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A Japan-U.S. Economic Partnership Agreement: Impact and Issues

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I. Introduction

Free trade agreements (FTAs), which abolish trade barriers among designated countries, began to proliferate throughout the world during the 1990s. One of contributing factors at the time was the stalemate in the trade liberalization negotiations in the General Agreement on Tariffs and Trade (GATT) Uruguay Round, which prompted many countries with an interest in trade liberalization to conclude FTAs with like-minded trading partners. Another factor creating keen global interest in FTAs and regional integration was the gradual but significant progress made in European economic integration that had its origins in the 1950s. The Uruguay Round negotiations were eventually concluded and GATT evolved into the World Trade Organization (WTO), which was launched in 1995. However, FTA negotiations became more active when the first round of trade liberalization negotiations under the WTO failed to get underway in a timely manner. Finally, when Doha Round negotiations were started in 2001, the slow pace of progress further heightened worldwide interest in FTAs.

As FTAs gradually increased in number, the United States launched its own FTA-related initiatives in the mid-1980s. In comparison, Japan and the East Asian countries were late in developing an interest in FTAs and did not become fully engaged in negotiating FTAs until after the start of the 21st century. Meanwhile, the United States concluded the North American Free Trade Agreement (NAFTA) and moved toward regional integration with two major trading partners: Canada and Mexico. Japan has taken a gradual approach in negotiating and concluding economic partnership agreements (EPAs), mainly with members of the Association of Southeast Asian Nations (ASEAN). To date, Japan has not concluded FTAs with any major trading partner, such as the United States, the EU, and China.

Growing interest in negotiating a Japan-U.S. EPA was seen after the mid-1980s in the business community and the media. In part, this interest was focused on the desire to respond to the Japan-U.S. trade imbalance and related problems of trade friction.¹ However, this interest faded after the collapse of Japan's bubble economy in the early 1990s and its prolonged period of economic stagnation. The start of the 21st century brought renewed interest in a Japan-U.S. EPA as a growing number of FTAs were concluded throughout the world. Another contributing factor has been the economic and political emergence of China, which has led both Japan and the United States to develop a keener awareness of the importance of Japan-U.S. cooperation. In recent years, interest in a Japan-U.S. EPA has been growing rapidly in the Japanese business community.² One of the reasons for this is the signing of the U.S.-Korea FTA in June 2007. Because the resultant liberalization of U.S.-Korea trade will place Japanese companies at a

¹ For example, see Ryozo Hayashi and Ichiro Araki, editors in chief, *Nichibei FTA Kenkyukai*, ed. (2007).

² Examples can be found in the statements made by business leaders in an EPA symposium organized by the Nippon Keidanren on December 18, 2007: <http://www.keidanren.or.jp/japanese/journal/times/2008/0117/03.html> (in Japanese).

disadvantage in U.S. markets in their competition with Korean companies, Japanese companies are hoping to even the field through a Japan-U.S. FTA. Similarly, U.S. companies that feel they have not been able to advance into the Japanese markets as hoped are also showing strong interest in a Japan-U.S. EPA.³

Unlike in the business community, attitudes toward a Japan-U.S. EPA are more cautious on the government level in both countries. While the Japanese and U.S. governments have agreed on exchanging information on FTAs that they enter into with third countries, a Japan-U.S. EPA is not even on the agenda for bilateral discussions. Within the Japanese government, given the position of the United States as a major consuming nation, the Ministry of Economy, Trade and Industry has advocated the importance of entering into an EPA with the United States as part of Japan's overall EPA strategies. However, other government ministries have yet to present any concrete positions on a Japan-U.S. EPA. As for the U.S. government, while it has shown interest in concluding a Japan-U.S. EPA, the general understanding is that Japan is not prepared to sign the type of comprehensive and high-level FTA that the United States hopes for. Consequently, the current stance of the U.S. government is that EPA negotiations with Japan will depend on conditions in Japan.⁴

This report examines the significance and challenges of a Japan-U.S. EPA for the Japanese economy in light of the recently growing interest in a Japan-U.S. EPA centered on the business community. The report is organized as follows. Section II provides a survey of Japan-U.S. economic relations. Section III reviews past and present developments in the framework for Japan-U.S. economic consultation, and examines the FTA and EPA strategies of Japan and the United States. Section IV features a simulation analysis of the economic impact of a Japan-U.S. EPA using economic models. Section V focuses on Japanese agriculture, presumably the greatest obstacle on the Japanese side to the conclusion of a Japan-U.S. EPA, and analyzes the specific issues that exist in this sector and various approaches to overcoming these problems. The conclusions of the report are presented in Section VI.

³ For example, the strong interest of U.S. companies in a Japan-U.S. EPA is reflected in the press releases of the American Chamber of Commerce in Japan:
[http://www.accj.or.jp/UserFiles/Image/PressReleases2007/020-2007-04-13%20ACCJ%20Welcomes%20the%20U.S.-Korea%20Free%20Trade%20Agreement%20\(English\)%20.pdf](http://www.accj.or.jp/UserFiles/Image/PressReleases2007/020-2007-04-13%20ACCJ%20Welcomes%20the%20U.S.-Korea%20Free%20Trade%20Agreement%20(English)%20.pdf)

⁴ Statement made by Hans Klemm, Minister Counselor for Economic Affairs at the U.S. Embassy in Tokyo, in his speech of April 25, 2007 at the Nippon Keidanren:
<http://www.keidanren.or.jp/japanese/journal/times/2007/0524/06.html> (in Japanese). Statement made by Wendy Cutler, Assistant U.S. Trade Representative, in her speech of October 19, 2007 at the Japan National Press Club.

II. Japan-U.S. Economic Relations: Trade and Investment

In GDP terms, the United States and Japan are the world's first and second largest economies, respectively. In 2005, their combined GDPs accounted for 38 percent of global GDP (United States: 28 percent; Japan: 10 percent). However, the share of the two countries is declining due to the fact that China, India and other developing economies are growing at a faster pace than the United States and Japan. In particular, the share of the Japanese economy in the total global economy has declined markedly since the 1990s due to Japan's prolonged economic stagnation. In light of these economic developments, this section analyzes Japan-U.S. relations in terms of trade and foreign direct investment, two factors of special importance in considering a Japan-U.S. EPA.

II.1 Trade

The United States is an important trading partner for Japan, particularly in the area of exports. While the share of exports to the United States in Japan's total exports has been declining, the United States continues to provide the largest export market for Japanese goods. As shown in Chart 1, in certain periods in the past, the share of exports to the United States accounted for more than 30 percent of Japan's total exports. This share began to decline in 2000 and stood at 22.5 percent as of 2006. On the other hand, the share of exports to fast-growing Asian economies, and in particular to China, has been increasing. In the early 1990s, exports to China accounted for about 3 percent of Japan's total exports. But the ratio has climbed to 14.3 percent as of 2006. Although the share of exports to China has been rising steadily, the United States continues to absorb the highest share of Japan's exports. Given the continued high pace of economic growth among Asian countries, the share of exports to Asia in Japan's total exports can be expected to continue increasing in the years ahead. However, this trend will not detract from the importance of the United States as an export market for Japanese products.

The importance of the United States to Japan is relatively low when viewed in terms of imports, and as in the case of exports, has been declining steadily (Chart 2). The share of imports from the United States in Japan's total imports stood at 22.4 percent in 1988 but has continuously dropped to 11.7 percent as of 2006. A reverse trend is seen in the share of imports from China, which has steadily increased to reach 20.5 percent as of 2006.

One of the factors contributing to the rapid growth of trade between Japan and the East Asian countries and China is the emergence of regional manufacturing networks centered on the machinery industries. Japanese, U.S., and European multinational corporations have taken advantage of the low-cost and well-trained labor resources of the East Asian countries to establish regional manufacturing networks that boast highly efficient output. These regional manufacturing networks have contributed to the growth of trade in parts and components among

manufacturing centers located throughout the region. This expansion of trade has led to a high degree of trade interdependence within the East Asian region. The United States participates in this scheme as an important export destination for the goods produced in these networks.

East Asia's regional manufacturing networks are also affecting trade relations between Japan and the United States as can be seen from the product breakdown of the trade between the two countries (Table 1). Japan's exports to the United States are centered on manufactured products with machinery taking the lion's share. Thus, in 2006, machinery accounted for more than 75 percent of Japanese exports to the United States, and within the category of machinery, automotive products claimed an overwhelming share, as is shown in the Appendix. In fact, motor vehicles account for 40 percent of all Japanese exports to the United States. The importance of the U.S. market for Japanese automakers is made clear by the fact that the United States absorbs 40 percent of Japan's total motor vehicle exports. U.S. markets are also of crucial importance to a number of other Japanese industries, including pharmaceuticals, general machinery, electronic and electrical machinery, and precision machinery. However, the value of exports of these industries is far smaller than the value of automotive exports.

Turning to Japan's imports from the United States, manufactured products and machinery in particular account for a major share. However, agricultural products and foodstuff also make up a major part, accounting for 13 percent of Japan's imports from the United States. Among all machinery, electronic and electrical machinery and other transport equipment (aircraft and aircraft engines) hold large shares.

In considering a Japan-U.S. EPA, it is important to examine the competitiveness of Japanese industries vis-à-vis their U.S. counterparts. This is because trade liberalization and facilitation through a Japan-U.S. EPA is likely to result in export expansion for competitive industries and import expansion for less competitive industries. Estimations based on competitiveness indexes as summarized in Table 1 indicate that Japan holds competitive advantages in machine products but is less competitive in such areas as agricultural products and food, and beverages and tobacco.

Analysis of Japan-U.S. trade indicates that the United States is an extremely important market for Japanese exports of machinery and for motor vehicles in particular. The analysis also confirms that Japan enjoys extremely significant competitive advantages in the export of motor vehicles. On the other hand, the analysis shows that while the importance of the United States as a source of Japan's imports has been declining, the United States is competitive in such areas as agricultural products and food, and beverages and tobacco. These results indicate that it is highly likely the conclusion of a Japan-U.S. EPA would benefit Japanese machinery industries and the automotive industry in particular. Conversely, it can be predicted that producers in agriculture, foodstuff, beverages, and tobacco will be adversely affected by reduced domestic production, which is the reason why these industries oppose a Japan-U.S. EPA.

II.2 Foreign Direct Investment

A review of outstanding amounts of foreign direct investment shows that the United States is not only the leading absorber of Japan's outward foreign direct investment but also the leading source of Japan's inward foreign direct investment. As of the end of 2006, the outstanding balance of Japanese foreign direct investment in the United States amounted to 156.4 billion dollars. This made the United States the largest absorber of Japanese outward foreign direct investment far ahead of second-place Netherlands with 45.4 billion dollars in outstanding investments.⁵ The outstanding balance of U.S. foreign direct investment in Japan amounted to 42.0 billion dollars. This put the United States in first place and well ahead of second-place Netherlands with 12.2 billion dollars. The U.S. share in Japan's total outward and inward foreign direct investment came to 34.8 percent and 39.0 percent, respectively.

A review of developments since the late 1980s points to the following features. On a value basis, Japan's foreign direct investment in the United States has generally followed the trends in Japan's total outward foreign direct investment. Specifically, Japan's foreign direct investment in the United States peaked at over 4 trillion yen at the end of the 1980s and thereafter decreased sharply with the collapse of the bubble economy in the early 1990s (Chart 3). While there was a period of recovery in the second half of the 1990s, Japan's foreign direct investment in the United States again decreased sharply after the start of the century and currently stands at about 20 percent of the peak levels recorded in the late 1980s. The decline in the number of investments made in the United States by Japanese companies has been even greater than the decline in value terms. Thus, while the number of investments exceeded 2,600 in 1989, this had fallen as far as 191 investments in 2004, following two periods of precipitous decline in the early 1990s and after the start of the century. Although there has been some fluctuation from time to time, the share of the United States in Japan's total outward foreign direct investment has been gradually declining since the end of the 1980s. In value terms, this share has decreased from nearly 50 percent in 1989 to only 13 percent in 2004.

Turning next to U.S. foreign direct investment in Japan, on a value basis, such investments have been increasing in recent years (Chart 4). Up to the mid- 1990s, U.S. foreign direct investment in Japan fluctuated between 100 and 200 billion yen. But it began to increase after 1998 to reach 2,600 billion yen in 2004. The figure for 2004 was nearly eight times the figure for the previous year. This reflected large-scale investments by U.S. financial sector. (See *2005 JETRO White Paper on International Trade and Foreign Direct Investment*, p. 25.) The number of investments declined during the mid-1990s, but recovered thereafter and has

⁵ See JETRO website. Data on outward and inward foreign direct investment were obtained from the following sites, respectively:

http://www.jetro.go.jp/en/reports/statistics/statistics/iip_2007_1.xls

http://www.jetro.go.jp/en/reports/statistics/statistics/iip_2007_2.xls

remained at around 500 cases per year since 2000. In value terms, the U.S. share in Japan's total inward foreign direct investment is subject to wide fluctuations and does not present a clear trend. On the other hand, in terms of number of investments, the U.S. share is now higher than it was before the 1990s. This stands in clear contrast to the steady decline in the share of the United States in Japan's total outward foreign direct investment. Since the beginning of the century, the share of U.S. foreign direct investment in Japan's total inward foreign direct investment has remained steady at around 30 percent in terms of both value and number of investments, with the exception of a high share in value terms in 2004. The overall trend indicates the importance of the United States as a source of Japan's inward foreign direct investment.

III. Trade Policies of Japan and the United States

Japan-U.S. economic relations are in transition from an earlier period of trade friction to a period of cooperation and harmonization. However, this does not mean that trade and investment friction has been completely eliminated. While not as serious as in the past, lingering friction continues to pose problems and issues for both sides. This section provides a review of the trade policies of Japan and the United States. It starts with a survey of trade policies and policy measures in the two countries and moves from there to an examination of the FTA strategies of Japan and the United States.⁶ The general purpose of this analysis is to identify the various issues and challenges that must be addressed when considering a Japan-U.S. EPA.

III.1 From Trade Friction to Partnership

The beginnings of Japan-U.S. trade friction in the postwar period can be traced to the protectionist demands made by U.S. manufacturers in response to the steady penetration of Japanese manufactured goods into U.S. markets. This friction first started in the 1950s with textiles but gradually moved to include other industries as the Japanese economy developed and shifted to the production of more sophisticated and higher value-added products. Thus, Japan-U.S. trade friction features such products as color TVs, steel and machine tools in the 1970s, and automobiles and semiconductors in the 1980s. In many instances, trade friction involving the export of Japanese products to the United States was finally resolved through voluntary export restraints adopted by the Japanese side following extensive bilateral negotiations.

Beginning in the 1980s, the focus of trade friction shifted from the protection of U.S. markets to the liberalization of Japanese markets. Frustrated by the slow growth of exports to Japan, it was during this period that the U.S. side began to make demands for market liberalization. The market-oriented, sector-selective (MOSS) negotiations that were launched in 1985 focused on four sectors (telecommunications, pharmaceuticals and medical equipment, electronics, and forestry products) and aimed at identifying and eliminating trade barriers. The MOSS negotiations resulted in a 20-percent reduction in tariffs on electronic products and the complete elimination of tariffs on telecommunication equipment and computer-related products. In addition to the four sectors taken up in the MOSS negotiations, the two countries engaged in negotiations for the liberalization of Japanese markets for semiconductors, leather, and other products. In 1989, the MOSS negotiations gave way to the Japan-U.S. Structural Impediments Initiative (SII), which focused on cross-sectoral structural issues impeding market liberalization, such as *keiretsu* transactions and exclusionary business practices.

⁶ For example, see Urata, Ishikawa and Mizuno (2007) for the FTA strategies of Japan and the United States.

U.S. frustration with Japan's growing trade surplus led to the establishment of the Japan-U.S. Framework for a New Economic Partnership (Japan-U.S. Comprehensive Negotiations) in 1993. This framework featured the holding of two annual bilateral summit meetings and other various meetings for discussions aimed at reducing Japan's current account surplus and increasing Japan's imports from the United States. The discussions covered a wide range of bilateral economic issues as well as a number of global issues. The former included macroeconomic policies, sector-specific negotiations, government procurement, and regulatory reform, while the latter included the environment, human resource development, and AIDS. In the area of trade-related issues, the initially expected results were not achieved because Japan did not accept U.S. demands for unilateral measures and quantitative import targets. On the other hand, continued negotiations were conducted in certain areas, which served to deepen mutual understanding.

Beginning in 2001, the emergence of China as an economic force and other major changes in the economic environment prompted Japan and the United States to more actively pursue economic cooperation. It was against this backdrop that the creation of a Japan-U.S. Economic Partnership for Growth was announced in a summit meeting held between Prime Minister Junichiro Koizumi and President George W. Bush. In addition to the ongoing economic changes in the Asia-Pacific region, this initiative reflected the continued existence of various bilateral economic issues, including trade-related problems, macroeconomic policies, structural and regulatory reforms, corporate and financial institutions reform, the promotion of foreign direct investment, and market liberalization. In order to engage in bilateral consultation on these problems, a number of specific frameworks were established, such as economic dialogue on the sub-cabinet level, public- and private-sector meetings, initiatives for regulatory reform and competition policy, fiscal and monetary dialogue, investment initiative, and trade forum.

Over the years, Japan and the United States have used a number of frameworks for consulting on various bilateral problems and issues. Through these consultations, both sides have accumulated knowledge and information on each other's problems and issues. Efforts to conclude a Japan-U.S. EPA can be expected to encounter the following problems and challenges, among others.⁷ On the Japanese side, issues related to market liberalization and regulatory reform remain in such areas as agriculture, telecommunications, information technologies, competition policy, medical equipment and pharmaceuticals, financial services, and distribution and retailing. On the U.S. side, issues to be resolved include market liberalization in such sectors as automobiles, legal services, and insurance services, and regulatory reform in such areas as anti-dumping rules, investment-related regulations, government procurement, and standards and specifications.

⁷ These are derived from the Ministry of Foreign Affairs, *Sixth Report to the Leaders on the Japan-U.S. Regulatory Reform and Competition Policy Initiative*, June 6, 2007 (http://www.mofa.go.jp/mofa/area/usa/keizai/6_houkoku_gai.html) and from past FTA negotiations.

In the past, many of the trade problems that arose between Japan and the United States were “resolved” through bilateral consultation without being referred to the GATT multilateral framework for dispute settlement. However, since the establishment of the WTO in 1995 and the strengthening of its dispute settlement mechanism, Japan and the United States have resolved their disputes through the WTO dispute settlement system instead of through bilateral negotiations. However, disputes pertaining to foreign direct investment, regulations, and other domestic measures continue to be treated in a bilateral framework because the WTO does not cover these problems.

III.2 FTA Strategies of Japan

Japan’s first FTA agreement was concluded with Singapore and went into force in November 2002. The formal title of this agreement is the “Agreement between Japan and the Republic of Singapore for a New-Age Economic Partnership,” or the “Japan-Singapore New-Age Economic Partnership Agreement” (JSEPA). JSEPA is a comprehensive EPA beyond the scope of traditional FTAs that are limited to the elimination of tariff and non-tariff barriers between the signatories. Specifically, the coverage of JSEPA extends to economic and technical cooperation in a number of areas, including the liberalization of foreign direct investment, the facilitation of trade and foreign direct investment, human resources development, and the promotion of small- and medium-sized enterprises. Japan and Singapore deemed such an extensive and comprehensive agreement necessary and conducive to major economic benefits in a global economic environment where goods, people, capital, and information are actively and freely moving across national borders. Japan’s other EPAs currently in force consist of agreements with Mexico (April 2005), Malaysia (July 2006), Chile (September 2007), and Thailand (November 2007). Agreements have also been signed with the Philippines, Brunei, and Indonesia and await enforcement. Furthermore, an agreement in principle has been reached with ASEAN, and negotiations are in progress with Australia, India, Switzerland, Vietnam, and the Gulf Cooperation Council (GCC). Finally, EPA negotiations with South Korea currently remain suspended. Japan is also working toward the realization of the Comprehensive Economic Partnership in East Asia (CEPEA) covering ASEAN, China, South Korea, India, Australia, and New Zealand. At the present time, a Track Two study is underway among researchers from EAS countries. Based on Japan’s trade statistics for 2005, 9.5 percent of Japan’s total trade (exports plus imports) was conducted with countries where EPAs are in force. This ratio rises to 29.7 percent of total trade when countries with which EPAs have been signed or are being negotiated are included.

