Symposium on Contemporary Issues of International Trade: Introduction

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We deeply regret the passing of Professor Kiyoshi Kojima, professor emeritus of Hitotsubashi University in Tokyo, on January 7, 2010, at the age of 89 years. He had made a number of original and significant contributions to the development of international economics.

Professor Kojima was born on May 22, 1920, in Aichi prefecture. He graduated from the Tokyo University of Commerce in 1943 and was nominated by the university as an assistant professor in 1945, as an associate professor in 1949, and as a professor in 1960 when it was called Hitotsubashi University. For a long time, until 1984 (his retirement year), he dedicated himself to research and education in Hitotsubashi University. After his retirement from Hitotsubashi University, Professor Kojima taught at International Christian University from 1984 to 1990 and at Surugadai University from 1990 to 1996. Over many years, Professor Kojima had conducted a variety of theoretical studies and policy-oriented researches on international trade and economic development and dedicated himself to the education of his students in these fields.

Professor Kojima made a large contribution to the development of the academic activities of the Japan Society of International Economics (JSIE) as an executive manager, president, and special advisor. In 2006, the Kojima Kiyoshi Prize for researchers who have made an excellent contribution to the development of research in international economics was founded by his donation; the prize also aimed to encourage the members of JSIE to develop further studies in this field.

After the publication of his work *Sekai Keizai to Gijyutsu [World Economy and Technology]* (1943) with Kaname Akamatsu, which analyzed the relation between the development of the world economy and technological progress, Professor Kojima continuously published many books, including *Jiyuu Boueki Riron no Kenkyu [Studies of Free Trade Theory]* (1948), focusing on the modern international trade theory that emerged in Japan after the Second World War, *Kokusai Keizai Riron no Kenkyu [Studies of International Trade Theory]* (1952), and *Koueki Jyouken [The Terms of Trade]* (1958), which are comprehensive studies on the role of international trade in Japan's economic development.

Professor Kojima's research on regional economic integration had made an impact on international economic cooperation, from the viewpoint of regional economic integration. He asserted the importance of the cooperative

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division of labor as a conceptual framework. On this subject, he published *EEC no Keizaigaku [Economics of EEC]* (1962), *Teikaihatsukoku no Boueki [International Trade of Less Developed Countries]* (1964), *Taiheiyou Keizaiken to Nihon [The Pacific Economic Zone and Japan]*, (1969), *Japan and a Pacific Free Trade* (1971), *Sekai Keizai Shin Chitsujyo to Nihon [New World Economic Order and Japan]* (1975a), and *Japan and a New World Economic Order* (1977a).

Professor Kojima extended a theory of pro-trade foreign direct investment (FDI) from the macroeconomic perspective and showed that FDI accelerates international trade in the following publications: *Sekai Boueki to Takokuseki Kigyou [World Trade and Multinational Enterprises]* (1973), *Kaigai Chokusetsu Toushi Ron [Theory of Foreign Direct Investment]* (1977b), *Direct Foreign Investment: A Japanese Model of Multinational Business Operations* (1978), *Nihon no Kaigai Chokusetsu Toushi [Foreign Direct Investment of Japan]* (1985), and *Kaigai Chokusetsu Toushi no Makuro Bunseki [Macroeconomic Analysis of Foreign Direct Investment]* (1989). He clearly stated that “the main role of foreign direct investment is to transplant superior production technology through training of labor, management and marketing, from the advanced industrial country to lesser developed countries, or, in brief, it is the transfer of superior production functions which replace inferior ones in the host country. FDI is to be a starter and a tutor of industrialization in less developed countries” (1975b).

Notably, Professor Kojima’s textbooks *Gaikoku Boueki [International Trade]* (1950) and *Tekisuto Ouyou Kokusai Keizaigaku: Jiyuu Boueki Taisei [Textbook of Applied International Economics: Free Trade System]* (1992), which feature revisions based on the incorporation of his new research results, have been read at many Japanese universities. He constantly made efforts to challenge the new subject of international economics, and despite being over 80 years of age, by critically examining the traditional theory he embodied the qualities of an ideal researcher. He summarized his lifetime work on trade, FDI, economic development, and regional integration within the framework of the flying geese theory by publishing three volumes: *Gankou Gata Keizai Hatten Ron [Flying-Geese-Style Economic Growth]*, vol. 1, *Nihon Keizai, Ajia Keizai, Sekai Keizai [Japanese Economy, Asian Economy, and World Economy]* (2003); vol. 2: *Ajia to Sekai no Shin Chitsujyo [Asia and Japan in a New Order]* (2004); and vol. 3: *Kokusai Keizai to Kinyuu Kikou [International Economy and Monetary System]* (2006).

