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.: 4007 S 013 - 5
Name: Juita Binti Mohamad
Title in English: Wage Inequality and Trade Reforms in Malaysia: An Empirical Study

Faculty Members Involved in Oral Examination

1. Chief Referee of the Screening Committee
   - Name: 浦田秀次郎
   - Affiliated Institution: 早稲田大学大学院アジア太平洋研究科
   - Status: 教授
   - Position: Ph.D. Title Earned: Name of Institution
     - Ph.D Stanford University

2. Deputy Advisor (Member of Screening Committee 1)
   - Name: 不破信彦
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2. Date / Time:
   - Year: 2013
   - Month: 11
   - Day: 16
   - Time: 11:00
   - Period: 1st: 9:00-10:30, 2nd: 10:40-12:10, 3rd: 13:00-14:30, 4th: 14:45-16:15, 5th: 16:30-18:00, 6th: 18:15-19:45, 7th: 20:00-21:30
   - Venue: 19-608

3. Result:
   - Passed

4. Attached document(s)
   - Pages: 7

(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.)
I. Overview of the Dissertation

As the world economy shifts into a more globalized era, every developing nation is harnessing its resources in an effort to take part in a freer trade regime. Globalization promotes free trade and it is believed to promote a more leveled playing field in the world market, as tariff rates are driven down to near 0%. With all of the advantages of globalization, economists have found a trend in many developed and developing countries whereby as trade liberalization episode takes place, wage inequality between skilled and unskilled workers is observed to be increasing drastically.

In the past two decades the study of wage inequality and trade reforms has had more momentum than it ever had before. The significant rise in interest on this topic could be explained by the sequencing of incidents of increasing wage/income inequality that follows after the drastic episodes of trade reforms in the developing countries. According to the Stolper-Samuelson theorem, an important theorem in Heckscher-Ohlin trade theory, developing countries should see trade liberalization reduce inequality in wages between skilled and unskilled workers. As trade liberalization expands the exports of products that are produced intensively with unskilled labor, which is abundantly available in developing countries, it reduces the quantity of production of products that are produced intensively with skilled labor, which is scarcely available in developing countries.

This thesis presents new evidence from Malaysia on the impact of trade liberalization on wage inequality. Malaysia offers an excellent case to study for the effects of trade liberalization on wage inequality for two reasons; a) the magnitude of trade liberalization in Malaysia was very big, b) the trade reforms in Malaysia were exogenous and came as a surprise. From an industry perspective, the target tariff rates were exogenously predetermined and policymakers had less room to cater to special lobby interests. Hence, the Malaysian trade liberalization episode offers an excellent natural experiment to examine the impact of trade reforms on the labor market. The aim of the thesis is to determine the link between trade reforms and wage inequality between the skilled and unskilled workers in Malaysia from 1989-2010 using both household- and plant-level data.
II. Chapter Outline and Contents of Dissertation

Chapter 1: Introduction
Chapter 2: Background of the Income/Wage Inequality in Malaysia
Chapter 3: Background on Tariff Reduction through AFTA and WTO Initiatives
Chapter 4: Literature Review and Theory of International Trade
Chapter 8: Conclusion

Chapter 1 explains the background, significance and objectives of the study. A growing body of research indicates that trade liberalization has tended to increase national income of the countries. However, academic and policy debates on the internal distributional consequences of trade liberalization have emerged, because trade liberalization or globalization seems to have increased wage inequality in many countries. The motivation of the study comes from the debate on the effects of trade liberalization on inequality both within and outside Malaysia. The internal debate consists of the speculations and suggestions made by local Malaysian economists when analyzing the income distribution of the Malaysians based on race and location since the early 1980s. The external debate comes from the many literatures from both the developed and developing countries such as the United States, the United Kingdom, Colombia, Brazil, India, Mexico and the Philippines. For most of the countries under study the findings showed that trade reforms do lead to increased wage inequality. However for some countries like Indonesia and India trade reforms had a positive impact on wage inequality, whereby after trade liberalization, wage inequality between skilled and unskilled workers has decreased.