Japan pursued trade liberalization within the GATT and WTO frameworks throughout the entire postwar period and up through the end of the 1990s. FTAs Japan has been promoting in recent years reflect Japan’s trade policy shift from a single-tiered approach regarding trade liberalization that is focused exclusively on the GATT/WTO multilateral framework to a multi-tiered approach encompassing various bilateral and regional initiatives.

What are the main features of Japan's FTA strategies? First, as can be seen from the use of the term EPA, Japan is interested in establishing comprehensive agreements. Second, Japan's FTA strategies are primarily focused on East Asia. Japan's principal motives can be summarized as follows: expanding trade and investment opportunities for Japanese companies; stimulating the Japanese economy through the liberalization of Japanese markets; contributing to East Asian economic growth through investment and economic cooperation; and ensuring access to oil and other natural resources. Another significant consideration is Japan's shrinking population and rapidly aging society. If Japan is to maintain and improve its standard of living under these conditions, the country needs to liberalize its markets, promote structural reforms and maintain closer ties with East Asian economies that have high future potential. FTAs are seen as effective tools for achieving these objectives. Given China's growing influence in East Asia, FTAs are also viewed as a means to securing Japanese influence in the region.

Notwithstanding these advantages, Japan's FTA negotiations are not making smooth progress due to strong opposition to FTAs from domestic sectors that will be adversely affected by trade liberalization and the influx of foreign workers. The main opponents to trade liberalization are found in Japan's primary industries, such as agriculture, fisheries, and forestry. Products that are not competitive are currently protected by very high tariffs, such as rice (778 percent), sugar (379 percent), and wheat (252 percent). While the United States is a leading trading partner, due to strong opposition from the domestic agricultural sector, Japan officially is not even considering an EPA with the United States because of the latter's prominence as an agricultural exporter. Furthermore, the level of agricultural liberalization has been held in check in the various EPAs that Japan has already concluded.

One of the points of contention in FTAs negotiated with East Asian countries has been the issue of the movement of workers. The Philippines and Thailand have demanded that provisions be made for the "export" of nurses, care workers, and other medical care personnel to Japan. Because of the rapid aging of society, Japan is expected to face serious shortages of care workers for the elderly in the future. These concerns should be enough to justify the acceptance of medical care personnel from overseas. However, there is strong opposition to such initiatives from the domestic medical professions on the grounds that such an influx would take jobs away from Japanese nurses and care workers.

As previously mentioned, agricultural liberalization will stand as a key obstacle in concluding a Japan-U.S. EPA. However, agriculture will not be the only obstacle. An EPA involving the world's largest and second largest economies will certainly have to go beyond the elimination of border measures and will have to be a high-level agreement that effectively addresses the issues of the harmonization and unification of domestic policies in such areas as competition policy and taxation. These points are discussed below.

III.3 FTA Strategies of the United States

After concluding its first FTA with Israel that came into effect in August 1985, the United States steadily expanded the scope of its FTAs. The FTAs with the following countries and regions have already entered into force: Canada (January 1989), NAFTA (Canada and Mexico: January 1994), Jordan (December 2001), Chile (January 2004), Singapore (January 2004), Australia (January 2005), Morocco (January 2006), CAFTA-DR (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Dominican Republic: 2006–2007), and Bahrain (August 2006). As of November 30, 2007, the United States has a total of nine FTAs (involving 15 countries) in force. In addition to the above, agreements have been signed with Oman, Peru, Columbia, Panama, and South Korea, and negotiations are currently in progress with Malaysia. In the past, U.S. FTAs were primarily focused on Central and South America and the Middle East. However, more recently, the United States has shown a strong interest in negotiating FTAs with East Asian countries. Among the various FTAs negotiated by the United States, some have been suspended or terminated. Most importantly, negotiations on the Free Trade Area of the Americas (FTAA), covering 34 countries of North, Central, and South America with the sole exception of Cuba, have been suspended. In the case of the United States, the share of trade with countries with which FTAs are currently in force, have been signed, or are being negotiated, amounts to 42.7 percent of total trade, a figure that is considerably higher than that for Japan.

After the 1930s, the United States consistently promoted free trade based on the belief that global protectionism worsened the Great Depression, which had begun in the 1920s, and served as one of the causes of World War II by dramatically reducing world trade. However, several more recent developments have prompted the United States to develop a greater interest in bilateral and regional trade agreements. Contributing factors have included advances in European regional integration and the slow pace of progress in multilateral trade negotiations under GATT. At the present time, the United States shows interest in promoting free trade through the multilateral framework of the WTO, and through bilateral and regional FTAs that are not only consistent with the WTO, but are also high-level and comprehensive, exceeding the bounds of the WTO. What motivates the United States to pursue FTAs? In addition to seeking the economic benefits of expanded trade and investment, the United States is also interested in reaping benefits in the areas of foreign relations and national security. The latter motivation is apparent in the FTAs concluded with the countries of the Middle and Near East and in the exclusion of Cuba from the FTAA.

As in the case of Japan's EPAs, U.S. FTAs go beyond trade in goods, as they tend to be comprehensive agreements covering such matters as trade in services, foreign direct investment, and trade facilitation. One crucial difference with Japanese EPAs is that U.S. FTAs generally include labor-related provisions, such as for the protection of the rights of workers. Moreover, the United States is committed to concluding high-level FTAs that achieve high levels of trade liberalization. These features can be clearly seen in the U.S.-Korea FTA concluded

in April 2007. Under this agreement, the United States is committed to achieving, within 10 years, an import liberalization ratio (product basis) of 97.9 percent for products from Korea. Under NAFTA, the United States was committed to a 10-year import liberalization ratio of 99 percent for products from Mexico. However, the corresponding figure for the U.S.-Australia FTA is a considerably lower 85.4 percent. The United States has also extracted similarly high 10-year import liberalization ratios from its FTA partners. For instance, South Korea under the U.S.-Korea FTA, Mexico under NAFTA, and Australia under the U.S.-Australia FTA are committed to achieving 10-year import liberalizations ratios of 97.4 percent, 99 percent and 99 percent, respectively, for products from the United States.

Areas of special interest to the United States include the following: agricultural products, medical equipment, and pharmaceuticals in the export of goods; and financial services, distribution services, and medical services in the export of services. On the other hand, strong domestic opposition to trade liberalization can be seen in the following sectors: textiles, iron and steel, and motor vehicles in the import of industrial products; and domestic shipping transport.

IV. Economic Impact of a Japan-U.S. EPA

The purpose of this section is to estimate the economic impact of a Japan-U.S. EPA using a computable general equilibrium (CGE) model. Traditional FTAs were centered on trade-related measures, such as the reduction and elimination of tariffs and export subsidies. In recent years, however, the dominant trend in liberalization negotiations has been to design more comprehensive EPAs that contain provisions for institutional reform, such as facilitation and improvements in the general business environment. Any future Japan-U.S. EPA can be expected to go beyond trade-related measures to address liberalization in a broad range of fields.

It is not easy to undertake a quantitative estimation of the economic impact of trade liberalization and liberalization in a broad range of new fields. While various difficulties exist, a CGE model is used in this section to estimate and analyze the economic impact of a Japan-U.S. EPA. This is based on the following series of assumptions. By facilitating trade and investment, liberalization will promote positive developments in the business environment and in the institutional framework. In turn, this will contribute to a convergence in the productivity gaps that exist between the industries of the two countries.

IV.1 Analytical Methodology

(1) Analytical Model and Data

The CGE model and database used in this section was developed by the Global Trade Analysis Project (GTAP), which is being carried forward by a network of researchers and policy designers centered around Purdue University's Center for Global Trade Analysis. Details of the multi-regional and multi-sectoral GTAP model (Hertel, 1997, McDougall, 2000) and the GTAP Database version 6 (Dimaranan, 2006) covering 87 regions (countries) and 57 industries (2001 base year) can be readily accessed through the Internet. Software needed for running simulations is also provided.⁸ The GTAP model assumes perfect competition, production technologies with constant returns to scale, and differentiation of tradable goods based on place of origin.

Directly using the 87-region and 57-industry GTAP database in running simulations on a Japan-U.S. EPA is extremely difficult for computational reasons. Therefore, through a process of aggregation, the numbers of regions and industries were reduced from 87 to 12 and from 57 to 20, respectively, while taking due care not to undermine the purpose of the analysis (Tables 2 and 3). It should be noted here that simulation results can differ according to the degree of aggregation.

⁸ See the GTAP website (www.gtap.agecon.purdue.edu).

The aggregated GTAP database was used to compute Japanese and U.S. tariff rates by industry. This is shown in Table 4. For instance, the table indicates that the Japanese tariff rate on imports of U.S. rice is approximately 788 percent, while the U.S. tariff rate on imports of Japanese rice is roughly 7 percent. Japanese tariff rates tend to be relatively high for agriculture and food-related industries (all industries between “Rice” and “Fishery”) as well as for textiles, apparel and leather products (TexWapLea). On the other hand, the United States applies relatively high tariff rates to imports of “Chemical,” “Metal,” “Automobile,” and “Machinery” from Japan. The computed tariff rate for all service industries is zero. However, it is assumed that trade in services is subject to various obstacles and that liberalization can be expected to lower the level of these obstacles.

If the impact of a Japan-U.S. EPA were to be estimated solely on the basis of tariff rates by industry in Table 2, the obtainable results would be clearly limited. This is because barriers to trade in services are not explicitly accounted for and because tariffs and subsidies are the only forms of barriers to merchandise trade considered in this analysis. Similarly, no allowance is made for various other factors that are commonly discussed in comprehensive trade agreements. These include the following: the effects of expansion of trade in services resulting from improvements in the business and legal environment pertaining to investment and the entry of new enterprises; and the effects of the simplification of customs clearance and mutual certification procedures on the facilitation of logistics. In the present analysis, total factor productivity (TFP) gaps are used as a method for filling in for these missing factors.

(2) TFP Gaps

Jorgenson and Nomura (2007) presents a long-term comparison of TFP levels in Japan and the United States spanning the period between 1960 and 2004. This is used to determine differences in TFP levels between the industries of the two countries. Among the results of their detailed analysis, this report used relative TFP gaps that were estimated for 42 industries using U.S. industries as the base.

The estimated relative TFP gaps for the 42 industries were aggregated to correspond to the GTAP data. This is shown in Table 5 where the relative TFP level of each Japanese industry is computed using U.S. industries as the base (1.0). The following Japanese industries have higher TFP levels than their U.S. counterparts: “Chemical,” “Automobile,” “Electronics,” “Communications, Insurance and Finance” (ComInsFin), and “Transport.” Regarding communications, insurance and finance, the results derived by Jorgenson and Nomura (2007) indicate a higher TFP for U.S. insurance and finance industries. The results were reversed in the present study due to the aggregation of these industries with the communications industry.

In this present analysis, it is assumed that the establishment of a comprehensive Japan-U.S. EPA will cause the TFP gaps in Table 5 to converge. Specifically, it is

assumed that productivity levels in Japanese agriculture, forestry and fisheries-related industries and light industries will catch up with U.S. productivity levels. Conversely, it is assumed that productivity levels in U.S. chemical, automobile, electronics, communications, insurance, finance, and transport industries will catch up with Japanese productivity levels.

IV.2 Analysis Results

Simulation exercises for a Japan-U.S. EPA were conducted by applying the elimination of tariffs and subsidies (Table 4) and the convergence of TFP gaps (Table 5) as external shocks to the GTAP model. Simulations were separately conducted for TFP gap convergence rates of 10 percent, 25 percent, 50 percent and 100 percent.

The impact on economic welfare is summarized in Table 6 in terms of rate of change (percent) and amount of change (dollars in millions). A relatively narrow FTA involving only the elimination of tariffs and subsidies would yield an economic welfare gain of about 16 billion dollars (0.45 percent) for Japan and a gain of 2.4 billion dollars (0.03 percent) for the United States. A more comprehensive FTA involving convergence in TFP gaps would have a greater positive effect on economic welfare for both countries. This can be interpreted to represent the benefits gained from wider ranging liberalization that enables both countries to increase their output without increasing the input of such factors of production as land, labor, capital, and natural resources.

The assumption of a total convergence of TFP gaps is unrealistic. However, a 10 percent rate of convergence for both Japanese and U.S. industries can be expected to yield substantial economic welfare gains of about 69.1 billion dollars for Japan and 31.1 billion dollars for the United States. In this context, it would not be unrealistic to assume that trade-related measures and improvements in the business environment and systemic reforms could result in an approximately 10-percent convergence in productivity levels.

The results are restated in terms of GDP in Table 7. A narrow FTA would have a small positive impact on Japan's GDP and a negative impact on U.S. GDP. However, both economies would register larger positive changes in GDP as the rate of convergence in TFP gaps rose. The combination of an FTA and a 10 percent convergence rate would add about 67 billion dollars (1.6 percent) to Japan's GDP and about 28.3 billion dollars (0.28 percent) to the U.S. GDP.

The simulation results for a narrow FTA give rise to the following question. Why is a narrow FTA estimated to have a positive impact on U.S. economic welfare (0.03 percent) as shown in Table 2 and a negative impact on U.S. GDP (-0.02 percent)? A review of Table 4 indicates that the negative impact on GDP is the result of the extremely large increase in U.S. imports. That is, while U.S. consumption, investment, and exports do increase under a narrow FTA, these gains are dwarfed by the very large increase in imports.

Furthermore, the positive change in U.S. economic welfare can be explained as follows. Changes in allocative efficiency and changes in terms of trade constitute two major determinants of changes in economic welfare. The significant improvement in U.S. terms of trade following the establishment of an FTA would explain the increase in imports. On the other hand, allocative efficiency would deteriorate because products whose output would increase in the United States (particularly rice) would be subject to taxes and subsidies. However, because the impact of the improvement in terms of trade would be larger than the impact of this deterioration in allocative efficiency, the United States would register a positive change in economic welfare.

Simulation results for exports under a Japan-U.S. EPA are summarized in Table 8. In the case of the United States, it is clear that the combination of FTA and higher TFP gap convergence rates would result in larger export growth. The reverse is true in the case of Japan where exports would shrink as TFP gap convergence rates rose. This can be explained as follows. Improved productivity in U.S. chemical, automobile, electronic, communications, insurance, finance, and transport industries would enable the United States to export the products of these industries at relatively low prices. Increased U.S. exports in what constitutes Japan's core export industries would supplant Japanese products in global markets. Japanese exports would increase by 4 percent under a narrow FTA. However, as the United States would catch up at higher rates of convergence, Japanese exports would begin to shrink at an increasing pace. One of the key features of shrinking Japanese exports is that this trend contributes to the growth of exports not only from the United States but also from other countries and regions.⁹

Simulation results for imports are summarized in Table 9. Japanese imports would increase by 4 percent under a narrow FTA and continue to increase as TFP gap convergence rates rose. By contrast, the increase in U.S. imports would remain steady at around 1 percent. Also, the increase in ASEAN imports would stand in contrast to other countries and regions not member to a Japan-U.S. EPA, although the magnitude of the increase would be small.

Table 10 shows that Japan's investment would increase under a Japan-U.S. EPA. Changes in U.S. investment would be considerably minor, but would shift from positive to negative range as TFP gap convergence rates rose. This can be attributed to improved productivity in capital-intensive industries and the resulting decline in the rental costs of capital goods. However, it is difficult to think that a comprehensive FTA would result in decreased investment under real conditions.

The impact of a Japan-U.S. EPA is summarized for output, exports and imports of individual industries in Tables 11, 12 and 13, respectively. These tables present

⁹ The North American region excluding the United States (NAmerica) consists of Canada, Mexico, and "other North American regions" (Bermudas, Greenland, and Saint Pierre and Miquelon Islands).

results for a narrow FTA and a TFP gap convergence rate of 10 percent. Changes in output by industry confirm that trade liberalization under an FTA would lead to reduced output in industries protected by relatively high tariff rates. In Japan, the largest reductions in output would occur in rice, grains, and meat. However, it should be noted that these products are subject to complex trade measures, including state trading arrangements. Consequently, the quantification of trade barriers calculated on the basis of tariff rates will have to be re-examined. The negative impact on the output of Japan's electronics industry (-1.14 percent) is caused by the catch-up in U.S. productivity levels. This was confirmed by disaggregating total impact ("Total") into the impacts of tariff elimination (0.93 percent) and TFP gap convergence (-2.07 percent). Output for all other Japanese industries would increase.

The impact on Japanese exports by industry would be as follows. Under a narrow FTA, all industries would register positive change in exports, with the exception of "Fishery." On the other hand, with TFP gap convergence, exports would decrease over a broad range of manufacturing and service industries. This is due to the improvement in U.S. productivity.

The impact on Japanese imports by industry shows that imports would increase in almost all industries. On the other hand, it can be seen that improved productivity in agriculture and food-related industries would act to suppress the increase in Japan's imports of these products. The very large increase in rice imports reflects the very high tariff rates that currently apply to Japan's rice imports. However, as previously noted, the computation of trade-related measures applicable to rice into a tariff rate for inclusion in the database requires further consideration. Furthermore, it should be noted that it is highly likely the results overstate the increase in imports because the simulations assume the total elimination of tariffs.

IV.3 Summary of Results and Some Remaining Issues

The economic impact of a Japan-U.S. EPA was estimated using the GTAP model and database. In simulations involving a comprehensive EPA, the effects of both tariff elimination and the convergence of TFP gaps between Japanese and U.S. industries were taken into account. Benefits accruing to Japan and the United States from the conclusion of an EPA are presented in terms of macroeconomic indicators. Sectoral results indicate that the direction of change depends on two factors: whether an industry is protected, and whether an industry experiences a reduction in productivity gap due to productivity catch-up by its counterparty. Some issues that remain are: examination of trade-related measures quantified in terms of tariff rates, and development of methods for expressing exogenously inserted productivity gaps in the database used for estimations.

V. Japan-U.S. EPA and Japanese Agriculture

The processes of internationalization and globalization have forced the Japanese economy to undergo numerous structural changes, and agriculture is no exception. Japanese agriculture has remained under protective policies for many years. These include price support systems for maintaining agricultural income, and provisions of the Agricultural Land Act designed to restrict entry from other industries. These policies have delayed the emergence of a self-reliant agricultural sector and have added to productivity gaps with other industries.

Fundamental changes must be made in these agricultural policies if Japan is to enter into FTAs with the United States, Australia, and other exporting countries of agricultural products. Recent developments in Japanese agriculture include the transition from non-tariff import barriers to tariff measures in 1995 under the WTO Agriculture Agreement, and participation in agricultural trade negotiations beginning in 2000. At the same time, Japan has worked toward the conclusion of a number of free trade agreements beginning with the EPA with Singapore. However, none of Japan's past FTAs has comprehensively included agricultural products. As such, the ongoing negotiations for the Japan-Australia FTA will serve as a test case for Japan's future FTAs. It should be noted, however, that rice (Japan's highest priority item) has been excluded from the Japan-Australia FTA negotiations. Therefore, the issue of rice importation will have to be thoroughly discussed when taking concrete steps toward a Japan-U.S. EPA.