Professor Kojima’s research also influenced the formation of the foreign economic policy directly. His research led to the foundation of the Pacific Trade and Development (PAFTAD) Conference in 1968, and he successively held the position of the standing chairperson of the Conference. PAFTAD has been held every year with the participation of economists of the Pacific Rim countries; the experiences and results of PAFTAD over the past many years contributed substantially to the establishment of the Asia and Pacific Economic Cooperation (APEC). Professor Kojima also participated in the Preparatory Secretariat to establish the United Nations Conference on Trade and Development (UNCTAD); as a member of the team of fifteen experts and advisors selected worldwide he participated in the Committee on Multinational Enterprises, United Nations from 1977 to 1982 to draft the Code of Conduct of Multinational Enterprises.

Throughout his life, Professor Kojima devoted himself to the development of international trade studies and the education of many talented people; he contributed to the formulation of the economic policy of Japan and the international society, particularly the Pacific Rim countries. He was unarguably a leading Japanese economist.

Seven articles included in this symposium published as a special issue of the Journal of the Japan Society of International Economics are dedicated to the great services of the late Professor Kojima. I will briefly introduce them.

Unilateral tariff liberalization by developing nations is a pervasive phenomenon. There has been, however, very little theoretical work to shape our thinking on why this is occurring. Baldwin redresses this lacuna by introducing three mechanisms that could account for unilateral tariff liberalization by developing nations that previously embraced import substitution policies. The key of his analysis is the role of production unbundling as a trigger for this unilateralism. He points out three mechanisms for developing countries' unilateral trade liberalization in a unified basic model where a developing country produces a final good and its parts. In the first mechanism, an advancement of information and communication technology (ICT) reduces the cost of unbundling and induces final good producers to use imported parts rather than domestic parts, which eliminate the government's incentive to protect the domestic parts industry that exhibits external increasing returns to scale. The second mechanism, focusing on Kojima's pro-trade FDI concept, shows that the ICT revolution induces foreign firms to invest in a developing country to produce a final good, which reduces protection incentive to be concerned about the industrial development of the country. The third mechanism via a more general equilibrium channel shows that developing country's participation in the supply chains of advanced-nation industries tends to undermine the developing country's competitiveness in final good production. The eroded final-good competitiveness raises the marginal cost of final good protection, so the developing nation government may find it politically optimal to marginally lower final good tariffs. In this mechanism, the tariff on the final good in the developing country declines as a consequence. The analyses unveil important mechanisms for actual unilateral tariff reductions by developing countries.

Professor Kojima developed a model that emphasizes the role of capital accumulation in the flying geese pattern of the industrial development. Furusawa provides another variant of the flying geese theory with a flavor of the recent trade theory with heterogeneous firms. He analyzes the evolution of an industry in which many firms produce their individual differentiated varieties of the good in two countries, North and South. The paper describes that the industry progresses with Northern firms' quality-upgrading R&D and Southern firms' catching-up R&D and every existing varieties at each moment of time eventually become obsolete as new varieties either with low costs or with high quality become available, and that North and South alternate in hosting most dominant firms of that time as Northern firms' quality-upgrading R&D and Southern firms' catching-up (imitation) R&D alternately become successful. This industrial evolution captures a feature of industries that brand-new products with new technology are introduced in developed countries and then produced later in less-developed countries with lower production costs. Furthermore this evolution is followed by another break-through development which

shifts production location back to the developed countries. The industry evolution will continue as the dominant production locations shift between developed countries and less-developed countries. He presents a model in that a variety produced in a country exists even after an R&D success in the other country, so products in old generations coexist with products in the latest generation and new products are still imperfect substitutes of old products; old products attract less demands when new products are developed and become obsolete sometime later. His model derives a stationary equilibrium in which North and South alternate in hosting most dominant firms of that time, as Northern firms' quality-upgrading R&D and Southern firms' catching-up R&D alternately become successful. The paper derives the equilibrium numbers of Northern and Southern firms, respectively, and presents that Northern government's R&D subsidy reduces the number of Northern firms and that of Southern firms in equilibrium; both the number of Northern firms that survive in the Southern phase (in which Southern firms are dominant) and the number of Southern firms in the Northern phase increase. The same results are obtained even if the Northern firms succeeding in R&D exclusively utilize the new technology within the boundary of the country. This location of dominant firms shifting back and forth between North and South looks like geese taking turn to be the lead goose in the formation of flying geese.

Environmental protection is emerging as an important policy goal in the world economy. Not only environmental policies but also trade policies are employed to attain this policy purpose. Ishikawa and Okubo theoretically examine the effects of environmental and trade policies on the economy in the framework of international oligopoly, specifically considering the negative externalities associated with consumption including disposal, such as emissions of carbon dioxide, sulfur oxide, and nitrogen oxide by vehicles. Both environmental and trade policies are related to consumption. On the basis of the model of a domestic firm and a foreign rival producing slightly differentiated products that generate negative externalities in consumption, they explore two kinds of policies: taxes/subsidies and standards. If the degrees of externalities of foreign and domestic goods are different, Ishikawa and Okubo show that in the case of environmental taxes, the tax is heavier for the consumption of the foreign good than that of the domestic goods. Furthermore, they show that tariffs could reduce externalities more "effectively" than environmental taxes and that the consumption subsidies provided to the domestic good with less negative externalities may worsen the environment. Even if governments prohibit foreign firms from selling products that do not achieve certain standards, they may engage in R&D to develop products meeting these standards. The authors show that although the foreign firm may be led to produce an environmentally friendly good, prohibitive standards do not guarantee an improvement in the environment. Unlike previous studies focusing on strategic interactions between governments with production externalities and examining environmental and trade policies with consumption externalities of homogeneous products, the studies by Ishikawa and Okubo examine both Cournot and Bertrand competitions with differentiated products. They present interesting implications that although both emission taxes and tariffs reduce negative externalities, tariffs could reduce externalities more effectively than taxes, since tariffs directly impact only the foreign good, which is less environmentally friendly. Moreover, while a small tariff always enhances domestic welfare, a small emission

tax could worsen it.