Chapter 2 discusses the history of wage/income inequality in Malaysia and how different National Economic Policies were put in place after the Independence from the British until the present time. It also touches upon how the employment structure has changed over time due to the many policies put in place.
Chapter 3 explains the commitments made by Malaysia as a member of the General Agreement on Tariffs and Trade (GATT)/World Trade Organization (WTO) and ASEAN Free Trade Area in lowering tariff rates signifying the trade liberalization process undergone by Malaysia. Besides Asia-Pacific Economic Cooperation (APEC) and several other free trade agreements (FTAs), the two commitments above are seen as the most important and pressing commitments in leading to a drastic reduction of tariff rates.

Chapter 4 presents the literature review linking trade reforms to wage inequality. The literature is divided into several parts highlighting the many channels through which trade reforms can influence wage inequality in both developed and developing countries.

Chapter 5 investigates empirically the relationship between wage inequality between the skilled and unskilled workers in the Malaysian economy as a whole and how it has been affected by the trade reforms in Malaysia from 1989 to 2009 by using Malaysian Household Income Survey data. The study follows a two-stage framework, which was employed in the study of Columbia by Goldberg and Pavcnik (2003). The first stage regression employed a Mincer-type equation in determining which channels affect the real wages for Malaysian workers. In the second stage, the industry wage premiums were pooled over time and regressed on a vector of trade-related industry characteristics and a vector of industry fixed effects, and time indicators. The findings from this chapter suggest that trade reforms have led to decreased wage inequality between skilled and unskilled workers in Malaysia during the period under study. This finding is consistent with the predictions of the Stolper-Samuelson Theorem from a developing country perspective, which has relative abundance in unskilled workers.

Chapter 6 analyses and quantifies the effects of Skill-Biased Technical Change (SBTC), both exogenous and trade induced, that occurs through changes in the price of Machinery and Equipment (M&E) using data at the plant level in Malaysian manufacturing from 2000 to 2010. The novelty of this work lies in the identification strategy adopted, based on using an external instrument, the import price of M&E in Malaysia, for the domestic price of M&E in Malaysia. This strategy ensures that the relationships found in the data are of a causal nature. The results show that the effects of both exogenous and trade-induced SBTC caused by changes in the price of M&E on the skill premium, which is used as a measure of wage inequality between the skilled and unskilled workers, are of statistical significance. Changes in the import price of equipment and in tariff rates on M&E can explain about 2% the increase in the relative skilled wages during the period considered. Given the identification strategy adopted,
this is to be considered a lower bound estimate of the effects of SBTC on the relative skilled wages. From the descriptive analysis of this chapter, both relative skilled wages and relative skilled employment tended to rise from 2000 to 2010 for some selected industries. This implies that both wage inequality and employment inequality, have been increasing between the skilled and unskilled workers. This is highlighted by the growing employment and real wage ratios of skilled to unskilled workers from year 2000 to 2010. So wage inequality in the manufacturing sector has increased according to the analysis and this is partly due to SBTC.

The analysis in Chapter 7 has empirically explored the possible roles of trade and technology in affecting the skill-biased employment gap vis-à-vis unskilled employment within the Malaysia manufacturing sector from 2000-2010. A first outcome from the study is that technology has a positive effect on employment of skilled workers and a negative effect on employment of unskilled workers. The relationships between existence of R&D activities and demand for labors are very different for production and non-production workers. On the one hand, the relationship between R&D and total production workers employed is negative. Firms with R&D are observed to have lower demands for production workers compared to firms without R&D activities. On the other hand, the relationship between R&D and total non-production workers employed is positive. Firms with R&D are observed to have higher demands for non-production workers compared to firms without any R&D. As more firms need to be involved in R&D to ensure higher efficiency and higher productivity to compete with other firms, more skilled workers tend to be employed in the firms with R&D relative to unskilled workers, resulting in widening employment inequality.