It would be incorrect to say that no structural reforms have been undertaken in Japanese agriculture. In various instances, economic globalization has forced changes in Japan's agricultural policies. For instance, in 1999, the Agricultural Basic Act was abolished after serving as the core of Japan's agricultural policies for 38 years, and the Food, Agriculture and Rural Areas Basic Act was enacted in its place. Under the new law, a basic plan was formulated and launched in 2005, containing the principle that agricultural policies would thereafter focus exclusively on persons engaged in agricultural activities. This principle was applied to the "Lateral Business Stabilization Measures" introduced in 2007. In the area of rice production, responsibility for production adjustment measures, first introduced in 1969, were transferred from the government to agricultural organizations in 2007. However, are these changes sufficient for promoting FTAs and responding to developments in the WTO? If progress is to be made toward a Japan-U.S. EPA in the future, there are many issues that Japanese agriculture will have to cope with. In the remainder of this section, key issues for Japanese agriculture, some possible solutions, and the future of Japanese agriculture will be considered from a number of perspectives.

V.1 Current Conditions in Japan-U.S. Agricultural Trade and Japanese Tariffs

As a basis for identifying the problems in agriculture that need to be resolved for a successful conclusion of a Japan-U.S. EPA, current conditions in Japan-U.S. agricultural trade are reviewed here. Table 14 summarizes Japan's exports and imports of agricultural products vis-à-vis the world and the United States in recent years. In 2006, Japan's imports of agricultural products amounted to

5,004.1 billion yen. The addition of forestry and fishery products pushes this figure up to 8,085.9 billion yen. Imports of agricultural products from the United States amounted to 1,517.6 billion yen, or 30.3 percent of total agricultural imports. Total imports of agricultural, forestry, and fishery products from the United States amounted to 1,772.8 billion yen, or 21.9 percent of the total. As such, the United States was Japan's largest source of these products. China was second with a 13.3 percent share, followed by the EU (25 countries) with a 13.0 percent share, Australia with a 9.6 percent share, and Canada with a 6.3 percent share.

In the agricultural, forestry, and fishery sector, the largest single import item from the United States was tobacco, with a value of 335.0 billion yen. Corn was second at 289.6 billion yen, followed by pork at 133.7 billion yen, soybeans at 114.0 billion yen, and fresh and dried fruits at 86.7 billion yen (all figures are for 2006). The United States supplied 96.3 percent of Japan's total imports of corn, 34.9 percent of pork, 76.5 percent of soybeans, and 37.2 percent of fresh and dried fruits. Another important import item from the United States was wheat, with a value of 80.1 billion yen. This accounted for 53.8 percent of Japan's total imports of wheat. The United States has traditionally been the leading source of Japan's beef imports by value (2003: 128.5 billion yen or 51.9 percent of total beef imports). However, the importation of U.S. beef was banned in 2003 following the discovery of bovine spongiform encephalopathy in U.S. cattle. Finally, in 2006, Japan imported 18.5 billion yen of rice from the United States. This made the United States the largest supplier of rice to Japan under its minimum access commitments with a share of 52.6 percent.

Other import items in which the United States holds a major share are the following. In 2006, the United States was Japan's leading supplier of logs (70.6 billion yen or 33.1 percent of total) and pet food (32.0 billion yen or 35.4 percent). Similarly, the United States was Japan's second largest supplier of fresh vegetables (13.5 billion yen or 14.0 percent) and frozen vegetables (33.7 billion or 29.0 percent), the largest supplier being China (all figures are for 2006).

Turning next to Japan's exports of agricultural, forestry, and fishery products, total exports amounted to 449.0 billion yen in 2006. Exports of these products to the United States amounted to 78.9 billion yen, equivalent to a 17.6 percent share. This made the United States the second largest export market for Japan's agricultural, forestry, and fishery products, the largest market being Hong Kong. Japan's total exports of agricultural products amounted to 235.9 billion yen, of which 46.2 billion yen went to the United States. This 19.6 percent share put the United States in second place following Taiwan. The leading agricultural export items to the United States included: pearls (8.0 billion yen), scallops (4.5 billion yen), alcoholic beverages (4.2 billion yen), fish-meat sausages and other fish paste products (2.5 billion yen), and sesame oil (2.0 billion yen). Other leading export markets for Japan's agricultural, forestry, and fishery products were the following: Hong Kong (83.6 billion yen), Taiwan (63.7 billion yen), China (59.5 billion yen), and South Korea (51.6 billion yen) (all figures are for 2006).

A Japan-U.S. EPA would be expected to eliminate border measures and tariffs on

agricultural, forestry, and fishery products. With this in mind, Japan's current tariff levels are reviewed as follows. Starting with tobacco, Japan's largest single agricultural import item from the United States, cigarettes are tariff-free under a provisional arrangement, while cigars are subject to a 16-percent tariff under the WTO Agreement. Note that under Japan's Tobacco Business Law, the importation of tobacco products for commercial purposes is subject to registration with the Minister of Finance as a designated sales business.

The importation of corn, with the exception of seed corn, is subject to a 50-percent tariff or a 12-yen per kilogram levy, the higher of the two applying. Corn for use in compound and mixed feeds is exempted from the above under certain conditions. That is, corn used in mixed feeds meeting certain specifications and produced in licensed factories under the Customs Tariff Law is exempted. Whole kernel corn supplied to farms for use in feeds (restricted to use in feeds under the supervision of Customs authorities) and steam-flaking corn used in elemental feeds are also tariff-free. Furthermore, tariff-free quotas are available for corn used in the production of cornstarch, ethyl alcohol, etc., up to a certain volume. Similarly, tariffs do not apply to the importation of soybeans.

Japan's tariffs on fresh and dried fruits are relatively low, ranging from 2 percent on papayas to 17 percent on apples and pineapples. The importation of oranges is subject to high seasonal tariff rates. A tariff rate of 16 percent applies between June 1 and November 30, rising to 32 percent between December 1 and May 31. This "one product, two tariff rates system" is designed to protect domestic producers of citrus fruits and grapes: a lower rate applies between harvests in Japan and a higher rate applies during harvest periods. Tariffs on fresh vegetables are low and generally around 3 percent. The highest rate is the 8.5-percent tariff that applies to onions valued at 67 yen per kilogram and below. Tariffs on frozen vegetables are also low, ranging from 6 percent on spinach and broccoli to 12 percent on burdock.

Japan's tariffs on livestock products are as follows. While the importation of beef is subject to a 50-percent tariff under the WTO Agreement, a temporary rate of 38.5 percent is currently applied. The importation of pork is subject to a differential tariff system that operates as follows. When import prices fall within a certain range, a tariff is levied that is equal to the difference between the import price and a certain base price. Currently, the system applies as follows to the importation of pork carcasses. For imports falling within a price range of 48.9 yen per kilogram (floor price for application of specific duty) to 393 yen per kilogram (ceiling price), a tariff amount equivalent to the difference between the import price and a base price of 410 yen per kilogram is levied. Pork of varying quality, for example pork imported at 50 yen and 390 yen per kilogram, both have an after-tariff domestic price of 410 yen per kilogram. As a result of this system, Japan tends to import premium pork. Note that among other import products with a high U.S. share mentioned above, no tariffs apply to the importation of logs and pet foods.

Wheat, rice, and certain other agricultural products are subject to state trading

arrangements where the following type of tariff-rate quota system applies. A zero or low primary tariff rate applies to a specified quota of imports, and amounts exceeding the quota are subject to a higher secondary tariff rate. A levy of 55 yen per kilogram applies to the direct importation of wheat by non-government enterprises. In the case of private-sector importation of rice, a tariff equivalent of 341 yen per kilogram applies.

According to the Japanese Tariff Schedule, in the case of rice, the general tariff is 402 yen per kilogram, the WTO tariff is 341 yen per kilogram, and the temporary tariff is 49 yen per kilogram. The general tariff is a tariff equivalent that was introduced at the time of the tariffication of rice, and the WTO tariff is 15 percent below the general tariff as agreed upon in the WTO Agreement. Finally, the temporary tariff is equal to the difference between the WTO tariff and mark-up charged by the Ministry of Agriculture, Forestry and Fisheries (MAFF).

The mark-up is charged by MAFF against the imports of minimum-access rice under state trading arrangements. In the case of private-sector importation of rice, a tariff equivalent (341 yen per kilogram) is levied. Of this amount, a maximum of 292 yen per kilogram goes to MAFF as its mark-up, which is then credited to the Foodstuff Control Special Account. The remaining 49 yen per kilogram is credited to the government's general account and comprises the temporary tariff. The MAFF mark-up system also applies to wheat. Out of a tariff equivalent of 55 yen per kilogram, MAFF collects 45.2 yen per kilogram as its mark-up, and the remaining 9.8 yen per kilogram comprises the temporary tariff.

V.2 Japanese Agriculture as an Industry

How will the elimination of tariffs under a Japan-U.S. EPA affect Japanese agriculture? This discussion needs to be prefaced by a review of the current status of Japanese agriculture. Japan's annual agricultural output stands at roughly 8,800 billion yen in terms of shipment value. The sector annually generates about 5,400 billion yen in value-added. This output is supported by 2.93 million farm households and 2.57 million agricultural workers (all figures are for 2004). The share of agriculture in the Japanese economy is steadily declining. In 2004, agriculture accounted for 1.1 percent of Japan's total value-added and 4.1 percent of the total working population.

This low share of agriculture is not unique to Japan and is common to all advanced countries. This is because in the process of economic development, output shifts from agriculture to manufacturing and finally to service industries in what is referred to as Petty-Clark's Law. That is, as capital accumulation proceeds and the manufacturing sector expands, demand for agricultural products fails to keep pace with income growth as predicted by Engel's Law. As a result, the relative share of agriculture declines as the manufacturing sector grows.

Parallel to these changes in industrial structure, if the resources invested in agriculture can be smoothly transferred to other industries, the remaining

agricultural resources would achieve high levels of marginal productivity. This would allow agriculture to remunerate its resources at rates commensurate with other industries, opening up the possibilities for creating a self-reliant agricultural sector. One of the requirements for this process to function properly is the expansion of the scale of individual production units. However, Japanese agriculture is land-intensive and the average scale of production remains very small. As such, there is an urgent need to nurture large-scale farms through structural reform. On average, Japanese farm households hold less than 2 hectares of agricultural land. Considering the physical factor endowments per farm household, it is difficult to identify areas of comparative advantage that can be exploited within the framework of Japan's land-intensive farming. This raises the following two questions. Is there no way for Japanese agriculture to achieve larger scales of production? And, is there no way to overcome "resource constraints" through the development of land-substituting technologies and the accumulation of human capital?

Table 15 presents a long-term trend of the basic economic indicators of Japanese agriculture. In 1960, agriculture accounted for 9 percent of GDP and 27 percent of Japan's working population. Both declined rapidly to reach below 3 percent and 9 percent in 1980, respectively. Total agricultural output (2000 = 100) rose from 80 in 1960 to a peak of 111 in 1990, but has been steadily declining thereafter. Conversely, agricultural imports grew dramatically during this period. The total value of agricultural imports (2000 = 100) increased exponentially from 8 in 1960 to 43 in 1980 and to 102 in 2004. The actual value of imports amounted to 4,800 billion yen in 2005.

Needless to say, rice is the most important product in Japanese agriculture. In 1960, rice accounted for 47 percent of total agricultural output. While this ratio has declined steadily to 30 percent in 1980 and 23 percent in 2004, it is notable that rice continues to maintain a substantial share in output. Total area under cultivation has also declined steadily from 6.07 million hectares in 1960 to reach 4.71 million hectares in 2004. The utilization rate of cultivated land (planted area divided by cultivated area) exceeded 100 percent until 1990, but in recent years has dropped to about 94 percent. This reflects the increase in abandoned and fallow agricultural land.

In 1960, Japan had a total of 6.06 million farm households. While steadily declining, Japan continues to have nearly 3 million farm households as of 2004. Notwithstanding the decline in farm households, due to the drop in total cultivated area, the average area of land under cultivation per household has only increased from 1.0 hectare in 1960 to 1.6 hectares in 2005. This means that the average Japanese farm is only 1/120th the size of the average U.S. farm and 1/40th and 1/20th of the average British and French farms, respectively. While some consideration must be given to differences between Japan's paddy-field cultivation and dry-land farming in Europe and North America, the obvious implication here is that Japanese agriculture must come out of its extremely small scale of operations.

Thus far, the term “farm household” has been used here without a clear definition. From the perspective of economics, a farm household is one in which economic activities in terms of household expenditure and agricultural management (i.e., consumption and production) proceed in parallel. Therefore, it is important to analyze the economic activities of farm households from a different perspective from that which may apply to the consumption behavior of employee households and the production activities of companies where they work.

Agricultural management activities are normally supported by household members working as a unit. On the production side, household members are suppliers of labor. At the same time, household members are consumers on the expenditure side. Within the household, agricultural management does not exist as an independent organization. Rather, it is subordinate to the family and to the economy of the family. For this reason, this form of agricultural management, which is dominant in many countries, is referred to as family farming. Of course, family farming covers many variations ranging from subsistence farming to corporate-like management that treat family members as employees. In this context, the most important feature of Japanese family farming has been the rapid spread of part-time agricultural management.

Accelerated economic growth in the postwar period created new employment opportunities in the rural areas, allowing the members of farm households to find employment in other industries without moving away from their homes.¹⁰ Furthermore, by reducing the burden of labor in rice cultivation, progress in agricultural technologies and mechanization made it possible for the elderly and female members of the household to effectively manage family farms. As more and more members of the household found employment in other industries, families became less dependent on agriculture as a source of income. The number of persons committed full-time to farming became miniscule, and farm households were essentially transformed into land-owning employee households. In this scheme, agriculture was no longer a cooperative activity supported by multiple household members. Instead, agriculture became the occupation of certain designated members of the farm household.

What is the definition of a farm household? The Census of Agriculture and Forestry conducted every five years provides a basis survey of all agricultural entities. The following definition of farm household was used in the censuses conducted between 1990 and 2000: “Households that farm on cultivated land of 10 ares and over, or have an income of 150,000 yen or over by selling agricultural products during the year.”¹¹

¹⁰ The creation of new employment opportunities in the rural areas was not the only factor promoting stay-at-home, part-time farming. Other contributing factors included the development of roads and transportation infrastructure, and the proliferation of private cars and motorcycles during the high-growth period.

¹¹ This definition was revised significantly at the time of the 1990 Census. Prior to this revision, the minimum area of cultivated land was 10 ares in eastern Japan and 5 ares in western Japan. The minimum annual income from agriculture was 100,000 yen in the 1980 and 1985 Censuses. Furthermore, as explained below, the object of the census was changed from “farming household” to “agricultural management entities” in the 2005 Census.

This definition includes a large number of marginal farm households that derive most of their income from non-agricultural employment and pensions, and whose agricultural output is essentially for self-consumption. For this reason, farm households have been divided into two categories: “non-commercial farm households” and “commercial farm households.” “Non-commercial farm households” consist of farms with cultivated land of under 30 ares and an income of under 500,000 yen by selling agricultural products during the year. All others are categorized as “commercial farm households.”

Farm households are also categorized by the type of employment of family members. “Full-time farm households” are farms that contain no household members employed full-time in other industries. “Part-time farm households” are farms that contain one or more household members employed full-time in other industries. The latter category is further divided into two sub-categories consisting of “primary part-time farm households” whose main income is from farming, and “secondary part-time farm households” whose main income is not from farming.

Based on these categories, Table 16 follows the changes in the structure of Japan’s farm households between 1990 and 2005. Of the estimated total of 2.84 million farm households in 2005, more than 30 percent are small-scale non-commercial farms earning very small amounts of income from sales of agricultural products. Moreover, the ratio of such farm households has been substantially increasing in recent years. Even among commercial farm households, only about 15 percent meet the definition of full-time farm household, and more than 50 percent are elderly farm households with no male member in the productive age range (15–64 years old). Table 16 points to a declining ratio of part-time farm households. A closer look shows that this development reflects the movement from primary to secondary part-time farm households, and from secondary part-time farm households to non-commercial farm households. In particular, the latter movement has been accelerated in recent years.

V.3 Japan’s Farm Households and Agricultural Management

As can be surmised from the increase in elderly full-time farm households, the conventional categorization of Japanese agriculture into full-time and part-time farm households does not necessarily capture the structure of Japanese farm households. For this reason, the Census of Agriculture and Forestry categorizes commercial farm households into three sub-categories based on income and number of days per year spent on farming. The sub-categories are business, semi-business, and side-business farm households. Business farm households are “farms whose main income is from farming (exceeding 50 percent of total income) with a farmer who is under 65 years old and works on the self-owned farm for 60 days and over during the year.” Semi-business farm households are “farms whose main income is not from farming with a farmer who is under 65 years old and works on the self-owned farm for sixty days and over during the year.”

Side-business farm households are “farms that do not have a farmer who is under 65 years old and works on the self-owned farm for sixty days and over during the year” (consisting of farm households other than business and semi-business farm households).

Based on these categories, Table 17 combines the breakdown of 1.95 million commercial farm households (2005 figure) with the distribution of farm households by agricultural sales. With a total of 430,000 farm households, business farm households account for 22 percent of all commercial farm households. There are a total of 440,000 semi-business farm households, accounting for 23 percent of all commercial farm households. Finally, the remaining 1.08 million farm households (55 percent) are side-business farm households. Before considering the agricultural sales of business and semi-business farm households, a brief review of the distribution of all farm households by agricultural sales would be helpful. Among all commercial farm households, some 780,000 (about 40 percent) have less than 500,000 yen in agricultural sales. Going back to the definition of commercial farm households, this implies that these 780,000 farms cultivate 30 ares or more but are still unable to earn 500,000 yen in agricultural sales. Furthermore, nearly 60 percent of commercial farm households report agricultural sales of less than 1 million yen.

Turning next to the distribution of business and semi-business farm households, there are 135,000 business farm households that earn more than 10 million yen from agricultural sales. This is equivalent to 7 percent of all commercial farm households. On the other hand, nearly 50,000 business farm households report agricultural sales of less than 1 million yen. Nearly 90 percent of all semi-business farm households, which have full-time farm worker but rely mainly on non-agricultural income, report less than 3 million yen in agricultural sales. In other words, semi-business farm households earning above this line are relatively few in number. Finally, while the majority of side-business farm households earn less than 500,000 yen from agricultural sales, a total of 6,000 side-business farm households earn more than 10 million yen.

It should be noted that beginning in the 2005 Census, the object of the census was changed from “farming households” to “agricultural management entities,” which are defined as follows. “Those who produce agricultural products or are engaged in agriculture under a consignment agreement, and its production or size of operation falls under either of the following: (1) cultivated land under management is over 30 ares; (2) planted area for agricultural produce, the number of feeding livestock or shipped livestock, and scale of other operations exceed a certain level; and (3) operating under a consignment agreement.”¹² The number of agricultural management entities totaled 2,009,000 in 2005. As most agricultural management entities are commercial farm households, the distribution of the former parallels that of the latter.

¹² Standards of scale of operations include 15 ares for field-grown vegetables, 350 square meters for greenhouse vegetables, 1 milking cow, etc. Agricultural management entities used in the 2005 Census is equivalent to the total of commercial farm households, non-farming agricultural entities, and agricultural services entities as defined in the 1990–2000 Censuses.

As shown in Table 17, the scale of Japanese farms is very small and nearly 60 percent of all farm households earn less than 1 million yen from the sales of agricultural products. However, this does not necessarily mean that farm households are poor. Table 18 compares the income of farm and employee households. In 2003, the national average total income for farm households was approximately 7.71 million yen. Of this total, only 1.1 million yen, or 14 percent, was from agriculture. In 2003, the total income of farm households exceeded that of employee households by 23 percent. The same can be said for per capita income of household members, with individual members of farm households earning 14 percent more than their counterparts. Throughout the entire period shown in Table 18, total income of farm households has exceeded that of employee households. On a per capita basis, farm households overtook employee households between 1970 and 1980, and have thereafter maintained their lead.

