博士学位論文審査報告書
Summary of Doctoral Thesis and Report of Examination

To the Dean:
We report the result of Examination for the Doctoral Thesis below.

Student I.D. No.: 4009 S 318 - 4
Name: Ferdous, Faraz Binti

Title in Japanese: 日中韓貿易における輸出多様化のパターンとその決定要因について:
商品レベルの分析

Title in English: Patterns and determinants of export diversification in China, Japan, and Korea:
A study using highly disaggregated data

Faculty Members Involved in Oral Examination

Chief Referee of the Screening Committee

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Ph.D. Title Earned: Stanford University

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Date / Time: (Y)2013 / (M) 4 / (D) 19
Period: 1 st: 9:00-10:30, 2 nd: 10:40-12:10, 3 rd: 13:00-14:30, 4 th: 14:45-16:15, 5 th: 16:30-18:00, 6 th: 18:15-19:45, 7 th: 20:00-21:30
Venue: 19-710

Result: ○Passed・否/Failed (該当する方に○ Circle as appropriate)

Attached document(s) 
7枚 pages (Approximately 4,000 characters in Japanese, or 1,500 words in English. The Doctoral Thesis title, however, must be written in both Japanese and English.)
Reports of Submitted Ph.D Dissertation

Name: Farazi Binti FERDOUS
Title: Patterns and determinants of export diversification in China, Japan and Korea: A study using highly disaggregated data
邦語タイトル：日中韓貿易における輸出多様化のパターンとその決定要因について：商品レベルの分析

I. Overview of the Dissertation

Contemporary studies in international trade have focused on changes in trade patterns driven by countries’ export in goods that they had not exported before. These sorts of changes are referred as changes on extensive margin or the new goods margin. At the same time, changes in intensive margin are changes in exports of goods that were previously exported. This study focuses on these two measures of diversification particularly in relation to China, Japan and Korea and their major twenty trade partners.

Previous literature on East Asian export diversification did not thoroughly study the intensive and extensive margins of exports for China, Japan and Korea. The highly disaggregated data is used in this research in order to investigate the extensive margin of export, i.e. the range of products that one country exports to another. At this level of disaggregation there are many ‘zeros’ in the trade matrix due to the fact that countries export only a subset of goods to each partner. With the help of recent trade models as Melitz (2003) the existence of zeros in the trade matrix can be related to the variable and fixed trade costs. The new-new trade theories suggest that the likelihood of observing a zero in the trade matrix increases with the level of fixed trade costs.

In order to understand export diversification, it is essential to acknowledge its microeconomic determinants. Countries should focus on discrete changes in which bilateral trade liberalization and other factors facilitate the transformation of some goods from non-traded to traded status. For this reason, it is important to obtain reliable estimates of effects of those trade barriers (trade costs) or trade enhancers (e.g. free trade agreements, FTAs) on international trade flows. This study estimates the effect of gross domestic product (GDP), distance, exchange rate, FTA, export cost, import cost and starting business cost on extensive and intensive margins of export.

The study finds substantial changes in the diversification pattern and shows that trade costs have significant impact on overall diversification of exports, supporting the hypothesis that export diversification in both margins are influenced by all trade barriers and enhancers.
II. Chapter Outline and Contents of Dissertation

Chapter 1 Introduction
Chapter 2 Literature Review
Chapter 3 Patterns of Export Diversification in China, Japan and Korea
Chapter 4 Determinants of Export Diversification Using Aggregate Level Data
Chapter 5 Determinants of Export Diversification Using Disaggregate Level Data
Chapter 6 Conclusion

Chapter 1 explains the background, significance, objective and originality of the study. Recent studies of export diversification have revealed a wealth of new stylized facts. The trend of using increasingly disaggregated data discovered surprising patterns of export entrepreneurship among the countries. The most detail trade data available on a worldwide basis are at the 6-digit level of Harmonized System (HS), and make a distinction amongst more than 5000 different products. Therefore, this study uses the HS 6-digit level export data from International Trade Center (ITC), based on UN Comtrade data, from 2001 to 2011.

The exporting countries for this study are China, Japan and Korea as mentioned. The importing countries include United Arab Emirates, Australia, Canada, China, Germany, United Kingdom, Hong Kong SAR, Indonesia, India, Italy, Japan, Korea, Mexico, Malaysia, Netherlands, Philippines, Russian Federation, Singapore, Thailand, United States, and Vietnam. Thus, this study has three exporters and twenty corresponding importers to deal with. These twenty partner countries contribute to nearly 80% of Japan’s and China’s exports and 75% for that of Korea’s. Therefore, it is clear that these twenty partner countries are playing very important roles in the export scenario for China, Japan and Korea.

