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Essays on Empirical Analysis of the Comparative Advantage Dynamics

（比較優位の動学的変化に関する実証研究）

The objectives of these studies were to demonstrate the growth of trade in services, to distinguish the structural and evolving patterns of comparative advantage between trade in goods and in services, and to demonstrate the comparative advantage structure of selected countries. In order to accomplish these objectives, this study surveyed trade statistics and government reports and analyzed this statistical data using non-parametric estimation methods.

The increase of international trade in services began in the 1980s following the progress of the service economy. Although Petty-Clark's law is well-known as the upgrading of industrial structures associated with economic growth, it is also applicable to international trade. In the international economy, however, the increase of trade in services was not explained by Petty-Clark's law. The evolution of the transaction method such as Information and Communication Technologies (ICT) would also promote trade in services. In the 1990s, the revolutionary development of ICT distinctly contributed to the increase of trade in services. The external circumstances of international trade, thus, are faced with the reform term by the increase of trade in services.

The increase of trade in services also has affected the status of trade in goods. While the total amount of services is less than that of goods, various international services has become an important trade sector. In international economics, we have concerns about the comparative advantage of each trade sector. Although the studies on comparative advantage have traditionally researched the trade in goods, we have an increased need for studies on the comparative advantage of trade in services and the differences between goods and services against a background of the increase of trade in services.

The main features of this study is summarized in the following items. First, this study is focused on trade in services during the emerging periods, from the middle of 1980s to the start of 2010s. All through the main chapters, we have acknowledged the development process of trade in services. Second, this study has investigated the differences between goods and services in comparison with the features of comparative advantage and its dynamics. Using statistical analysis, the study executed the non-parametric estimation as an

application of the stochastic process. Third, this study has analyzed the comparative advantage structure of goods and services in selected countries that have service trade surpluses or deficits. Fourth, this study has searched for the optimal parameter of numerical analysis for the estimation of the stochastic process.

This study provides the following contributions. First, the analytical results based on the transition probability analysis of the comparative advantage indicates the different pattern of mobility between the goods and the services. Although existing studies only have been focused on trade in goods, this study introduces a new aspect of mobility by introducing trade in services to the analytical framework. Second, this study extends the existing analytical method. In the transition probability analysis, this study attempts to set more states that are equal to the number of observation countries than existing studies, which set at most four or five states. This extension allows us to see more elaborate state transitions. Third, the extension of the states' setting reveals the hidden transitions in the existing states' settings by comparing the extended states setting with the existing one. Fourth, the intra-distribution analysis shows an inherently higher comparative advantage sectors in the selected countries. For example, U.S. trade has the highest comparative advantage in the Royalties and License Fees sector, and U.K. trade has the highest comparative advantage in the Financial Services sector. Fifth, this study suggests the implication of the convergence speed of Markov's process, where the convergence from the initial distribution to the limit distribution means the convergence from the real situation to the ideal situation in economics. Sixth, this study demonstrates the importance of trade in services and the presence of MNCs by the intra-firm transactions in international services. The former suggests an increase of trade in services corresponding to the increase in the service economy. The latter suggests the importance of foreign direct investment for managing the foreign subsidiaries of MNCs, as well as international trade.