Table 19 presents the income breakdown of business, semi-business, and side-business farm households. The average total income of business farm households (whose main income is from farming and which contain at least one farmer who works on the farm for 60 days or more per year) amounts to 7.66 million yen. This is considerably higher than the average income of employee households. Of this total, 4.74 million yen, or 62 percent, represents income earned from agriculture. In the case of side-business farm households, agricultural income accounts for only about 4 percent of total income. In the case of semi-business farm households, this ratio is only 10 percent. These figures reflect the fact that secondary part-time farm households rely on agriculture for only 5 percent of their total income, and effectively cannot be distinguished from employee households. The fact of the matter is that these farm households constitute relatively wealthy workers who own land and whose income exceeds that of average employee households. While these comments are based on average income amounts, given the fact that secondary part-time farm households account for 70 percent of all farm households, it can be safely concluded that a considerable proportion of all farm households enjoy a standard of living which exceeds that of the average employee household.

Even in the case of business farm households, agricultural income accounts for only 62 percent of total income. One of the explanations for this is that many business farm households are actually elderly full-time farm households, which rely on pensions and other non-agricultural income. As already shown in Table 15, which divides farm households into full-time and part-time farm households, the total number of full-time farm households came to 442,000 households in fiscal 2005. Of this total, 227,000 households, or nearly 60 percent, were elderly full-time farm households with no male member in the productive age range of 16 to 64.

The aging of farm workers is a problem affecting all of Japanese agriculture. Table 20 provides a breakdown of agricultural workers in commercial farm households by age. Workers under the age of 30 account for less than 6 percent of the total agricultural workforce, while those who are age 65 and above account for

nearly 60 percent of all workers. While women slightly outnumber men, their age distribution is similar. These figures indicate that Japan's agriculture is essentially supported by elderly workers with relatively little time left before retirement.

The retirement of elderly farm workers signifies a major turning point in Japan's agricultural sector. There is no doubt that Japan's agricultural sector will shrink and decline if farms with no successors stop farming, or if they abandon their land without renting it out to others. On the other hand, agricultural output can increase if the land and other agricultural resources of retiring farmers are taken over by more efficient farmers. The key question here is whether the agricultural resources held by elderly farmers can be smoothly transferred to other farmers for their use. There would be substantial demand for the agricultural resources of retiring farmers if farming provided opportunities for earning sufficient income and profits and if agriculture could be structured as an industry where management efforts are properly remunerated. However, under current conditions, the agricultural resources of farms that are being closed down are not necessarily being transferred smoothly. Prices of the agricultural resources of retiring farmers are being dragged down by numerous regulations that severely restrict free competition. Demand for agricultural resources will not increase so long as efficient allocation and use are not guaranteed through free competition. Thus, the numerous regulations put in place to protect agriculture are actually obstructing the development of this sector when internal structural conditions are conducive to change.

V.4 Comparison of Agricultural Management in Japan and the United States

As a country poorly endowed with land resources, it is clear that Japan cannot effectively develop comparative advantage in land-intensive industries like agriculture. The problem is that Japanese agriculture has insisted on producing land-intensive crops, most importantly rice. Moreover, agricultural policies have long been focused on rice. Japanese agriculture has been able to maintain this situation thanks to border measures used by the government to restrict and control the importation of rice.

This section compares agricultural structure in Japan and the United States, the latter having the most marked competitive advantage in agriculture anywhere in the world, from the perspective of agricultural management.¹³ While the United States is the world's leading exporter of agricultural products, the share of agriculture in GDP is 1 percent, and agriculture accounts for only about 1.5 percent of total employment. However, per capita value-added is double that of Japanese agriculture. The U.S. definition of farm, which corresponds to Japan's farm household, states that a farm is an entity selling more than 1,000 dollars of agricultural products per year. While this data is somewhat old, the 1997 Census of Agriculture indicates that the United States has 1,912,000 farms. Table 21

¹³ Data on U.S. agriculture appearing in this section is from Hattori (2005).

presents the distribution of U.S. farms by income from agriculture.

Farms earning less than 10,000 dollars per year from agriculture account for one-half of all farms. However, this high figure can be attributed to the overly expansive definition of farms, which results in the inclusion of hobby farming at homes by non-agricultural workers and retirees. This parallels the Japanese situation where farm households selling less than 1 million yen per year account for more than half of all farm households.

Small family farms with sales of 10,000 to 40,000 dollars per year and medium family farms with sales of less than 100,000 dollars need to supplement their income from non-agricultural sources. However, farms with sales exceeding 100,000 dollars can be viewed as “full-time farms” as the term is used in Japan. While these farms account for only 18.1 percent of all U.S. farms, they account for 87.4 percent of total agricultural sales. In this context, it is particularly interesting to note the contribution of large-scale farms with annual sales exceeding 1 million dollars. These farms, the total number of which is merely about 26,000, account for 42 percent of total sales and have an average income of nearly 800,000 dollars per year.

Large-scale farms in the United States conjure up images of vast farmlands and giant machines harvesting grain crops. As can be seen in Table 22, family-operated farms are the norm in this style of grain farming, whether medium- or large-scale. While there are a total of 10,500 grain farms with sales exceeding 1 million dollars, the share of these entities in total grain sales stands at only 10 percent. This leads to the question: In what segments of U.S. agriculture do small numbers of large-scale farms hold high market shares? Large-scale farms with sales exceeding 1 million dollars account for an overwhelming 75 percent share of total sales of vegetables. In horticulture and greenhouse products, their share is 65 percent. Finally, large-scale farms account for more than 50 percent of total sales in such segments as beef cattle, poultry, hogs, and fruit. What this implies is that large-scale farms are the norm in the production of high value-added agricultural products.

In both Japan and the United States, large-scale farms are the norm in the livestock segment. However, important differences are seen in their respective management formats. Because of land constraints in Japan, large-scale livestock farms using factory-like concentrated breeding/raising methods are mostly restricted to poultry farms (egg or meat producing farms). In the U.S. case, concentrated breeding/raising frequently refers to cattle farming with a string of lots each containing 100 or so cattle. The scale of operation in this type of feedlot management can range from several thousand cattle to as many as 100,000 cattle. This type of business is impossible to operate in Japan, where factory-like large-scale production methods are essentially restricted to smaller livestock.

The comparative disadvantage of Japanese agriculture does not derive solely from the inferiority of its factor endowments. Japanese production costs are also pushed up by the high cost of agricultural materials and energy. In the case of

some materials, Japanese farmers face prices that are 50–100 percent higher than the United States. It has been estimated that if materials were available at U.S. prices, this alone would cut the cost of intermediate inputs by 45 percent and reduce the value of Japan's agriculture output by 18 percent (*Annual Report on Food, Agriculture and Rural Areas in Japan FY 1996*). Japanese agriculture needs to pursue its areas of comparative advantage based on its factor endowments. At the same time, effective measures must be introduced to gradually reduce costs. These would include measures for rationalizing the distribution of production materials, encouraging the efficient use of such materials, and promoting deregulation.

V.5 Treatment of Agriculture in Past FTAs

Agriculture presents many difficult problems that have to be dealt with in FTA negotiations. It should be noted, however, that these problems are not unique to Japan and the United States. The fact of the matter is that it is almost impossible to find an existing FTA where trade in agricultural products has been treated like any other product and liberalized without exception. Even in the case of the U.S.-Australia FTA, concluded between two major exporters of agricultural products, exceptional treatment has been given to certain agricultural segments and products. In considering a Japan-U.S. EPA, it is important to examine how agriculture has been treated in the FTAs that have been concluded by the two countries in the past. This section reviews the treatment of agriculture in some major FTAs.

(1) North American Free Trade Agreement (NAFTA)

NAFTA was launched in 1994 with the participation of the United States, Canada, and Mexico. The elimination of existing tariffs was scheduled to take place immediately, within 5 years, within 10 years, and within 15 years from the enforcement of the agreement, depending on the product. In this scheme, agreements on agricultural products were scheduled to be implemented by 2008. Under NAFTA, trade liberalization in agricultural products comes under the following three bilateral agreements: the U.S.-Canada Agreement, which represents a modification of the Canada-U.S. Free Trade Agreement (CUSTA) that came into force in 1989; a newly-formed U.S.-Mexico Agreement; and a newly-formed Canada-Mexico Agreement.

Under the U.S.-Canada Agreement, almost all tariffs on agricultural products were removed by 1998. On the other hand, tariff-rate quotas were applied to the following products that previously were subject to quantitative restrictions: U.S. exports of dairy products, poultry, eggs, and margarine; and Canadian exports of dairy products, peanuts and peanut butter, sugar and products containing sugar, and cotton. Furthermore, the above products have been exempted from tariff elimination. In Canada, provincial marketing boards manage the supply of dairy products, poultry, and eggs and maintain prices by adjusting production. Because

export and import controls are essential to the operation of this system, Canada could not concede on the liberalization of these products. Following tariffication under the WTO Agriculture Agreement, Canada adopted relatively high tariff equivalents. In its first year (1995), the secondary tariff rates were 283.8 percent for milk, 289 percent for cheddar cheese, 351.4 percent for butter, 192.3 percent for eggs, and 280.4 percent for poultry. The United States filed an appeal claiming that these high tariff rates were in violation of NAFTA. The NAFTA dispute settlement panel turned down the appeal on the grounds that the WTO Agreement took precedence over NAFTA.

In contrast, the U.S.-Mexico Agreement allows for no exceptions and adopts a four-stage schedule for elimination of existing tariffs to take place immediately, within 5 years, within 10 years, and within 15 years of the enforcement of the agreement, depending on the product. However, NAFTA does contain safeguard provisions for designated agricultural products whereby short-term protective measures automatically go into force when imports reach a certain level. The United States has applied this special safeguards system to the importation of onions, tomatoes, eggplants, chili peppers, squash, and watermelons. Mexico has applied it to the importation of live hogs and almost all pork products, apples, and potato products. Furthermore, under a supplementary agreement entered into by the United States and Mexico after the signing of NAFTA, the United States has applied protective measures to the importation of sugar, orange juice, and fresh and frozen vegetables. This agreement has allowed the United States to take the following actions: introduction of safeguard measures on the importation of orange concentrates, more rigorous monitoring of fresh and frozen vegetables imports, and the addition of high-fructose corn syrup in the calculation of Mexico's "net surplus production"¹⁴ of sugar.

The Canada-Mexico Agreement allows the two countries to maintain tariffs on the following products and exempt them from tariff elimination: dairy products, poultry, eggs and egg products, and sugar and products containing sugar. The Canada-Mexico Agreement also includes similar safeguard provisions contained in the U.S.-Mexico Agreement.

While the elimination of import barriers is a fundamental principle in these agreements, not all agricultural products are subject to tariff elimination. In particular, many exceptions to tariff elimination are found in the area of livestock products. Furthermore, it is noteworthy that exceptions vary considerably among the three bilateral agreements.

(2) U.S.-Australia FTA

¹⁴ The United States interprets net surplus production to be (total sugar production) – (total sugar consumption + total consumption of high-fructose corn syrup). On the other hand, Mexico has not accepted the inclusion of high-fructose corn syrup in this calculation. Under the agreement, Mexico can export its net surplus sugar to the United States beginning in 2000 under the following conditions: such exports can be undertaken only when Mexico is a net surplus producer of sugar, and exports cannot exceed 250,000 tons per year.

Among the various FTAs created in recent years, the U.S.-Australia FTA concluded in February 2004 attracted special attention. As the signatories were both the world's major exporters of agricultural products, attention was focused on how agricultural products would be treated in this agreement.

The U.S.-Australia FTA provides for the immediate elimination of all tariffs on agricultural imports by Australia. On the other hand, the United States was allowed to maintain protective measures on priority agricultural products. Specifically, the United States excluded sugar from tariff elimination and adopted an 18-year schedule for the gradual lowering of tariffs on beef. The United States immediately eliminated tariffs on only about 66 percent of agricultural products. Tariffs are scheduled to be eliminated on a further 9 percent (including some priority products, such as fruit juices and certain types of mutton) within 4 years. Tariffs on wine are scheduled to be eliminated within 11 years.

Tariff-rate quotas on beef started at 378,000 tons and were to be increased by 15,000 tons within two years of the enforcement of the FTA. Thereafter, additions to the tariff-rate quota on beef are to be gradually increased to reach 70,000 tons by the 18th year. In-quota tariffs were immediately eliminated. An over-quota tariff rate of 26.4 percent is scheduled to be gradually lowered over an 18-year period following the enforcement of the FTA.

Tariff-rate quotas also apply to various other agricultural products. In the case of dairy products where quotas existed prior to the FTA, the tariff-rate quota was tripled in the first year of the agreement, and is thereafter scheduled to increase at an average annual rate of 5 percent. For other dairy products, newly established tariff-rate quotas were applied to the following products: European type cheeses (2,000 tons); milk, ice cream, and cream (total 7.5 million liters); and powdered whole milk (4,000 tons). New tariff-rate quotas were also established for avocados (4,000 tons) and peanuts (500 tons). The tariff-rate quota for cotton products is to be annually increased over 18 years, and in-quota tariffs are to be annually reduced. The tariff-rate quota for sugar, which is treated as an exception to tariff reduction and elimination, will remain unchanged from the original 87,000 tons per year.

Australia applies particularly strict sanitary and phytosanitary (SPS) measures to imports of animal and plant products. As a result, imports of U.S. poultry, pork, and whole grains are banned on the grounds that they do not meet Australian SPS standards. U.S. agricultural organizations have complained that these constitute non-tariff barriers, but Australia has refused to take ameliorative measures on the grounds that its SPS measures under the FTA are backed by scientific evidence.

Thus, the U.S.-Australia FTA contains various exceptions and exemptions in the area of agricultural products. The fact that the two countries did arrive at an agreement points to their realization that an FTA would generate crucial benefits in important sectors other than agriculture. Needless to say, the conclusion of this

comprehensive FTA covering agriculture, industrial products, services, government procurement, protection of intellectual property, labor, and environment is significant in promoting free trade not only for the two signatories but also for the entire world.

(3) U.S.-Korea FTA

The conclusion of the U.S.-Korea FTA in April 2007 was a shock to Japan. Negotiations were launched in June 2006 and proceeded at great speed, reaching fruition within 10 months of their start. While rice was excluded from liberalization, Korea virtually accepted to restart the importation of U.S. bone-in beef that had been halted due to BSE. Korea is also committed to eliminating its 40-percent tariff on beef over a 15-year period. Five products are recognized as priority items, including potatoes, soybeans, powdered skim milk, and powdered whole milk. These products will remain subject to tariff-rate quotas and current tariff rates will be maintained. Oranges will remain subject to the current 50-percent tariff rate that applies during the September-February season for Korean citrus products. A 30-percent tariff will apply during other months of the year but will be eliminated after 7 years.

The U.S.-Korea FTA also establishes trigger levels for safeguard (emergency import restriction) measures for a total of 30 major sensitive agricultural products, including beef and pork. Similar criteria have not been established for other agricultural products. For such products, the decision to invoke safeguards will be made when it is deemed that imports have caused serious damage to domestic industries. Tariffs on a number of products will be immediately eliminated when the FTA goes into effect. These include orange juice (frozen), flowers, grape juice, coffee, wine, and feed corn. Tariffs will be immediately eliminated on 37.9 percent of all agricultural items accounting for 55.8 percent of Korea's total imports of agricultural products from the United States. Within 5 years, tariff elimination will extend to about 68 percent of all agricultural products.

As in the case of beef, tariffs will be gradually eliminated on 30 items over a period of 15 years. These products include pork, corn, garlic, apple, peppers, onions, ginseng, and barley. When imports of these products exceed a certain level, Korea is permitted to introduce a tariff surcharge. For beef, the trigger level for safeguard measures is set at 270,000 tons in the initial year of the FTA. Thereafter, the level will be raised by 6,000 tons per year to reach 354,000 tons in the 15th year.

The applicable tariff rate on beef imports will remain unchanged from the effective rate for the first 5 years of the agreement. Tariffs will be lowered to 75 percent of the effective rate between the 6th and 10th years, and to 60 percent between the 11th and 15th years. Thus, the current tariff rate will be cut by 40 percent over a 15-year period. For pork, the trigger level for safeguard measures is set at 8,250 tons in the initial year of the FTA. Thereafter, the level will be raised by 6 percent per year to reach 13,938 tons in the 10th year, at which time

the tariff on pork will be eliminated. If safeguard measures are triggered during the first 5 years of the FTA, the effective tariff will be applied; if triggered between the 6th and 10th years, a rate equivalent to between 70 percent and 50 percent of the effective rate will be applied, whereby the rate is reduced by 5 percent per year.

Bilateral negotiations on tariff-rate quotas (TRQ) continued right up to the release of the text of the agreement. It was finally agreed that a variety of methods would be adopted for individual products, such as first-come, first-served basis, auction system for import rights, and licensing of historical importers. Oranges will remain subject to the current 50-percent tariff rate that applies during the September-February season for Korean citrus products. In exchange for this, a tariff-free quota of 2,500 tons will be introduced and will be increased annually at a rate of 3 percent.

(4) Japan-Singapore EPA

Japan's first FTA has entered into force in November 2002 with Singapore. (More accurately, this was an economic partnership agreement or EPA.) Using the WTO Agreement as a shield, Japan adopted strategies to effectively exclude the agricultural sector from liberalization under this agreement. Specifically, Japan was ready to eliminate all tariffs that were already effectively at zero (duty free), but, for all other tariffs, refused to make concessions exceeding the commitments made in the WTO Agriculture Agreement. As a result, out of a total of 2,277 agricultural, forestry, and fishery products, only 486 products were covered in the Japan-Singapore agreement. These consisted of 428 items that were already duty-free under the WTO Agreement, and an additional 58 items with effective tariff rates (currently applicable tariff rates) of zero. In this manner, Japan was able to include agricultural products in its agreement with Singapore without treating the entire sector as an exception. However, in reality, agricultural products were excluded. This aspect of the agreement should be viewed as a highly exceptional case, which rested on the fact that Singapore has almost no domestic agricultural production and therefore did not consider agricultural trade to be a real issue.

(5) Japan-Mexico EPA

Japan's second FTA was concluded with Mexico following difficult negotiations. The negotiations started in November 2002 and reached a peak in October 2003 with the visit of President Fox to Japan. However, negotiations broke down on tariff-free quotas for pork and orange juice. As a result, an agreement in principle was not reached until March 2004.

Mexico ranks among countries that have taken a very positive stance on FTAs. For this reason, Mexico has gained a hub-position in a series of FTAs. Because of NAFTA and the EU-Mexico FTA, North American and European companies have

established tariff-free access to Mexican markets. By comparison, Japanese companies were at a clear disadvantage. When Japanese manufacturers built production facilities in Mexico, their competitive position was undermined by tariffs that applied to the importation from Japan of parts and components to be used in these factories. These adversely affected Japanese companies longed for the conclusion of a Japan-Mexico EPA.

At the start of negotiations (2002), machinery and equipment accounted for 75 percent of Japan's exports to Mexico, and it was expected that the elimination of tariffs on these products would boost the export of Japanese industrial products to Mexico. Similarly, machinery and equipment accounted for 49 percent of Mexico's exports to Japan. However, many of these products were already being imported by Japan at a zero percent tariff rate. Therefore, the focus of Mexican negotiators was turned elsewhere. Specifically, they hoped to increase Mexico's exports to Japan by reducing the high tariff rates that applied to agricultural and food products, which accounted for 23 percent of its exports to Japan. During the course of the negotiations, Japan proposed to eliminate tariffs on approximately 300 agricultural products. However, negotiations became deadlocked on the subject of pork, Mexico's leading agricultural export product to Japan.

Japan has adopted a differential tariff system for the importation of pork. For import prices within a certain price range, a tariff is levied that is equal to the difference between the import price and a certain base price. For the importation of pork carcasses, this price range is set at between 48.9 yen per kilogram (floor price for application of specific duty) and 393 yen per kilogram (ceiling price). For all pork imported in this price range, a tariff is charged that is equivalent to the difference between the import price and a base price of 410 yen per kilogram.