Chapter 2 focuses on the conceptual discussions about export diversification. Moreover, it describes various measurement techniques of traditional and recent trends for export diversification. Additionally, the chapter briefly surveys the existing literature in the related topics like export diversification and growth, determinants of export diversification, theoretical motivation, studies in East Asian export diversification and FTAs. Existing international trade studies do not offer enough information on the patterns and determinants of export diversification in China, Japan and Korea. Therefore, this study attempts to fill the gap in the existing trade literature by using disaggregated level export data for these three economies.
After critical examination of the existing trade and export diversification literatures, the study finds that the researchers in the previous studies regarding regional export diversification in China, Japan and Korea have ignored the presence of zero’s in the bilateral trade matrix and also FTA’s impact on them. Most of the studies estimate the gravity equation on large group of countries and on only positive trade flows. This study argues that, by disregarding the zero export flows, specifically for these three countries in East Asia, these studies give up important information contained in the data set.

Chapter 3 gives an idea how export diversification has been changing over the last eleven years in China, Japan and Korea. This study finds significant changes of export diversification scenario in all three countries’ export for both intensive and extensive margins. It finds that the extensive margin of export is changing with respect to a number of active export lines, for China, Japan and Korea. Moreover, all three exporters are concentrating their export in some specific sectors in terms of intensive margin for regional and outside region destinations. For China, the concentration is similar for any region but for Japan and Korea it is higher for outside Asia. This clearly shows that export diversification has been changing for these three Asian economies over time.

To understand what products are bringing these changes in the export diversification pattern for these countries, this chapter presents calculation of the number of goods that appear in the list as new goods for each exporter and corresponding importer. Significant number of new goods of export emerges in the export list of China, Japan and Korea during the last eleven years. The distribution of the new goods is concentrated to some important sectors like machinery, minerals for China and Korea and textiles sector for Japan. Moreover, these new goods are concentrated into the machinery and minerals sector for partners outside the Asian region, for China and Korea. Therefore, even though these new products confirm the presence of export diversification from extensive margin’s point of view, the sectoral concentration of the new and existing goods is increasing the concentration of export from intensive margin’s point of view. Calculation of new goods reveals that growth in export is found to be mainly driven by intensive margin, while the contribution of extensive margin to export growth is rather limited.

The study finds significant changes in the diversification pattern of China, Japan and Korea. While diversification is measured by the number of exported products or the extensive margin of export; an increase in the numbers indicates higher export diversification. The results show that China and Korea are increasing the average
number of export items to their major twenty trade partners. Nevertheless, Japan shows a decreasing trend of export diversification with the partner countries. This finding thus supports the previous literature that countries diversify at the beginning of their economic development and then concentrates on export products.

In Chapter 4, this study hypothesized along with Linder hypothesis that trade will be most intensive among countries with similar demand structure due to a large overlap of production and consumption patterns; and this overlap of demand can be seen in terms of product variety or diversified trade. The results support the fact that China’s export diversification does not depend on the similarity of income with the destination economy. On the other hand, Japan’s existing export or the intensive margin of export diversification significantly depends on the reducing trend of the income gap with the partner economy. Interestingly, Korea’s export diversity is significantly affected by the increasing income gap with the partner economy.

All findings using aggregate level of export data (total number of exports and total value) support the fact that Korea, Japan and China export more goods of the new and existing category to countries with larger income. Trading with Asian economies induces export diversification for Japan and Korea but not for China. However, exchange rate fluctuations show strong influence on the export diversification in total values and in number of goods for all three exporters. Having FTA with partner countries increases export diversification and export value for China. But FTA negatively effects number of export varieties for the case of Japan. For Korea, having FTA with the destination country does not affect its export diversification at the aggregate level. The study also finds evidence that supports the other hypothesis that greater variety in export is associated with reduction of export costs; reduced export costs through improved trade facilitation helps to increase export varieties.

Chapter 5 is designed to find determinants of export diversification using highly disaggregated data. This analysis attempts to understand the firm-level export decisions. Understanding of firm’s decision on export requires detailed firm-level data, which is not generally available. To fill the gap, this study used a highly disaggregated trade data. Using the available internationally comparable HS 6-digit level export data from ITC, still gives an idea of how the exporting firm’s decisions are affected by various factors that proved to be significant in the previous chapter. At this level of data, there are many zeros in the trade matrix and change of zeros to some positive values is considered as extensive margin growth. Therefore, what factors are affecting that growth of new goods is the concern of this chapter along with the growth of the existing export values.
The results provide an indication of the likelihood of export diversification. It confirms the main hypothesis about the impact of the gravity and trade costs variables in creating trade in new varieties. Own economic growth is more important for China and Japan’s export variety rather than growth of demand in the partner economy. Trade costs also have significant impact on overall diversification of exports, supporting the hypothesis.