Abe and Sugiyama focus on the environmental industry, which supplies environmental goods and services such as pollution abatement equipment and waste disposal services. They investigate the formation of a comparative advantage in the context of this industry. In order to examine the effects of environmental policies under tradable environmental goods, they construct a two-country simple Ricardian model with a final good and an environmental good and consider an emission tax and a subsidy on the purchase of the environmental good as environmental policies. They suggest that the subsidy on the environmental good purchase can be a substitute for the emission tax and the government can impose a lower emission tax by increasing the subsidy in order to achieve the first-best allocation. Moreover, they find that because an increase in the emission tax (subsidy) decreases (increases) the relative price of the environmental good, the country with a higher emission tax (lower subsidy) on the use of the environmental good has a comparative advantage in the environmental good. They also find that as the effects of the emission tax in one country on the amount of pollution and welfare depend on the specialization pattern under free trade, the trade pattern is important to evaluate a country's environmental policy.

It is noted that industrialized countries have experienced deterioration of their environmental quality due to high-tech pollution created by cutting-edge industries such as the semiconductor industry, and this type of pollution is now expanding to the newly industrializing countries. Suga and Tawada, extending the existing studies on homogeneous polluting goods produced under constant returns to scale, examine the gains and losses from international trade in differentiated products that cause pollution. They demonstrate that the country importing a non-polluting good is less likely to lose from trade because the availability of greater product diversity caused by free trade becomes another source of welfare gains under a monopolistically competitive framework. Unlike existing studies, they show that the country incurring an increase in its domestic pollution can be better off relative to autarky even at the free-trade equilibrium where it diversifies. Further, they compare the free-trade equilibrium with another trading equilibrium that is attained under trade only in the differentiated products that cause pollution. This comparison uncovers the possibility that trading in polluting products is superior to welfare-enhancing effect on the country holding a comparative advantage in these products.

There is an urgent need to reduce packaging wastes. Prolonging the life of landfills brings about positive externalities to the society by reducing the construction costs of landfills by the municipalities. Since the cost of waste collection and landfills are financed through taxes, the private cost of dumping undervalues the social cost, which leads to excessive dumping. In Japan, like in other developed countries, the recycling system has been designed to internalize such externality by holding producers responsible for the social cost. Recently, the export of recyclable materials such as iron scrap, waste papers, and used plastics is increasing and this causes the shortage of materials for domestic recycling, and the price increase causes the domestic recycler to exit from the market. These crowding-out effects of exports on domestic recycling have given rise to the open versus closed debate and influenced the discussion on the recycling system. Satake, Yamashige, and Kikuchi provide an answer to this question by constructing a model of plastic bottle recycling and conducting a positive as well as a normative

analysis on the impact of recyclable materials export on the domestic recycling. They find that an open system allowing international trade through an open recycling route is likely to be more effective in improving the welfare than a closed system. Regarding the concern that the replacement of a closed domestic recycling system by an open one may hinder the development of the recycling technology and industry owing to the leakage of secondary materials, they argue that the trade policy for protecting the domestic recycling industry should not be adopted, and that a direct policy like subsidy to support the development of recycling technology is preferable.

Production by overseas subsidiaries established with direct investment is a central issue in current international trade studies. Many studies show that firms with high productivity tend to export and firms with higher productivity engage in FDI under a given market size and factor price. These studies also reveal that only a small number of firms with high productivity are undertaking FDI. However, the statistical observation that the disparity between the productivity of Japanese firms implementing exports and those engaging in FDI is smaller than the disparity in the case of European firms raises a question: regarding whether factors other than productivity disparity may affect a firm's choice of internationalization. Wakasugi and Tanaka attempt to theoretically examine the country-specific attributes that affect the productivity cutoff for FDI and the manner in which they affect the size of overseas production, the number of firms operating the overseas production, the average domestic and overseas sales, and the relative size of the overseas production to the domestic production through changes in productivity cutoff for the overseas production. Through their empirical investigation based on Japanese industry level data, Wakasugi and Tanaka show that a larger market size and a shorter distance between two markets lower the productivity cutoff for overseas production, and through changes in the productivity cutoff, a larger market and shorter distance positively affect the size of overseas production and the number of firms operating the overseas production.

Finally, I as an editor of this special issue acknowledge anonymous referees for their comments on the articles in this volume.

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