The bilateral negotiations on pork were eventually settled on terms that closely approximated the original Japanese proposal. In exchange for this, a tariff-rate quota for orange juice, which had not been placed on the agenda, was introduced, and tariff-rate quotas were also established for the first five years of the agreement for beef, poultry, and fresh oranges. Furthermore, items were identified for inclusion in immediate tariff elimination, renegotiation, and exclusion. Finally, the agreement contains bilateral safeguard measures whereby the conceding country can raise tariffs when increased imports are deemed to have been injurious to domestic producers.¹⁵

¹⁵ Under the Japan-Mexico EPA, the five agricultural products are treated as follows. Pork: A preferential tariff quota is established amounting to 38,000 tons in the initial year and increasing to 80,000 tons in the 5th year. The applicable tariff rate is 50 percent lower than the current ad valorem rate. Orange juice: A preferential tariff quota is established amounting to 4,000 tons in the initial year and increasing to 6,500 tons in the 5th year (concentrate basis). The applicable tariff rate is 50 percent lower than the current rate. Beef: A market development quota (duty-free) of 10 tons is assigned to the initial two years of the agreement, and thereafter increased to 3,000 tons in the 3rd year and 6,000 tons in the 5th year. The applicable tariff rate is to be negotiated in the 2nd year after the enforcement of the agreement. Poultry: A market development quota (duty-free) of 10 tons is assigned to the initial year of the agreement, and thereafter increased to 2,500 tons in the 2nd year and 8,500 tons in the 5th year. The applicable tariff rate is to be negotiated in the initial year of the enforcement of the agreement. Fresh oranges: A market

(6) Japan's Other Concluded EPAs

Japan has concluded a number of other EPAs. In its FTA negotiations with the Philippines, an agreement in principle was reached in November 2004. Here again, the treatment of agricultural products remains inadequate in the resulting Japan-Philippines EPA. Such products as rice, wheat, barley, dairy products (state trading items), beef, pork, raw sugar, starch, and canned pineapple have either been excluded from the agreement or have been identified as items for renegotiation. On the subject of bananas, a priority item for the Philippines, Japan agreed to eliminate its tariffs on dwarf bananas (monkey bananas) over a period of 10 years. For normal bananas, Japan's current tariff rates of 10 percent during the summer season (20 percent during the winter season) will be reduced to 8 percent (18 percent) over a 10-year period.¹⁶

Given that Japan's domestic production of bananas is very nearly zero, why are bananas subject to an import tariff in the first place, and why does the tariff rate go up during the winter season? The reason given is that the availability of inexpensive bananas adversely affects the sales of domestic fruits. In particular the tariff rate is raised as apples reach the market during the winter. How much do bananas substitute apples? This is a rhetorical question that causes consumers to smile wryly. As long as Japan adheres to these types of policies, there is little hope for the achievement of true globalization and the adoption of policies that put the consumer first.

Turning next to the Japan-Malaysia FTA (EPA), an agreement in principle was reached in May 2005 and the agreement came into force in 2006. Over a 10-year period after the enforcement of the agreement, tariffs on motor vehicles, steel, and other industrial products will be eliminated, as will tariffs on agricultural, forestry, and fishery products. In the agricultural sector, tariffs on mangos, durians, and certain other products have been eliminated immediately. The agreement provides for an annual 1,000-ton tariff-free quota on bananas. The two countries did not reach an agreement on plywood, a product of export interest to Malaysia. The decision was made to hold further negotiations on this item after

development quota (duty-free) of 10 tons is assigned to the initial two years of the agreement, and thereafter increased to 2,000 tons in the 3rd year and 4,000 tons in the 5th year. The applicable tariff rate is to be negotiated in the 2nd year after the enforcement of the agreement. All five products are to be renegotiated in the 5th year after enforcement.

¹⁶ Importation of other agricultural products is treated as follows under the Japan-Philippines EPA. Sugar: Raw sugar is to be renegotiated in the 4th year after the enforcement of the agreement. Molasses are subject to tariff-rate quota (50 percent of over-quota tariff) amounting to 2,000 tons in the 3rd year and 3,000 tons in the 4th year. Mascobado sugar is subject to tariff-rate quota (50 percent of over-quota tariff) amounting to 300 tons in the 3rd year and 400 tons in the 4th year. Poultry (excluding thigh meat with bones): Tariff-rate quota is established (in-quota tariff reduced from 11.9 percent to 8.5 percent) amounting to 3,000 tons in the initial year and increasing to 7,000 tons in the 5th year. Pineapple (fresh): Tariff-rate quota is established (duty-free) amounting to 1,000 tons in the initial year and increasing to 1,800 tons in the 5th year for low-weight pineapples.

the enforcement of the agreement.

In August 2005, an agreement in principle was reached on the conclusion of FTA with Thailand. A key point in the negotiations was the reduction of tariffs on motor vehicles. Failing to reach an agreement on this matter, the two countries decided to hold further negotiations in the future. One of the factors contributing to the stalemate in motor vehicle negotiations was Japan's inadequate level of liberalization in the agricultural sector. Rice was excluded from the liberalization negotiations from the start, and negotiations on sugar were postponed until a later date. The tariff rate for boneless chicken was reduced from 11.9 percent to 8.5 percent, while the tariff rate for processed chicken meat was reduced from 6 percent to 3 percent. These concessions do not signify a high-quality FTA.

In September 2006, an agreement in principle was reached on the conclusion of EPA with Chile. However, the following agricultural products were either excluded from the negotiations or negotiations were postponed until a later date: rice, wheat and barley, dairy products (butter, cheese, powdered skim milk, etc.), oranges, konjac, starch, peanuts, and vegetable oils (rapeseed oil, etc.). Among other agricultural products, beef, pork, and poultry are subject to tariff-rate quotas. Tariffs on asparagus and avocados are to be immediately eliminated. Tariffs on onions and apples are to be eliminated over a 15-year period; tariffs on vegetable juices are to be eliminated over a 7-year period; and tomato puree and tomato paste are subject to tariff-rate quotas. The agreement also provides for the immediate elimination of tariffs on some agricultural products of export interest to Japan. Responding to a request that Japan had made to promote the export of agricultural products, Chile has agreed to the immediate elimination of tariffs on such products as Chinese yams, nashi pears, persimmons, green tea, miso, and soy sauce.

In its EPA negotiations with ASEAN, Japan reached an agreement in principle in May 2007. Japan is committed to eliminating its tariffs on 92 percent of its imports (on a value basis) within 10 years, and reducing its tariffs by 5 percent to 50 percent on another 7 percent of its imports. The remaining 1 percent, which includes rice, is expected to be excluded from liberalization. The negotiations cover a total of 5,223 items, which includes manufactured products and forestry and fishery products. This greatly exceeds the 1,332 items covered in the WTO agricultural negotiations, and a 1-percent exclusion allows the exclusion of 52 items from liberalization negotiations.

V.6 Toward Improving the Efficiency of Japanese Agriculture

Progress toward a Japan-U.S. EPA will promote structural reform in Japanese agriculture. The age in which agriculture could be left to farmers, farm households, and farming villages has ended. On various levels agriculture today is laden with potential for the development of business opportunities. In addition to the conventional agricultural activities of farm households and farmers, now is the time to develop agricultural activities that respond to the broad range of needs

of the Japanese people. To achieve this purpose, agriculture must be reshaped as an industry that is open to the people. The first step in this process would be to ensure the freedom of entry and exit. In this context, it should be borne in mind that many new initiatives in agriculture are already underway in various parts of the country.

Diverse groups of farmers and farm households are using the Internet to share information. In many instances, the Internet is being used for marketing directly to consumers. Others have created virtual markets and are using these to cope with price fluctuations. Participants in the virtual markets obtain data on regional excesses and shortages in the supply of agricultural products and use this information to make and adjust their production plans. Corporate farming is gaining momentum with the introduction of revisions allowing joint-stock companies to engage in agriculture. In many ways, agriculture is now beginning to provide fertile grounds for venture businesses. Some corporate farms that have succeeded in expanding and diversifying their agribusinesses listed their shares for OTC trading. There are real possibilities for achieving major corporate success based on agriculture, and various initiatives and approaches are being studied. These include turning consumers into shareholders and promoting active personnel exchange between rural and metropolitan areas, recruiting the best and the brightest employees from affiliated major corporations to participate in agribusinesses, introducing outside director system, and developing vertically integrated systems encompassing all aspects of the business from production to retail.

These new initiatives point to the directions that Japanese agriculture must take in the future. To state the conclusion first, from a macro perspective, Japanese agriculture must rid itself of the illusion of “Fordism”¹⁷ that focuses on mass production and large-scale management. Instead, it must make the transition to “Sloanism”¹⁸ and commit itself to product differentiation supported by the development of its advantages in capital- and technology-intensive agriculture. Turning next to the perspective of the individual farming unit, individual farmers must not be tied down to agricultural production, and must be prepared to be integrated into other industries through alliances or the investment of larger volumes of capital and technology.

Some years ago, the Ministry of Agriculture, Forestry and Fisheries (MAFF) announced its “New Policy” in a report outlining its vision for the future of Japanese agriculture.¹⁹ The New Policy provided the following outlook for rice cultivation. Within a 10-year period, 80 percent of Japan’s rice output would be produced by about 150,000 “individual management entities” and 20,000 “joint management entities.” On average, individual management entities would have

¹⁷ “Fordism” derives from the name of Henry Ford who made the mass production of automobiles possible, and is aimed at realizing mass consumption by raising the incomes of workers involved in mass production.

¹⁸ “Sloanism” derives from the name of Alfred Sloan, the long-time chairman of General Motors, and is aimed at boosting competitive strength through model changes and product diversification.

¹⁹ *The Basic Direction of New Policies for Food, Agriculture and Rural Areas*, June 1992.

10–20 hectares under cultivation. The management scale of joint management entities would cover the entire area of one or more villages. MAFF estimated that this could reduce production costs by 40–50 percent. Individual management entities would consist of an individual or one farm household, while joint management entities would comprise several individuals or farm households working cooperatively or jointly. MAFF estimated that the lifetime income of the principal member of participating farm households would equal the average lifetime income of white-collar employees working in the same region.

However, over the years, no progress has been made in developing such agricultural management entities. The fact is that the elimination of extremely small-scale rice cultivation (part-time farming) is unlikely to occur. Expanding the scale of operation in land-intensive rice cultivation requires the purchase or leasing of additional land. However, scale expansion through purchasing is very difficult to achieve because, with the exception of some parts of Hokkaido and other areas, the price of agricultural land in Japan far exceeds the agricultural productive value. The leasing of land is similarly difficult because provisions of the Agricultural Land Act that strongly protect tenant farmers have effectively restricted the supply of land available for leasing. Various measures have been introduced to increase the liquidity of agricultural land by bypassing these provisions. For instance, municipal and village authorities have been exempted from these provisions when acting collectively to bundle land-use rights and to intermediate in the leasing of agricultural land. However, the actual provisions of the Agricultural Land Act have remained untouched.

This gives rise to two questions. First, if the Agricultural Land Act restricts the transfer of agricultural land to other uses, how is it possible for the price of agricultural land to exceed its productive value? Second, why are landowners reluctant to lease their land when lease agreements intermediated by municipal and village authorities make it easy for them to terminate a lease? The same answer applies to both questions: Landowners have expectations for transferring their agricultural land to other uses. The transfer of agricultural land to other uses is restricted under the Agricultural Land Act. Moreover, such transfers are forbidden in designated agricultural districts as stipulated under the Act on Improvement of Agricultural Promotion Areas. However, the fact is that these transfer restrictions are not necessarily strictly enforced. Godo (1998) estimates the income gained from the transfer of agricultural land in the period between 1988 and 1993. The average of all prefectures excluding Tokyo, Kanagawa, and Osaka indicates that income from the transfer of agricultural land was equal to 0.7–0.9 times total agricultural production. A review of all prefectural averages during the period between 1975 and 1993 indicates that the transfer of agricultural land was proceeding at a rate of at least 0.3 percent per year, and that income gained from the transfer of agricultural land was equal to about 10 percent of total agricultural production. These figures indicate that there is at least one chance in 30 years to engage in a transfer of land. This is not a low probability and is high enough to reduce interest in selling agricultural land. Leasing of agricultural land has its own problems. The landowner is not legally obligated to compensate the tenant farmer when transferring the leased land to

non-agricultural use. However, the general practice is to share part of the income gained from the transfer with the tenant in one way or another. As a result, this practice effectively reduces the availability and liquidity of land through leasing.

Thus, the market for agricultural land as a factor of production is being distorted by the transfer expectations of owners. As long as this situation persists, there is little chance for “Fordist” development based on large-scale, land-intensive farming. Theoretically, it is possible to correct the distortions in the market for agricultural land by either revising the Agricultural Land Act or by more strictly enforcing the restrictions on the transfer of agricultural land to other uses. However, these possibilities are almost nil, considering the fact that legislators could not even touch the Agricultural Land Act in the course of legislating the Food, Agriculture and Rural Areas Basic Act. Under the current system, opportunities for achieving large-scale rice farming are very limited. Perhaps there is some hope in areas with very low expectations for the transfer of agricultural land to other uses. Farms located in such municipalities and villages could be organized into single management entities through the securitization of land or through investment in kind. Non-farming residents and local government organizations could also be invited to invest in these entities to transform them into agricultural corporations. This is not to say that it would be by any means easy to gain the approval and participation of all local farm households in such undertakings.

To survive as an active and efficient industry, Japanese agriculture will have to shift its production toward crops or develop new products in which it has comparative advantages that match Japan’s factor endowments and technological capabilities. The entry of non-agricultural companies into agricultural production always involves product differentiation or the targeting of niche markets. However, their operations are large scale and differ importantly from conventional farm management. The common factors there are outstanding capabilities for product development and emphasis on marketing strategies.

So far, Japanese agriculture has been based on the manuals and instructions developed by MAFF. Farmers produced what they were told was appropriate for their land and environment. And what they produced was simply handed over to the local agricultural cooperative for processing and marketing. Farmers did not have to concern themselves with how their products were processed and who was ultimately consuming their products. A farmer was deemed a good farmer if he or she had a good understanding of production techniques and technologies. In this framework, good farmers never had to concern themselves with prices and the market. However, the forces of globalization and market liberalization are pushing to cause a fundamental change in this style of agriculture. As the success of non-agricultural companies clearly indicates, the focus of attention must now be turned to the question of organization and how agricultural activities can be undertaken within an organizational framework. The issue of organization does not apply only to the front lines of production. Organizational approaches must also be implemented in upstream and downstream sectors, and careful thought must be given to the assignment of personnel to various segments of the supply

chain. While these are obvious questions that have been addressed long ago in other industries, Japanese agriculture has yet to come to grips with them.

V.7 Toward Constructive Debate on a Japan-U.S. EPA

Many issues must be resolved before a Japan-U.S. EPA can be concluded. Needless to say, some of the most serious issues are to be found in the agricultural sector. All the FTAs that Japan has either concluded or reached an agreement on in the past have excluded Japan's principal agricultural products. The outcome has been the creation of a series of low-quality FTAs. But the global network of FTAs is growing at an accelerated pace, and it is not possible for Japan to continue avoiding FTA negotiations with major exporters of agricultural products.

The United States is already a leading supplier of food to Japan. However, once negotiations start, there is no doubt that the United States will press for further liberalization of Japan's priority agricultural products, including rice, beef, and pork. Unlike in past FTA negotiations, it is difficult to believe that Japan would be able to successfully conclude an agreement with the United States while steadfastly refusing to liberalize these markets. The critical issue will be the form of market liberalization that is hammered out between the two countries. As previously discussed, the United States (much like Japan) cannot and has not been able to treat agricultural products in the same way that it treats manufactured goods. In NAFTA, the United States accepted Canadian demands for the protection of agriculture. In the U.S.-Australia FTA, the United States pressed for the adoption of exceptional measures for beef and other products, and excluded sugar from the agreement.

If these past examples are any indication, various arrangements concerning agricultural products will have to be made in negotiating a Japan-U.S. EPA. However, an important thing is to avoid the exclusion of priority agricultural products from the FTA. Increasing the number of its low-quality FTAs is not the path that Japan should be pursuing now. What Japan really needs to do is to conclude high-quality FTAs. There are various options that can be considered for the treatment of agricultural products. That is, agriculture can be placed on its own track. For instance, different timetables can be negotiated for tariff reduction of manufactured and agricultural products. Alternatively, instead of committing to tariff elimination within a given timeframe, goals for tariff reduction can be set, which would be up for renegotiation once the goals have been achieved. It is desirable for Japan to examine the treatment of agriculture in past FTAs and to make every effort to conclude high-quality FTAs by rising above past obstacles and limits.

The full inclusion of agriculture in FTAs will serve the important purpose of promoting structural change in Japan's agricultural sector. In particular, the inclusion of rice will lead to drastic changes in the segment of domestic agriculture that lags furthest behind in the implementation of structural reforms. It must be borne in mind that the United States is not alone in its interest in the

Japanese rice market. China and other Asian countries also have a very keen interest. A significant number of producers are preparing for the future opening of the Japanese market by cultivating high-grade *Koshihikari* and other strains of Japonica rice. Discussions of rice that will have to take place in negotiating a Japan-U.S. EPA will provide an excellent opportunity for considering the future of rice in Japan in the globalizing world.

The steadfast protection of rice has been the hallmark of Japan's external agricultural policies and its FTA negotiations. Japan's advocacy of the "multifunctionality" of agriculture made in the WTO agricultural negotiations is predicated on paddy-field agriculture. Furthermore, Japan's request for changing the base year for the computation of minimum access reflects the need to reduce minimum-access imports as much as possible in an environment of decreasing rice consumption. Japan's opposition to increasing the import volumes of priority products and rejection of tariff ceilings also basically reflects its commitment to the protection of rice.

The problem with rice is that consumption has dropped by 50 percent compared to past levels and its importance continues to decline from year to year. While rice certainly remains a staple food, policies that are biased toward rice can lead producers to misjudge market conditions and trends. Also from the perspective of effectively promoting policies that reflect the real needs of the people and of consumers, the time has come for Japan to move away from rice-centered agricultural policies.

Generally speaking, agriculture has greater flexibility than other industries. While demand measured in caloric terms cannot be expected to increase, there is no limit to the diversity of demands. There are an infinite number of foods and ingredients that can be developed for everything from diet foods to gourmet cooking. On the production side, the factors of agricultural production are highly substitutable and producers can choose from a wide range of technologies to match their factor endowments. The importance of land as an essential production factor in agriculture is frequently emphasized. While there is no doubt that land is an essential requirement in agriculture, the history of agricultural technology is the history of constant attempts to overcome this constraint. It is said that in the age of hunting and gathering, the ecologically balanced global human population could not have exceeded 10 million. Yet today, the human population has reached 6.4 billion and continues to grow. This immense population is supported and fed by agricultural technologies that continue to overcome the land resource constraint.

As a country poorly endowed with natural resources, Japan has focused its attention on developing and growing as a capital-intensive, technology-oriented economy. The same basic strategy should apply to Japanese agriculture. The processes of internationalization and globalization demand that production be located at the optimal site on a global scale as determined by the principle of comparative advantage. It is now time for Japan to move away from its overemphasis of rice long justified on the grounds that rice is the staple of the

Japanese diet. Instead, Japan should look toward developing industrial approaches to agriculture that provide ample opportunities for exploiting Japan's technological prowess and are environmentally friendly. In particular, there are excellent possibilities in the development and use of safer technologies for genetic modification.

This is not a proposal for all of Japanese agriculture to turn to vegetable and flower factories. There are new entrants who want to experience the "healing power" of agriculture that allows people to come into contact with plants and animals, and there are many that find fulfillment in agricultural production. Therefore, there is no reason to believe that conventional agriculture will disappear because there is plenty of room for farms that do not pursue "efficiency." This in itself is manifestation of the flexibility inherent in agriculture. However, it certainly would not be appropriate to support such forms of "hobby farming" by burdening taxpayers and consumers with higher taxes and prices. The starting point of agriculture as an industry is the supplying of consumers with inexpensive and high-quality food products made possible through efficient production. It does not make sense to advocate the "multifunctionality" of agriculture while failing to put this prescription into practice. Japan should make the transition from defensive to offensive agriculture while seeking to develop its true comparative advantage in agriculture.