When using disaggregated data the study confirms that FTAs increase the likelihood of exporting new varieties of export to the trade list of these countries. On the other hand, reduction of export cost at home and import cost at destination market helps to induce new varieties in the export list by encouraging new entrepreneurs in the export market. These results of trade and market entry costs provide an indication of the impact of the reduction in trade costs in creating new varieties. This effect is larger for Japan than that of Korea and China. This helps to explain the reduction of number of zeros in the export matrix.

Chapter 6 starts with summarizing the main findings of the study from each chapter. It also presents some concluding remarks based upon the findings of the study. The trend of using increasingly disaggregated data discovered surprising patterns of export entrepreneurship among the countries. In the field of export studies, decompositions of export growth into intensive and extensive margins have revealed many interesting patterns. The main aim of this study was to extend the analysis of patterns of export diversification and its determinants in China, Japan and Korea. GDP, distance, FTAs and trade costs significantly affect export diversification and at any level of export. The study results therefore supports the hypothesis that export diversification in both margins are influenced by trade barriers and enhancers, for China, Japan and Korea.

III. Evaluation

A number of important and interesting developments can be identified regarding foreign trade in East Asia in recent decades. Rapid expansion of trade involving China, while relative decline in the importance of Japan in East Asian trade. These contrasting developments are mainly attributable to differences in economic growth of these two countries. Another development of importance is rapid expansion of free trade agreements (FTAs), which eliminate tariffs on trade between FTA member countries. This is a phenomenon observed globally, while East Asian countries, particularly China, Japan, Korea in Northeast Asia, have been late comers in the FTA race. It was in the late 1990s when these three countries began to show an interest in
FTAs, largely because they felt discrimination in their export markets due to the fact that they were not members of FTAs. In order to overcome this discrimination, they started to negotiate FTAs.

Several important developments have been noted in the empirical studies of international trade in recent years as well. One is a detailed analysis of trade patterns using very detailed and disaggregated trade data. In the past most of the empirical studies on foreign trade used trade data, which were disaggregated into roughly 100-200 product categories. In recent years, many empirical studies use trade data, which are disaggregated into more than 5,000 products, thanks due to increased data availability and to an improvement in data processing technology. Another important development is an investigation of trade patterns at the level of firms. The most important theoretical contribution in this regard is Melitz (2003), who analysed the trade patterns by explicitly recognizing heterogeneity of the firms. Prior to this seminal contribution, the patterns of foreign trade were analysed at broader aggregated level by assuming homogeneity of firms, or more correctly by ignoring heterogeneity of firms.

In light of the recent developments in the changing patterns of foreign trade in East Asia and new approaches adopted in the empirical studies of foreign trade, one realizes that this dissertation analyses emerging trade issues in East Asia by adopting new empirical approaches. As was explained in the previous section, the dissertation revealed a number of new findings, contributing to the empirical study of foreign trade. Some of the new findings include the intensification of diversification of foreign trade by China, Japan, and Korea and the determinants of diversification of foreign trade. In particular, it is worth noting that the inclusion of “zero” trade value in the analysis of the determinants of trade diversification is a major contribution because many earlier studies dropped zero trade values in the analysis, ignoring very important information.

Several interesting extensions may be identified. First, the number of countries may be increased. By doing so, one may be able to make more comparisons concerning the changing patterns of foreign trade and one may also be able to obtain more robust statistical results by increasing the degree of freedom. Second, realizing that trade in intermediate goods such as parts and components that increased substantially in comparison with trade in final goods, one may divide the analysis into that concentrating on intermediate goods and that on final goods. In the analysis of the determinants of foreign trade in intermediate goods, foreign direct investment (FDI) may be found important as a large part of trade in intermediate goods is undertaken by multinationals, which have developed production networks, or supply-chains, by FDI.
IV. The Decision of the Committee

Considering the results of careful assessment of the submitted dissertation, which is presented in section III of this report, the oral presentation of the dissertation and subsequent discussions, which was held on April 19, 2013, the Committee members came to a unanimous decision that Farazi Binti FERDOUS, the author of the submitted dissertation, should be granted a Ph.D.

May 19, 2013

Evaluation Committee
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