is 3.5824 years. To further understand the trade duration, this thesis introduces the heterogeneity indices of Maximum Residue Limits for pesticides (MRLs) between China and Codex Alimentarius Commission (CAC), aiming to quantitatively measure the strictness level of China's MRLs standards, and adopts the discrete-time hazard model (Cloglog) to examine the impact of food safety standards on the duration of agri-food export. The regression results illustrate the upgrading of MRLs standards in exporter (China) have contributed to prolong the trade duration and stabilize bilateral trade relations. In addition, the capacity of agri-food production is also an emphasis factor affecting the stability of export trade.