Chapter 8 summarizes the findings in each quantitative analysis chapter. This chapter also acknowledges the limitations of the study and then points out possible future research following this study. The investigation proves that trade reforms have led to decreased wage inequality between skilled and unskilled workers in Malaysia during the period under study using household-level data from 1989-2009. However when the analysis was done, by using plant-level data the findings show that the decline in the price of M&E due to reductions in tariffs tends to increase wage inequality between skilled and unskilled workers. This confirms the hypothesis that technical change coming through the reduction in the prices of M&E, favors skilled workers in comparison to unskilled workers. Additionally technology in the form of R&D has a positive effect on employment of skilled workers and a negative effect on employment of unskilled workers.
III. Evaluation

The world is witnessing rapid globalization of economic activities in various forms including foreign trade, foreign direct investment and international movement of people. Globalization has been progressing because the cost of undertaking international economic activities has declined enormously in the last few decades. Reduction in transaction cost in turn is due mainly to the following two factors. One is rapid technological progress in transportation and communication services, and the other is the change in economic policies. Specifically, deregulation in domestic economic activities and liberalization in foreign trade and foreign direct investment policies have enabled multinational firms to expand their operation, leading to globalization of economic activities. Important questions regarding globalization are its economic impacts, which include economic growth, productivity, innovation and others. Among those impacts, one of the most important impacts is on income distribution. Indeed, one of the most serious negative impacts of globalization has been argued to be worsening income distribution, although globalization seems to have contributed positively to economic growth, productivity increase and promotion of innovation. Alleged negative impact of globalization on income distribution is a serious issue, as worsening income distribution would undermine social and political stability, which would in turn result in economic instability and derail economic growth.

The discussions above indicate the importance of the topic chosen and analyzed in this dissertation. Specifically, the issue of the impacts of trade liberalization, which was actively undertaken in Malaysia since the late 1980s, on wage equality/inequality of skilled and unskilled workers, is very important in Malaysia and it is rigorously analyzed in the dissertation. As discussed in the previous section, the dissertation found contrasting patterns on the relationship between trade liberalization and wage inequality using household income survey data covering the entire economy on the one hand and plant-level data covering the manufacturing sector on the other hand. An investigation of the impacts of trade liberalization on wage inequality for the entire Malaysian economy found that trade liberalization resulted in reducing wage inequality, while an investigation of the issue for the manufacturing sector revealed a completely opposite relationship in that trade liberalization led to an increase in wage inequality.

The dissertation has made a number of important contributions in the literature of the impacts of trade policy on wage equality/inequality. First, this dissertation is the first detailed study of the impacts of trade liberalization on wage equality/inequality in
Malaysia, where increasing wage inequality has become a very important issue, not only economically but also politically and socially. The findings from the dissertation provide useful information on this contentious issue. Second, the dissertation took two different approaches, one focusing on trade policy variables such as tariffs and the other focusing on technical change induced by trade policy, in identifying the impacts of trade liberalization on wage inequality, while earlier studies have taken either one of the two approaches. Adopting these two approaches would reveal different patterns, which may not be found from adopting just one approach. Third, statistical analyses were conducted very carefully using household as well as plant-level detailed data. Besides, descriptive analysis of the wage/income equality/inequality as well as detailed and careful literature survey provided very important and useful information, which set the stage for detailed empirical analysis.

Having identified the merits of the dissertation in the previous paragraph, one needs to point out some remaining issues, in addition to those noted by the author, which the author may take up in her future research. One most important remaining issue may be seeming inconsistent empirical results from the two approaches, one indicating that trade liberalization resulted in reducing wage inequality while the other showing the opposite relationship. These inconsistencies may be reconciled when one considers the following points. First, the coverage of the two investigations is different, one covering the entire economy while the other covering only the manufacturing sector. Second, the channels through which the effects of trade liberalization are permeated are different. The study covering the entire economy investigates the impacts of trade liberalization directly focusing on its impacts on wages by using tariffs as trade policy variable, while the study focusing on manufacturing captures trade liberalization through the induced technical change, which is reflected in the reduction of the machinery and equipment prices.

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 November 16, 2013, the Committee members came to a unanimous decision that Juita Binti MOHAMAD, the author of the submitted dissertation, should be granted a Ph.D.

December 30, 2013
Evaluation Committee

Main Examiner: Shujiro Urata Ph.D. (Stanford University)
                Professor, GSAPS, Waseda University

Deputy Examiner: Nobuhiko Fuwa Ph.D. (University of California, Berkeley)
                 Professor, GSAPS, Waseda University

Examiner: Kazuhiko Yokota Ph.D. (University of Colorado, Boulder)
          Professor, School of Commerce, Waseda University

Examiner: Atsuyuki Kato Ph.D. (University of Essex)
          Assistant Professor, GSAPS, Waseda University