This paradigm shift is essential for Japanese agriculture. It will enable agriculture to adopt new objectives in addition to its traditional role of producing food, and it will encourage the public to join in the search for new opportunities for utilizing the nation's agricultural resources. This in turn will create new value-added in agriculture and will lead to the realization of a sustainable agriculture that will be able to coexist with a major agricultural exporting country, such as the United States.

VI. Conclusion

Interest in FTAs is rapidly growing throughout the world. Against this backdrop, both Japan and the United States have in recent years become actively engaged in FTA and EPA negotiations aimed at garnering economic as well as non-economic benefits. While Japan-U.S. economic relations are vitally important to both countries, a Japan-U.S. EPA has not even been put on the agenda for government discussion, although it is being studied at the private-sector level. With this situation in mind, the purpose of this report was to analyze the impact and obstacles to a Japan-U.S. EPA.

Simulations using a computable general equilibrium model indicated that a Japan-U.S. EPA would yield economic benefits to both countries through increased production and consumption. The analysis also pointed to the importance of formulating a comprehensive and high-level Japan-U.S. EPA that would lead to improved efficiency in low-efficiency industries. Specifically, a Japan-U.S. EPA should aim to achieve trade liberalization in all sectors, including agriculture and services. The agreement should also extend to domestic systems and institutions and should commit both sides to the reduction and elimination of economic regulations, the strict enforcement of competition policies, and the development of efficient economic systems. Today, Japan finds itself in the very difficult situation of having to achieve economic growth in an environment marked by declining birthrates and the rapid aging of society coupled with monumental government debt. In the pursuit of this goal, the conclusion of a comprehensive and high-level Japan-U.S. EPA can yield tremendous benefits to Japan by stimulating and energizing the domestic economy and by delivering real benefits to consumers.

As the first and second largest economies in the world, any EPA concluded between Japan and the United States must be one that can serve as a model FTA for other countries. Here again, there are strong reasons to argue for an EPA that meets the criteria of a comprehensive and high-level agreement. The conclusion of a comprehensive and high-level EPA between Japan and the United States would expand bilateral trade and investment, which in turn would very probably induce trade and investment liberalization among other countries of the world. This would contribute to greater prosperity in the international economy by strengthening the global trading system and promoting global trade and investment.

While a Japan-U.S. EPA would certainly generate economic benefits, opposition to such an agreement can be expected from industries and workers who presumably would be hurt by liberalization. This opposition could create serious obstacles in the course of the negotiations. On the Japanese side, the single most important problem would be the liberalization of agricultural trade. Japan has always maintained a defensive posture in past GATT/WTO and FTA/EPA negotiations for agricultural trade liberalization. This posture reflects Japan's policy goals of sustaining agriculture and maintaining the rate of food self-sufficiency by

protecting domestic farmers with no comparative advantage from import competition. However, protectionist policies have not yielded the expected results. Contrary to expectations, agricultural output and employment are continuing to shrink and Japan's self-sufficiency rate is also inching downward. This outcome can be explained as follows. Government intervention has rendered the price mechanism dysfunctional and a persistent mismatch between demand and supply has come into being in the markets. The potential competitive power of Japanese agriculture cannot be manifested due to excessive government intervention. This constitutes an extremely serious problem for Japan as well as for Japanese agriculture. On the other hand, this implies that if government intervention can be reduced and eliminated in the process of liberalization and structural reform, the agricultural sector would be empowered to manifest its competitive capacities and would thereby generate significant benefits to consumers. By committing to liberalization and structural reform, it is possible to create a fully competitive agricultural sector buttressed by product differentiation in those agricultural segments where Japan can exploit its strengths in capital- and technology-intensive production, and through integration with other industries based on cooperation and alliances. Success in this line of action would generate real opportunities for increasing Japan's agricultural exports.

The conclusion of a Japan-U.S. EPA is also very likely to reduce domestic output and employment in some sectors through increased imports. In order to maintain the momentum for the structural reforms that are so essential to economic revitalization and economic growth, the government must be prepared to take swift action on two fronts to minimize the attendant pain. First, it must support the livelihood of adversely affected workers by providing temporary income supplementation. Second, it must act to facilitate the movement of affected workers to more productive jobs by providing necessary education and training. Another way to reduce the pain would be to liberalize trade in stages covering longer periods of time. However, even if liberalization is to be stretched out over longer periods of time, it is absolutely essential to adopt a time schedule and to make steady progress toward liberalization while implementing structural reforms.

For more than 50 years in the postwar period, Japan and the United States have consistently endeavored to resolve their bilateral economic and trade problems through the Structural Impediments Initiative and other consultative frameworks. At the present time, bilateral talks are being held on eight issues under the "Japan-U.S. Economic Partnership for Growth." Through these discussions, both countries have gained a deep understanding of the economic issues and problems that exist in each other's country. The purpose of establishing a Japan-U.S. EPA would be to overcome these problems. In its past EPA negotiations, Japan has always prefaced the negotiating process by creating study groups drawing on the business, government and academic communities to examine the anticipated obstacles and issues. However, for a Japan-U.S. EPA, there is no need to undertake such studies because ample knowledge already exists concerning the obstacles and issues faced by the two countries. The making of a political decision is all that remains to be done for the start of negotiations for

a Japan-U.S. EPA.

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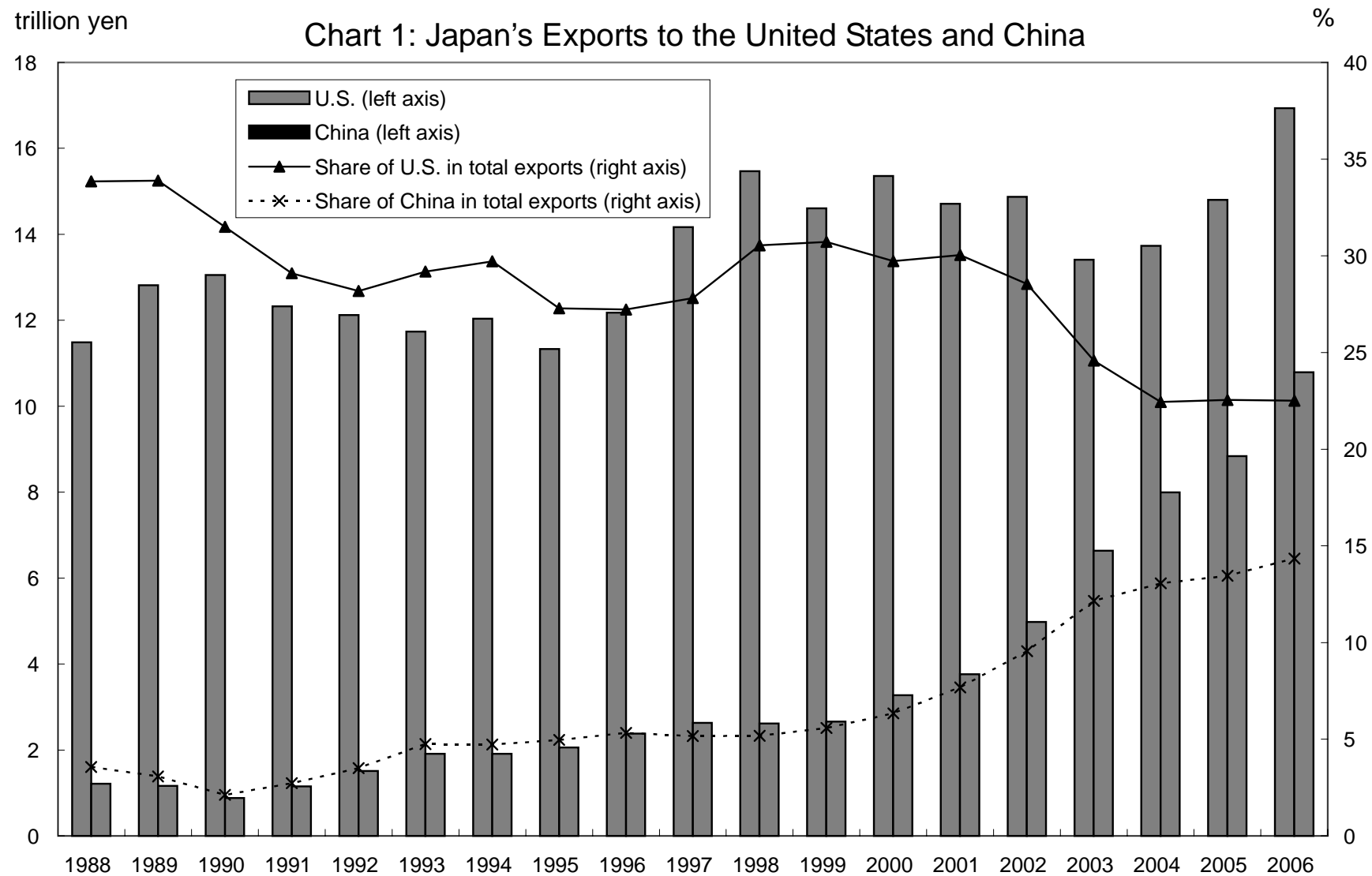
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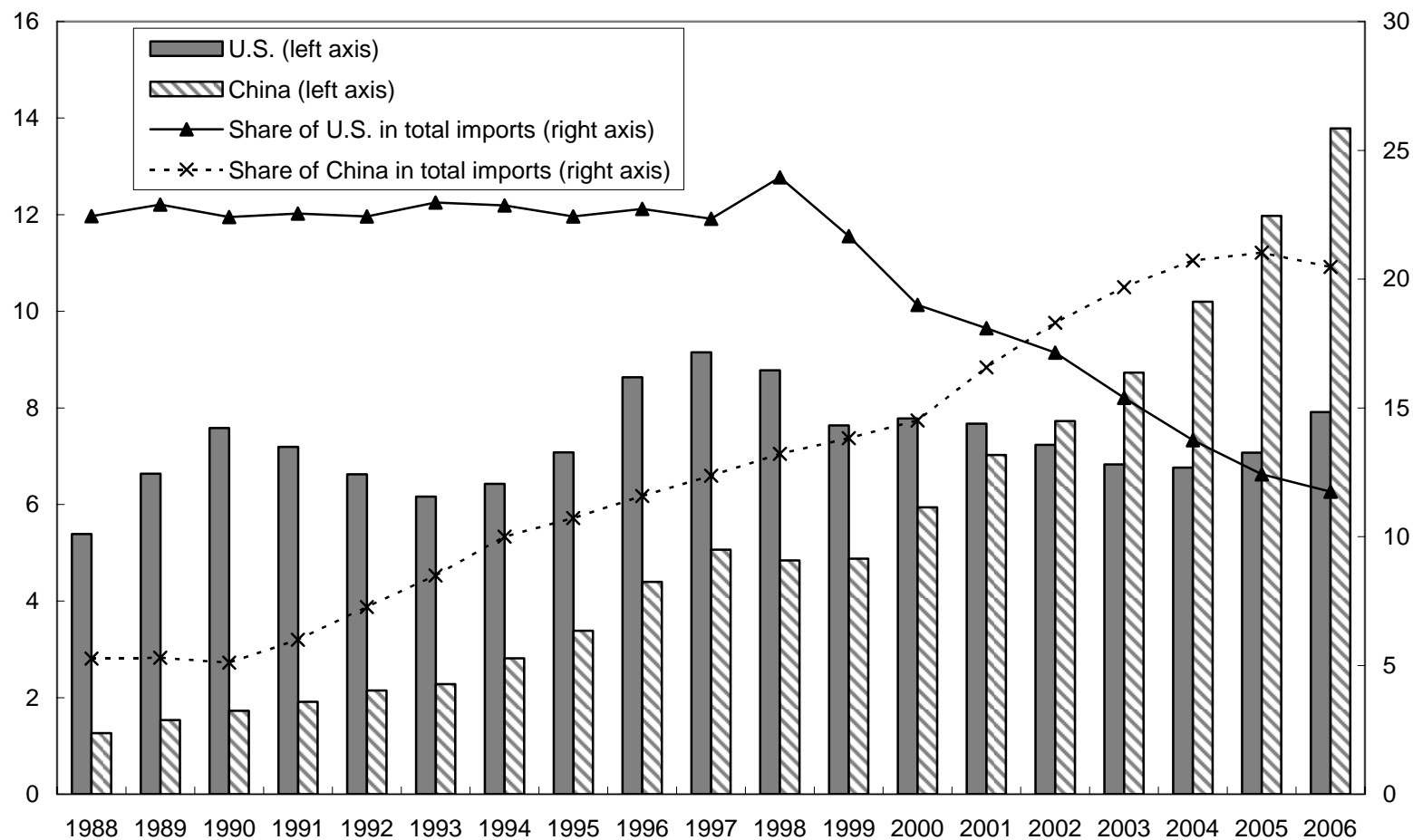


Source: Ministry of Finance.

trillion yen

Chart 2: Japan's Imports from the United States and China

%



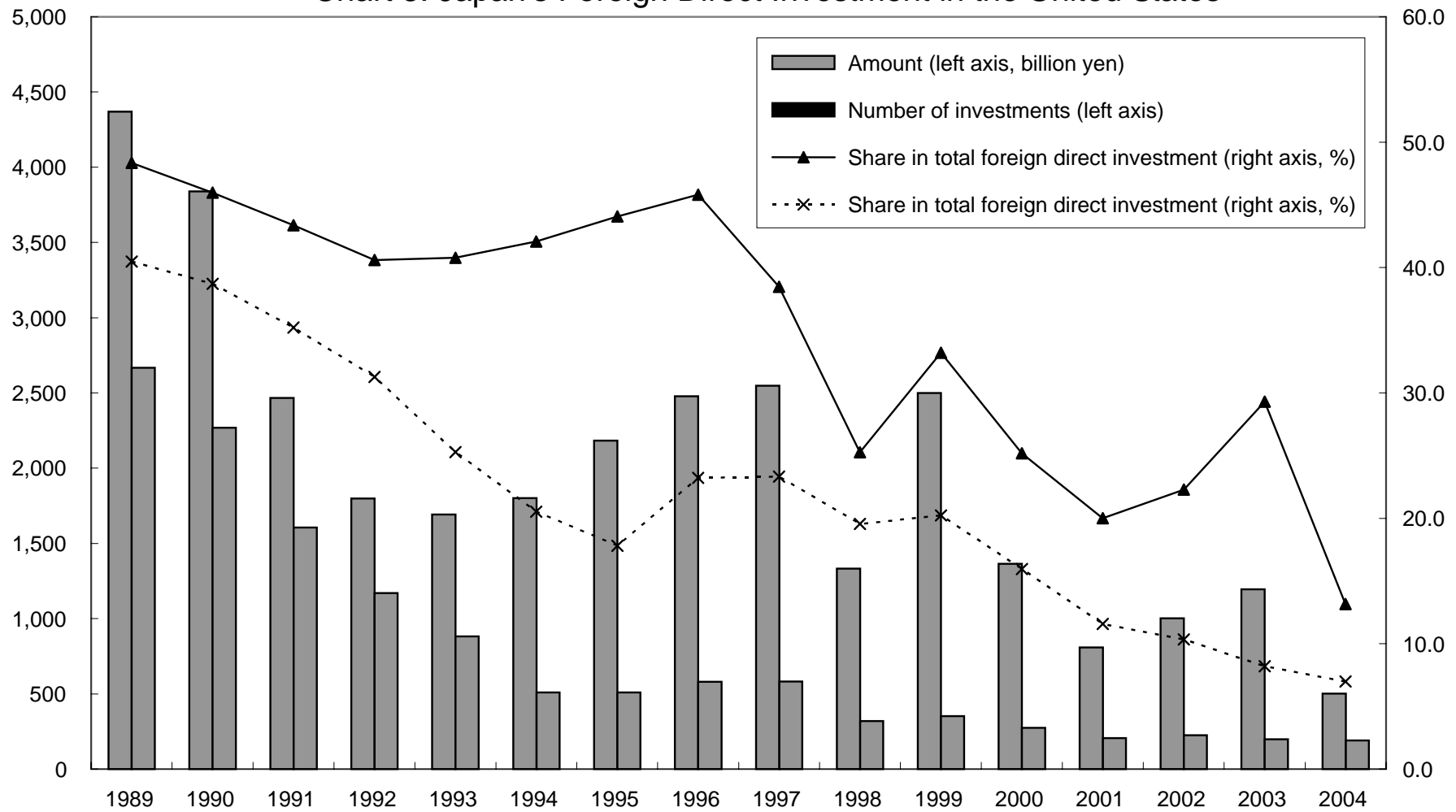
Source: Ministry of Finance.

Table 1: Structure of Japan-U.S. Trade

		Share in trade (%)				Share of U.S. in Japan's total exports (%)		Competitiveness index (Xj-Xus)/(Xj+Xus)		Intra-industry trade index (1-(Xj-Xus /(Xj+Xus)))* 100	
		Exports from Japan to U.S. (Xj)		Imports of Japan from U.S. (Xus)							
SITC		2000	2006	2000	2006	2000	2006	2000	2006	2000	2006
0	Agricultural products and food	0.24	0.31	13.86	13.19	19.4	17.4	-0.93	-0.89	7.29	11.05
1	Beverages and tobacco	0.04	0.03	3.82	2.09	7.4	6.1	-0.95	-0.92	4.51	7.74
3	Mineral fuels	0.27	0.78	1.30	1.01	25.9	19.5	-0.36	0.31	63.63	68.74
4	Animal oils	0.02	0.02	0.08	0.11	29.8	30.2	-0.39	-0.44	60.86	56.26
5	Chemicals	4.94	5.24	10.03	14.18	20.2	13.3	0.04	-0.05	95.85	95.36
6	Manufactured goods, chiefly classified by materials	5.35	5.80	5.44	6.40	16.5	11.5	0.37	0.38	63.08	61.81
7	Machinery and transport equipment	76.34	75.79	42.70	38.53	33.3	27.1	0.60	0.66	40.45	34.16
8	Miscellaneous manufactured products	8.95	7.55	14.83	15.69	29.8	21.1	0.14	0.09	85.81	91.45
9	Other commodities	3.68	4.16	2.03	2.76	30.3	18.4	0.60	0.58	40.07	42.32
	Total	100.00	100.00	100.00	100.00	30.0	22.8	0.38	0.42	62.37	57.67

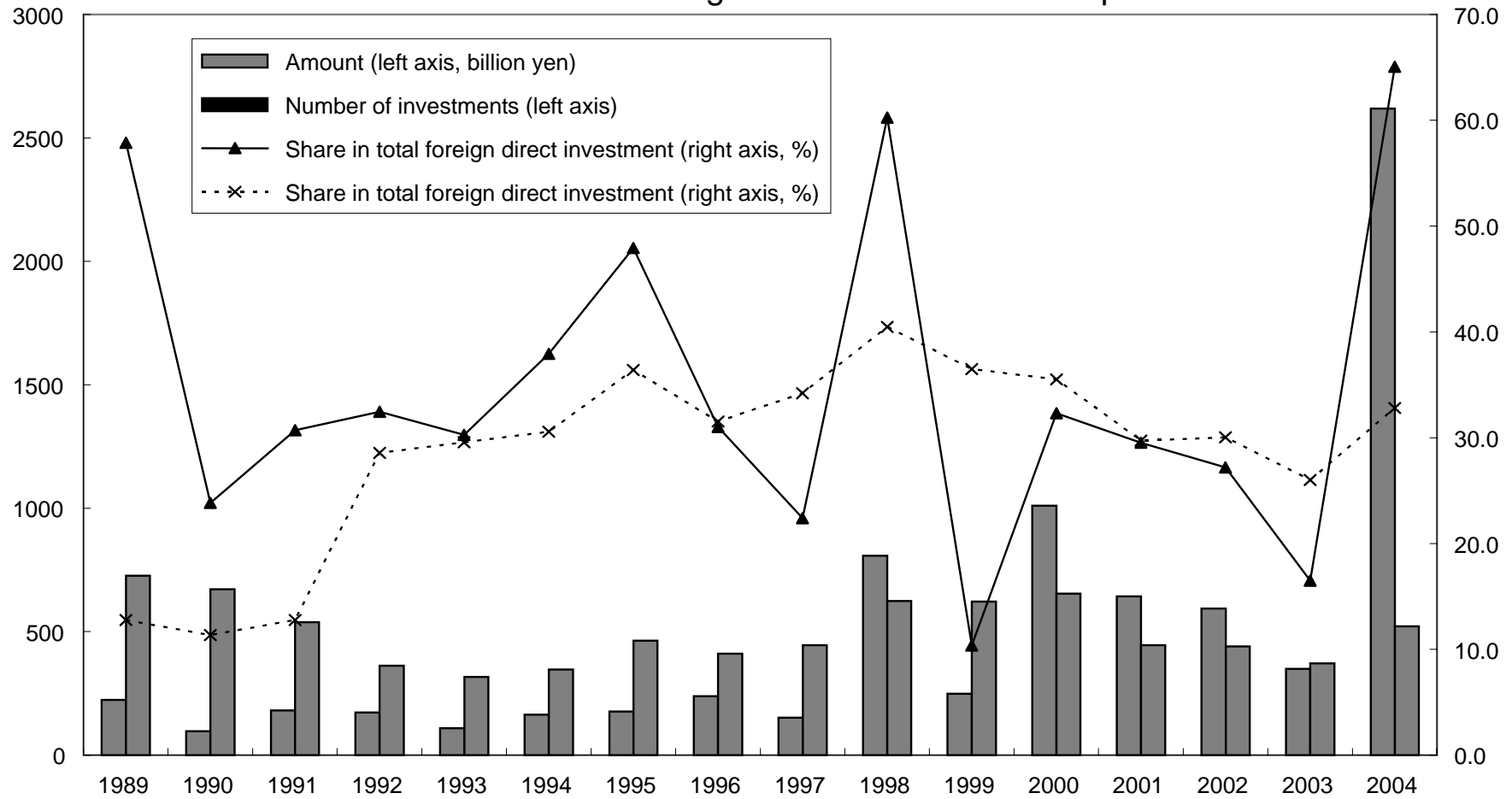
Source: Compiled from *United Nations Commodity Trade Statistics Database* CD-ROM.

Chart 3: Japan's Foreign Direct Investment in the United States



Source: Ministry of Finance.

Chart 4: U.S. Foreign Direct Investment in Japan



Source: Ministry of Finance.

Table 2: List of Regions

12 Regions	GTAP 87 Regions
1 Japan	Japan
2 USA	United States
3 China	China, Hong Kong
4 Korea	Korea
5 ASEAN	Indonesia, Malaysia, Philippines, Singapore, Thailand, Vietnam, Rest of Southeast Asia
6 Taiwan	Taiwan
7 NAmerica	Canada, Mexico, Rest of North America
8 Oceania	Australia, New Zealand, Rest of Oceania
9 CSAmerica	Colombia, Peru, Venezuela, Rest of Andean Pact, Argentina, Brazil, Chile, Uruguay, Rest of South America, Central America, Rest of FTAA, Rest of the Caribbean
10 WEuro	Austria, Belgium, Denmark, Finland, France, Germany, United Kingdom, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Switzerland, Rest of EFTA
11 SAsia	Bangladesh, India, Sri Lanka, Rest of South Asia
12 ROW	Rest of East Asia, Rest of Europe, Albania, Bulgaria, Croatia, Cyprus, Czech Republic, Hungary, Malta, Poland, Romania, Slovakia, Slovenia, Estonia, Latvia, Lithuania, Russian Federation, Rest of Former Soviet Union, Turkey, Rest of Middle East, Morocco, Tunisia, Rest of North Africa, Botswana, South Africa, Rest of South African CU, Malawi, Mozambique, Tanzania, Zambia, Zimbabwe, Rest of SADC, Madagascar, Uganda, Rest of Sub-Saharan Africa

Source: Compiled by authors from *GTAP Database* version 6.

Table 3: List of Industries

20 Industries	GTAP 57 Industries
1 Rice	Paddy rice, Processed rice
2 Grain	Wheat, Cereal grains nec
3 Othcrop	Vegetables, fruit, nuts, Oil seeds, Sugar cane, sugar beet, Plant-based fibers, Crops nec, Wool, silk-worm cocoons
4 Meat	Cattle,sheep,goats,horses, Animal products nec, Meat: cattle,sheep,goats,horse, Meat products nec
5 Othfood	Raw milk, Vegetable oils and fats, Dairy products, Sugar, Food products nec, Beverages and tobacco products
6 Forestry	Forestry
7 Fishery	Fishing
8 Mineral	Coal, Oil, Gas, Minerals nec
9 TexWapLea	Textiles, Wearing apparel, Leather products
10 Paperwood	Wood products, Paper products, publishing
11 Chemical	Petroleum, coal products, Chemical,rubber,plastic prods, Mineral products nec
12 Metal	Ferrous metals, Metals nec, Metal products
13 Automobile	Motor vehicles and parts
14 Machinery	Transport equipment nec, Machinery and equipment nec, Manufactures nec
15 Electronics	Electronic equipment
16 Othservice	Electricity, Gas manufacture, distribution, Water, Business services nec, Recreation and other services, PubAdmin/Defence/Health/Educat, Dwellings
17 Construction	Construction
18 Trade	Trade
19 ComInsFin	Communication, Financial services nec, Insurance
20 Transport	Transport nec, Sea transport, Air transport

Source: Compiled by authors from *GTAP Database* version 6.

Table 4: Japan and U.S. Tariff Rates by Industry (%)

	Japan	U.S.
Rice	788.08	7.45
Grain	73.88	0.90
Othcrop	3.95	0.91
Meat	50.50	1.03
Othfood	13.35	3.68
Forestry	0.03	0.54
Fishery	5.10	0.19
Mineral	0.0	0.06
TexWapLea	9.23	8.35
Paperwood	0.52	0.23
Chemical	1.20	2.50
Metal	1.03	2.28
Automobile	0.0	2.39
Machinery	0.27	1.46
Electronics	0	0.49
Othservice	0	0
Construction	0	0
Trade	0	0
ComInsFin	0	0
Transport	0	0

Source: Compiled by authors from *GTAP Database* version 6.

Table 5: Relative TFP Gaps

	TFP Gap
Rice	0.65
Grain	0.62
Othcrop	0.62
Meat	0.65
Othfood	0.68
Forestry	0.62
Fishery	0.62
Mineral	0.57
TexWapLea	0.68
Paperwood	0.94
Chemical	1.2
Metal	0.83
Automobile	1.4
Machinery	0.89
Electronics	1.04
Othservice	0.84
Construction	0.82
Trade	0.71
ComInsFin	1.12
Transport	1.21

Source: Compiled by authors from Jorgenson and Nomura (2007).

Table 6: Economic Welfare

FTA		+ TFP Gap convergence			
		10%	25%	50%	100%
(% change)					
Japan	0.45	1.93	4.03	7.27	12.96
USA	0.03	0.34	0.78	1.49	2.78
China	-0.03	-0.06	-0.09	-0.13	-0.19
Korea	-0.08	-0.13	-0.20	-0.31	-0.47
ASEAN	-0.05	-0.09	-0.13	-0.19	-0.25
Taiwan	-0.04	-0.08	-0.13	-0.19	-0.28
NAmerica	-0.08	-0.06	-0.02	0.03	0.15
Oceania	-0.08	-0.13	-0.19	-0.28	-0.41
CSAmerica	-0.02	-0.06	-0.12	-0.20	-0.33
WEuro	-0.01	-0.04	-0.09	-0.16	-0.28
SAsia	-0.02	-0.05	-0.09	-0.16	-0.28
ROW	0.00	-0.02	-0.06	-0.10	-0.15
(US\$, million)					
Japan	16082	69056	144217	260470	465058
USA	2443	31163	71626	136573	255060
China	-411	-677	-1036	-1532	-2251
Korea	-286	-486	-756	-1150	-1762
ASEAN	-254	-470	-735	-1058	-1353
Taiwan	-97	-199	-328	-504	-727
NAmerica	-1008	-719	-291	410	1746
Oceania	-290	-478	-726	-1068	-1538
CSAmerica	-261	-790	-1502	-2523	-4063
WEuro	-714	-3233	-6725	-11942	-20590
SAsia	-92	-276	-535	-932	-1625
ROW	28	-464	-1106	-1967	-3016

Source: Compiled from the authors' simulation results.

Table 7: GDP

FTA		+ TFP Gap convergence			
		10%	25%	50%	100%
(% change)					
Japan	0.43	1.60	3.27	5.86	10.47
USA	-0.02	0.28	0.71	1.40	2.66
China	-0.01	-0.01	-0.01	-0.01	-0.01
Korea	-0.04	-0.05	-0.08	-0.11	-0.16
ASEAN	-0.01	-0.01	-0.02	-0.02	-0.04
Taiwan	0.00	-0.01	-0.02	-0.03	-0.05
NAmerica	0.00	-0.01	-0.02	-0.03	-0.06
Oceania	0.00	-0.01	-0.03	-0.06	-0.10
CSAmerica	-0.01	-0.02	-0.05	-0.09	-0.15
WEuro	0.00	-0.01	-0.04	-0.07	-0.12
SAsia	0.00	-0.01	-0.02	-0.05	-0.08
ROW	-0.01	-0.02	-0.04	-0.07	-0.12
(US\$, million)					
Japan	18042	66897	136488	244776	437231
USA	-2399	28272	71577	141012	267919
China	-95	-107	-118	-117	-72
Korea	-158	-231	-331	-476	-700
ASEAN	-41	-68	-103	-151	-217
Taiwan	-9	-25	-49	-84	-143
NAmerica	-57	-151	-280	-467	-759
Oceania	-6	-61	-138	-251	-433
CSAmerica	-96	-343	-684	-1192	-2032
WEuro	99	-1184	-2975	-5679	-10272
SAsia	-2	-64	-151	-282	-504
ROW	-119	-428	-861	-1525	-2674

Source: Compiled from the authors' simulation results.

Table 8: Exports

FTA		+ TFP Gap convergence			
		10%	25%	50%	100%
(% change)					
Japan	4.02	-1.20	-8.12	-17.71	-31.49
USA	0.88	1.51	2.44	4.00	7.10
China	-0.02	0.30	0.77	1.50	2.85
Korea	0.06	0.40	0.90	1.67	3.04
ASEAN	0.05	0.39	0.87	1.60	2.86
Taiwan	0.04	0.24	0.53	1.00	1.87
NAmerica	-0.19	0.26	0.90	1.86	3.47
Oceania	0.05	0.57	1.30	2.41	4.29
CSAmerica	-0.01	0.65	1.58	3.02	5.49
WEuro	0.01	0.40	0.94	1.76	3.18
SAsia	0.03	0.69	1.62	3.06	5.61
ROW	0.08	0.39	0.82	1.47	2.59
(US\$, million)					
Japan	19218	-5746	-38861	-84718	-150640
USA	8001	13663	22153	36293	64465
China	-106	1485	3784	7420	14068
Korea	109	774	1728	3202	5840
ASEAN	233	1793	4009	7362	13142
Taiwan	50	330	739	1390	2603
NAmerica	-834	1157	3942	8142	15212
Oceania	53	561	1275	2360	4211
CSAmerica	-27	1630	3963	7539	13732
WEuro	372	11087	26122	49100	88659
SAsia	25	635	1497	2834	5189
ROW	631	3129	6627	11945	20996

Source: Compiled from the authors' simulation results.

Table 9: Imports

	FTA	+ TFP Gap convergence			
		10%	25%	50%	100%
		(% change)			
Japan	4.08	6.53	10.30	16.73	29.89
USA	1.19	1.17	1.18	1.32	1.86
China	-0.06	-0.14	-0.25	-0.36	-0.40
Korea	-0.04	-0.13	-0.23	-0.36	-0.48
ASEAN	0.00	0.12	0.31	0.60	1.20
Taiwan	-0.04	-0.11	-0.19	-0.26	-0.21
NAmerica	-0.57	-0.42	-0.19	0.15	0.72
Oceania	-0.38	-0.70	-1.13	-1.73	-2.62
CSAmerica	-0.16	-0.52	-1.01	-1.72	-2.83
WEuro	-0.06	-0.22	-0.45	-0.78	-1.33
SAsia	-0.12	-0.42	-0.84	-1.46	-2.47
ROW	0.06	-0.15	-0.44	-0.87	-1.55
		(US\$, million)			
Japan	16843	26987	42551	69105	123473
USA	15437	15252	15387	17144	24175
China	-221	-569	-974	-1407	-1602
Korea	-58	-203	-373	-591	-782
ASEAN	16	469	1179	2327	4629
Taiwan	-43	-130	-219	-303	-246
NAmerica	-2273	-1654	-769	575	2858
Oceania	-367	-675	-1085	-1663	-2514
CSAmerica	-437	-1404	-2715	-4615	-7570
WEuro	-1532	-5988	-12140	-21269	-36174
SAsia	-109	-397	-794	-1381	-2335
ROW	475	-1203	-3503	-6899	-12366

Source: Compiled from the authors' simulation results.

Table 10: Investment

	FTA	+ TFP Gap convergence			
		10%	25%	50%	100%
		(% change)			
Japan	0.08	3.94	9.38	17.63	31.79
USA	0.16	0.09	0.00	-0.11	-0.24
China	-0.02	-0.43	-1.00	-1.87	-3.36
Korea	-0.11	-0.82	-1.81	-3.30	-5.81
ASEAN	-0.10	-0.88	-1.95	-3.55	-6.20
Taiwan	-0.08	-0.73	-1.63	-2.98	-5.20
NAmerica	-0.28	-0.91	-1.81	-3.17	-5.53
Oceania	-0.24	-1.05	-2.18	-3.88	-6.74
CSAmerica	-0.11	-1.03	-2.31	-4.26	-7.58
WEuro	-0.08	-0.93	-2.11	-3.92	-7.00
SAsia	-0.06	-0.67	-1.52	-2.82	-5.07
ROW	-0.08	-0.93	-2.12	-3.93	-7.04
		(US\$, million)			
Japan	824	41785	99381	186859	336863
USA	3156	1882	23	-2155	-4764
China	-104	-1965	-4571	-8532	-15301
Korea	-125	-903	-1987	-3625	-6388
ASEAN	-141	-1189	-2636	-4803	-8380
Taiwan	-41	-378	-840	-1535	-2679
NAmerica	-744	-2444	-4830	-8478	-14776
Oceania	-215	-954	-1981	-3528	-6122
CSAmerica	-298	-2731	-6133	-11304	-20118
WEuro	-1395	-15739	-35830	-66420	-118736
SAsia	-83	-902	-2053	-3815	-6859
ROW	-389	-4496	-10250	-19032	-34116

Source: Compiled from the authors' simulation results.

Table 11: Output by Industry

	Japan			U.S.		
	Total =	FTA	+ TFP 10% convergence	Total =	FTA	+ TFP 10% convergence
	(% change)					
Rice	-82.14	-84.17	2.02	266.86	268.21	-1.34
Grain	-48.03	-54.29	6.26	5.32	5.27	0.04
Othcrop	3.18	0.14	3.04	-3.39	-3.13	-0.25
Meat	-15.44	-18.77	3.33	5.43	5.38	0.04
Othfood	3.29	0.97	2.31	0.52	0.41	0.1
Forestry	4.05	0.26	3.79	-0.17	-0.15	-0.02
Fishery	3.99	0.55	3.44	0.09	0.1	-0.01
Mineral	6.96	0.3	6.66	-0.05	-0.16	0.11
TexWapLea	4.44	1.06	3.38	-0.27	-0.29	0.03
Paperwood	1.04	0.13	0.91	0.02	-0.11	0.13
Chemical	0.18	0.61	-0.43	1.1	-0.15	1.26
Metal	1.75	1.16	0.59	-0.44	-0.62	0.18
Automobile	0.69	3.03	-2.35	0.89	-0.72	1.61
Machinery	1.38	1.96	-0.58	-0.96	-0.81	-0.16
Electronics	-1.14	0.93	-2.07	-0.03	-1.1	1.07
Othservice	1.08	0.26	0.82	0.18	-0.02	0.2
Construction	3.63	0.09	3.54	0.17	0.11	0.06
Trade	2.67	0.05	2.62	0.28	0.04	0.23
ComInsFin	1.03	0.03	1	0.63	0	0.63
Transport	0.4	-0.36	0.77	1.14	0.08	1.06
	(US\$, million)					
Rice	-34621	-35474	853	8127	8169	-41
Grain	-524	-593	68	1455	1443	12
Othcrop	1196	53	1144	-2678	-2477	-201
Meat	-5442	-6615	1173	12113	12015	98
Othfood	8998	2663	6335	3158	2526	632
Forestry	325	21	304	-30	-27	-3
Fishery	717	98	619	3	4	0
Mineral	785	33	752	-57	-184	126
TexWapLea	4563	1092	3471	-722	-791	69
Paperwood	1950	239	1711	102	-708	810
Chemical	817	2736	-1920	10903	-1526	12429
Metal	5597	3711	1886	-2392	-3388	996
Automobile	2091	9229	-7139	4137	-3378	7515
Machinery	5703	8111	-2408	-10056	-8429	-1627
Electronics	-4196	3424	-7620	-94	-3854	3760
Othservice	25596	6109	19487	11292	-1253	12545
Construction	23236	550	22685	2265	1470	795
Trade	25166	463	24703	6774	1024	5750
ComInsFin	4039	109	3930	11766	-19	11785
Transport	1649	-1486	3136	7636	504	7132

Source: Compiled from the authors' simulation results.

Table 12: Exports by Industry

	Japan			U.S.		
	Total =	FTA	+ TFP 10% convergence (% change)	Total =	FTA	+ TFP 10% convergence
Rice	269.06	255.39	13.67	1051.13	1056.6	-5.43
Grain	92.04	72.41	19.63	7.99	7.97	0.01
Othcrop	59.79	40.18	19.61	-11	-9.73	-1.27
Meat	54.29	44.32	9.98	66.4	67.46	-1.06
Othfood	20.21	14.82	5.39	6.97	7.88	-0.91
Forestry	18.58	0.87	17.71	-3.98	-0.86	-3.12
Fishery	8.6	-1.46	10.06	0.32	1.61	-1.29
Mineral	20.94	0.07	20.87	-3.35	-0.17	-3.18
TexWapLea	13.02	6.79	6.24	0.99	1.86	-0.87
Paperwood	-4.23	0.79	-5.02	-1.54	-1.07	-0.47
Chemical	-2.83	3.76	-6.58	2.69	-0.68	3.37
Metal	0.74	2.76	-2.02	-2.08	-1.27	-0.81
Automobile	-0.73	6.21	-6.94	1.87	-1.2	3.06
Machinery	-0.27	4.35	-4.62	-2.34	-1.57	-0.77
Electronics	-6.43	1.65	-8.08	0.11	-1.64	1.75
Othservice	-5.79	0.37	-6.16	-1.86	-1.09	-0.78
Construction	-1.49	0.17	-1.66	-1.48	-1.11	-0.37
Trade	5.58	1.77	3.81	-2.32	-1.25	-1.07
ComInsFin	-6.67	0.16	-6.82	0.83	-1.08	1.9
Transport	-2.17	0.75	-2.92	2.27	-0.56	2.83
(US\$, million)						
Rice	2553	2423	130	8003	8045	-41
Grain	1	1	0	767	766	1
Othcrop	125	84	41	-1788	-1581	-207
Meat	128	105	24	8071	8200	-129
Othfood	434	318	116	1415	1601	-185
Forestry	1	0	1	-50	-11	-39
Fishery	11	-2	13	1	4	-3
Mineral	30	0	30	-143	-7	-136
TexWapLea	1291	673	618	195	366	-171
Paperwood	-133	25	-158	-432	-301	-132
Chemical	-1413	1878	-3291	3187	-803	3989
Metal	202	755	-553	-698	-426	-272
Automobile	-591	5016	-5607	1072	-688	1759
Machinery	-394	6247	-6641	-5493	-3695	-1798
Electronics	-6080	1556	-7635	124	-1834	1958
Othservice	-827	52	-879	-2435	-1420	-1015
Construction	-62	7	-69	-41	-30	-10
Trade	416	132	284	-331	-179	-152
ComInsFin	-191	4	-196	202	-264	467
Transport	-792	272	-1064	1515	-373	1888

Source: Compiled from the authors' simulation results.

Table 13: Imports by Industry

	Japan Total =	FTA	+ TFP 10% convergence (% change)	U.S. Total =	FTA	+ TFP 10% convergence
Rice	2950.74	2966.06	-15.32	55.37	55.25	0.12
Grain	9.56	7.97	1.59	17.74	17.36	0.39
Othcrop	-11.31	-7.48	-3.82	6.43	5.93	0.5
Meat	47.29	47.52	-0.24	6.56	5.95	0.61
Othfood	0.37	0.77	-0.4	2.14	1.51	0.63
Forestry	-5.6	-0.1	-5.5	1.3	0.56	0.74
Fishery	-2.6	1.44	-4.05	1.22	0.86	0.36
Mineral	-0.48	0.6	-1.07	1.82	-0.06	1.88
TexWapLea	0.63	0.76	-0.13	1.58	0.98	0.59
Paperwood	4.58	0.3	4.28	1.56	0.95	0.61
Chemical	4.51	0.56	3.95	0.02	1.26	-1.24
Metal	2.84	1.14	1.7	1.76	0.96	0.8
Automobile	5.84	0.24	5.6	0.01	1.85	-1.84
Machinery	4.14	0.12	4.02	1.9	1.44	0.46
Electronics	5.03	0.24	4.79	0.35	0.59	-0.24
Othservice	4.28	0.03	4.25	1.47	0.66	0.82
Construction	4.34	-0.09	4.43	0.97	0.72	0.25
Trade	0.79	-0.32	1.12	1.45	0.64	0.8
ComInsFin	4.63	0	4.63	0.27	0.62	-0.34
Transport	3.9	-0.07	3.98	-0.28	0.64	-0.91
	(US\$, million)					
Rice	71019	71387	-369	186	185	0
Grain	581	484	96	149	146	3
Othcrop	-1076	-712	-364	948	875	74
Meat	6073	6103	-30	577	524	54
Othfood	95	197	-102	650	459	190
Forestry	-96	-2	-94	4	2	3
Fishery	-43	24	-67	16	11	5
Mineral	-234	293	-526	1411	-47	1459
TexWapLea	214	257	-43	1804	1125	678
Paperwood	797	52	745	992	602	390
Chemical	1916	237	1678	28	1761	-1733
Metal	507	203	304	1153	628	526
Automobile	559	23	537	13	2883	-2871
Machinery	2438	72	2366	5663	4300	1363
Electronics	2839	135	2703	598	1021	-422
Othservice	1482	12	1469	1109	494	615
Construction	194	-4	198	7	6	2
Trade	115	-47	161	300	133	166
ComInsFin	326	0	326	47	106	-59
Transport	949	-18	967	-172	396	-568

Source: Compiled from the authors' simulation results.

Table 14: Japan's Agriculture, Forestry and Fisheries Exports and Imports with World and with U.S.2002-2006

Year	2002	2003	2004	2005	2006
Japan's exports (million yen):					
Total agriculture, forestry and fisheries (A)	350,856	340,234	360,899	400,825	448,961
Total agriculture (B)	206,363	195,852	203,814	216,823	235,884
Agriculture, forestry and fisheries exports to U.S. (C)	71,675	64,681	65,067	71,813	78,907
U.S. share in total (%) C/A	20.4	19.0	18.0	17.9	17.6
Agriculture exports to U.S. (D)	42,347	36,916	38,644	40,325	46,198
U.S. share in total (%) D/B	20.5	18.8	19.0	18.6	19.6
Japan's imports (million yen):					
Total agriculture, forestry and fisheries (E)	7,208,498	7,077,515	7,455,450	7,657,413	8,085,915
Total agriculture (F)	4,301,128	4,368,078	4,573,929	4,792,187	5,004,148
Agriculture, forestry and fisheries imports from U.S. (G)	1,835,808	1,834,626	1,702,033	1,735,805	1,772,801
U.S. share in total (%) G/E	25.5	25.9	22.8	22.7	21.9
Agriculture imports from U.S. (H)	1,539,124	1,583,691	1,447,444	1,479,247	1,517,610
U.S. share in total (%) H/F	35.8	36.3	31.6	30.9	30.3

Source: Ministry of Agriculture, Forestry and Fisheries (2007), *Exports and Imports of Agricultural, Forestry and Fishery Products (Trends in Exports and Imports of Principal Products), Final Figures for 2006*.

Table 15: Basic Indicators of Japanese Agriculture

Year	1960	1970	1980	1990	2000	2005
Total agricultural value-added (billion yen)	1,493	3,131	6,007	7,701	5,522	5,327
GDP share (%)	9.0	4.2	2.4	1.7	1.1	1.1
Total agricultural employment (10,000)	1,196	811	506	392	288	252
Share in total employment (%)	26.8	15.9	9.1	6.2	4.5	4.0
Index of agricultural production (2000=100)	80.1	100.6	105.0	111.1	100.0	95.3
Index of agricultural import volume (2000=100)	8.0	28.6	43.1	70.1	100.0	102.4
Total agricultural output (billion yen)	1,915	4,664	10,263	11,493	9,130	8,489
Share of rice (%)	47.4	37.9	30.0	27.8	25.4	23.1
Area under cultivation (10,000 ha)	607	580	546	524	483	469
Utilization rate of cultivated land (%)	134	109	104	102	94	93
Number of farm households (10,000)	606	534	466	384	312	285
Area under cultivation per farm household (ha)	1.00	1.09	1.17	1.36	1.55	1.65

Note: The 2005 figures for “Total agricultural value-added” and “Index of agricultural import volume” are from 2004.

Source: Ministry of Agriculture, Forestry and Fisheries, *Annual Report on Food, Agriculture and Rural Areas in Japan: Statistical Appendix*.

Table 16: Structure of Japanese Farm Households (million households, 2005)

Year	Commercial farm households				Non-commercial farm households	Total farm households
	Full-time farm households	(Of which, elderly full-time farm households)	Primary part-time farm households	Secondary part-time farm households		
1990	473	155	521	1,977	864	3,835
Share (%)	12.3	4.0	13.6	51.6	22.5	100.0
1995	428	188	498	1,725	793	3,444
Share (%)	12.4	5.5	14.5	50.1	23.0	100.0
2000	426	227	350	1,561	783	3,120
Share (%)	13.7	7.3	11.2	50.0	25.1	100.0
2005	442	255	307	1,204	885	2,838
Share (%)	15.6	9.0	10.8	42.4	31.2	100.0

Source: Ministry of Agriculture, Forestry and Fisheries, *Annual Report on Food, Agriculture and Rural Areas in Japan: Statistical Appendix*.

Table 17: Farm Households by Agricultural Sales: Commercial Farm Households (1,000 households, 2005)

	Business farm households	Share (%)	Semi-business farm households	Share (%)	Side-business farm households	Share (%)	Total farm households	Share (%)
Less than 0.5 million yen	24	1.2	139	7.1	618	31.6	781	40.0
0.5–1 million yen	25	1.3	106	5.4	207	10.6	338	17.3
1–3 million yen	79	4.0	146	7.5	197	10.1	422	21.6
3–5 million yen	63	3.2	32	1.6	37	1.9	132	6.8
5–10 million yen	103	5.3	14	0.7	19	1.0	136	7.0
10–30 million yen	106	5.4	3	0.2	5	0.3	114	5.8
More than 30 million yen	29	1.5	0	0.0	1	0.1	30	1.5
Total (1,000 households)	429	22.0	440	22.5	1084	55.5	1953	100.0

Source: Statistics Department, Ministry of Agriculture, Forestry and Fisheries, *Statistics on Agriculture, Forestry and Fisheries in Japan 2006*.

Table 18: Incomes of Farm and Employee Households (national average per household, 1,000 yen)

Year	1970	1980	1990	2000	2003
Farm households:					
Total income (a)	1,592	5,594	8,399	8,280	7,712
Agricultural income	508	952	1,163	1,084	1,103
(Share of agricultural income)	32	17	14	13	14
Income per household member (b)	326	1,271	1,967	2,080	2,051
Employee households:					
Total income (c)	1,391	4,257	6,323	6,731	6,295
Income per household member (d)	358	1,111	1,709	1,946	1,804
Income ratios (agricultural/employee):					
Total income (a/c)	1.14	1.31	1.33	1.23	1.23
Income per household member (b/d)	0.91	1.14	1.15	1.07	1.14

Source: Ministry of Agriculture, Forestry and Fisheries, *Annual Report on Food, Agriculture and Rural Areas in Japan: Statistical Appendix*.

Table 19: Incomes of Business and Side-Business Farm Households (1,000 yen, 2003)

	Business farm households	Share (%)	Semi-business farm households	Share (%)	Side-business farm households	Share (%)
Agricultural income	4744	62.0	852	10.1	332	4.4
Non-agricultural income	851	11.1	5568	65.8	4773	63.5
Pensions, gifts, etc.	2061	26.9	2042	24.1	2408	32.1
Total income	7656	100.0	8462	100.0	7513	100.0

Source: Ministry of Agriculture, Forestry and Fisheries, *Annual Report on Food, Agriculture and Rural Areas in Japan: Statistical Appendix*.

Table 20: Age Structure of Agricultural Population: Commercial Farm Households (1,000 households)

	Male	Share (%)	Female	Share (%)	Total	Share (%)
Age 15–29	122	7.8	72	4.0	194	5.8
Age 30–59	343	21.9	500	28.0	843	25.1
Age 60–64	150	9.6	216	12.1	366	10.9
Age 65 and above	950	60.7	1011	56.5	1961	58.5
Total (1,000)	1564	100.0	1788	100.0	3352	100.0

Source: Ministry of Agriculture, Forestry and Fisheries, *Statistics on Agriculture, Forestry and Fisheries in Japan 2006*.

Table 21: Classification of U.S. Farms and Cash Income from Agriculture (1997)

Type of farm	Amount of sales	Number of farms (1,000)	Share in total sales (%)	Agricultural income (\$10,000)	Non-agricultural income (\$10,000)	Total income (\$10,000)
Rural residential farms	Less than \$10,000	963.0 (50.4)	1.5	-1.2	55.5	54.3
Small family farms	\$10,000–\$40,000	391.2 (20.5)	4.1	5.0	44.9	49.9
Medium family farms	\$40,000–\$100,000	211.7 (11.1)	7.0	20.4	35.2	55.6
	\$100,000–\$250,000	189.4 (9.9)	15.3	51.3	31.0	82.3
Large family farms	\$250,000–\$1,000,000	130.6 (6.8)	30.4	128.4	36.8	165.2
Large-scale farms	More than \$1,000,000	25.9 (1.4)	41.7	749.4	48.7	798.1
Total		1911.9 (100)	100	26.7	46.4	73.1

Note: Non-agricultural income by scale of operation were obtained by increasing the 1989 values by 77 percent (equivalent to the average rate of increase for all farms between 1989 and 1997).

Source: Shinji Hattori, *America 2002 Nogiyoho* (The 2002 U.S. Farm Act), Association of Agriculture and Forestry Statistics, 2005: p. 184.

Table 22: Number and Sales of Large-scale U.S. Farms (sales exceeding 1 million dollars) by Crop (1997)

	Number of farms	Sales (\$100 million)	Share (%)	Average sales per farm (\$10,000)	Share of large-scale farms in sales (%)
Grains	10,528	48.0	5.8	46	10
Beef and cattle	11,030	214.9	26.1	195	53
Poultry and eggs	5,433	128.5	15.7	236	58
Fruits and nuts	3,227	74.2	9.0	230	58
Hogs	3,748	71.4	8.7	190	51
Horticulture and greenhouse	2,412	71.0	8.6	294	65
Dairy	3,390	67.7	8.2	200	36
Vegetables	3,066	63.2	7.7	206	75
Total	25,934	821.1	100	317	42

Source: Shinji Hattori, *America 2002 Nogyo* (The 2002 U.S. Farm Act), Association of Agriculture and Forestry Statistics, 2005: pp. 187–191.

Appendix: Structure of Japan-U.S. Trade (SITC 2-digit level)

		Share of product in trade (%)				Share of U.S. in Japan's total exports (%)		Competitiveness index (Xj-Xus)/(Xj+Xus)		Intra-industry trade index (1-(Xj-Xus /(Xj+Xus)))* 100	
SITC		Japan's exports to U.S. (Xj)		Japan's imports from U.S. (Xus)		2000	2006	2000	2006	2000	2006
0	Food and live animals	0.24	0.31	13.86	13.19	19.4	17.4	-0.93	-0.89	7.29	11.05
00	LIVE ANIMALS	0.00	0.00	0.13	0.15	5.5	12.1	-0.99	-0.97	0.99	3.18
01	MEAT, MEAT PREPARATIONS	0.00	0.00	4.39	2.00	5.2	28.2	-1.00	-0.99	0.06	0.62
02	DAIRY PRODUCTS,BIRD EGGS	0.00	0.00	0.17	0.17	16.6	5.1	-0.97	-0.98	3.31	1.84
03	FISH,CRUSTACEANS,MOLLUSC	0.10	0.12	1.77	1.60	17.9	12.8	-0.78	-0.68	21.65	31.53
04	CEREALS,CEREAL PREPRTNS.	0.03	0.03	3.34	5.01	17.7	21.0	-0.97	-0.97	3.46	3.22
05	VEGETABLES AND FRUIT	0.01	0.02	2.21	2.07	24.0	16.6	-0.97	-0.96	2.66	3.92
06	SUGAR,SUGR.PREPTNS,HONEY	0.01	0.01	0.12	0.11	17.1	15.5	-0.77	-0.72	23.36	28.33
07	COFFEE,TEA,COCOA,SPICES	0.01	0.01	0.08	0.12	14.8	17.6	-0.74	-0.59	26.47	41.47
08	ANIMAL FEED STUFF	0.00	0.01	1.19	1.39	7.0	15.2	-0.99	-0.97	1.48	2.55
09	MISC.EDIBLE PRODUCTS ETC	0.08	0.11	0.45	0.56	26.1	27.8	-0.43	-0.35	57.04	64.92
1	Beverages and tobacco	0.04	0.03	3.82	2.09	17.7	12.1	-0.95	-0.92	4.51	7.74
11	BEVERAGES	0.03	0.03	0.31	0.51	26.5	27.4	-0.66	-0.72	34.34	27.97
12	TOBACCO,TOBACCO MANUFACT	0.01	0.00	3.51	1.58	9.5	0.2	-0.99	-1.00	1.38	0.12
2	Crude materials, inedible, except fuels	0.17	0.32	5.90	6.04	7.4	6.1	-0.88	-0.77	11.92	23.38
21	HIDES,SKINS,FURSKINS,RAW	0.00	0.00	0.20	0.15	0.0	0.0	-1.00	-1.00	0.01	0.00
22	OIL SEED,OLEAGINUS FRUIT	0.00	0.00	1.25	1.51	38.4	24.8	-1.00	-1.00	0.07	0.07
23	CRUDE RUBBER	0.09	0.11	0.07	0.18	14.3	11.6	0.47	0.20	52.80	80.00
24	CORK AND WOOD	0.00	0.00	2.03	1.12	3.2	2.8	-1.00	-1.00	0.05	0.16
25	PULP AND WASTE PAPER	0.00	0.00	0.83	0.75	0.1	0.0	-1.00	-1.00	0.04	0.06
26	TEXTILE FIBRES	0.03	0.05	0.29	0.24	4.0	6.7	-0.66	-0.33	34.44	67.33
27	CRUDE FERTILIZER,MINERAL	0.01	0.02	0.45	0.47	11.3	7.0	-0.87	-0.85	13.03	15.31

28	METALLIFEROUS ORE,SCRAP	0.02	0.12	0.56	1.43	2.7	4.2	-0.88	-0.66	12.20	33.95
29	CRUDE ANIMAL,VEG.MATERL.	0.02	0.03	0.21	0.19	19.9	22.3	-0.62	-0.42	38.19	58.06
3	Mineral fuels, lubricants, and related materials	0.27	0.78	1.30	1.01	25.9	19.5	-0.36	0.31	63.63	68.74
32	COAL, COKE, BRIQUETTES	0.10	0.10	0.23	0.05	69.0	45.7	-0.05	0.69	95.23	30.81
33	PETROLEUM,PETROL.PRODUCT	0.18	0.68	0.84	0.66	19.7	18.3	-0.36	0.44	63.95	56.41
34	GAS,NATURAL,MANUFACTURED	0.00	0.00	0.23	0.31	0.4	0.2	-1.00	-1.00	0.07	0.22
4	Animal and vegetable oils, fats and waxes	0.02	0.02	0.08	0.11	29.8	30.2	-0.39	-0.44	60.86	56.26
41	ANIMAL OILS AND FATS	0.00	0.00	0.02	0.03	30.9	18.6	-0.33	-0.64	67.05	35.71
42	FIXED VEG. FATS AND OILS	0.01	0.01	0.05	0.06	55.8	52.9	-0.37	-0.32	63.30	68.39
43	ANIMAL,VEG.FATS,OILS,NES	0.00	0.00	0.01	0.01	6.9	8.6	-0.60	-0.59	40.04	41.13
5	Chemicals and related products	4.94	5.24	10.03	14.18	20.2	13.3	0.04	-0.05	95.85	95.36
51	ORGANIC CHEMICALS	1.66	1.69	2.01	2.50	21.3	13.8	0.29	0.25	70.92	74.83
52	INORGANIC CHEMICALS	0.25	0.22	1.87	2.85	17.9	9.9	-0.54	-0.68	45.94	32.39
53	DYES,COLOURING MATERIALS	0.26	0.24	0.29	0.31	14.9	10.9	0.33	0.32	67.15	68.28
54	MEDICINAL,PHARM.PRODUCTS	0.90	0.89	1.63	2.80	47.4	41.2	0.10	-0.12	90.14	88.12
55	ESSENTL.OILS,PERFUME,ETC	0.09	0.11	0.65	0.97	11.1	9.4	-0.52	-0.55	47.73	44.60
56	FERTILIZER,EXCEPT GRP272	0.01	0.01	0.27	0.00	12.5	16.8	-0.88	1.00	12.22	0.00
57	PLASTICS IN PRIMARY FORM	0.52	0.57	1.11	1.81	11.2	8.2	0.01	-0.13	98.53	87.10
58	PLASTIC,NON-PRIMARY FORM	0.41	0.44	0.40	0.40	18.9	8.8	0.39	0.46	61.00	53.82
59	CHEMICAL MATERIALS NES	0.85	1.05	1.81	2.55	21.6	14.6	0.02	0.01	98.41	98.94
6	Manufactured goods, chiefly classified by materials	5.35	5.80	5.44	6.40	16.5	11.5	0.37	0.38	63.08	61.81
61	LEATHER, LEATHER GOODS	0.00	0.00	0.08	0.01	0.8	0.6	-0.95	-0.81	4.57	18.53
62	RUBBER MANUFACTURES, NES	1.07	1.34	0.38	0.35	29.5	25.1	0.72	0.81	27.55	19.09
63	CORK, WOOD MANUFACTURES	0.01	0.01	0.21	0.10	17.3	18.4	-0.85	-0.67	15.47	33.39
64	PAPER,PAPERBOARD,ETC.	0.37	0.33	1.23	1.04	21.3	19.9	-0.20	-0.12	79.96	88.26
65	TEXTILE YARN,FABRIC,ETC.	0.40	0.36	0.43	0.48	8.3	7.7	0.35	0.30	64.69	69.63
66	NON-METAL.MINERAL MANFCT	0.85	0.59	1.12	1.06	22.2	11.9	0.25	0.15	74.64	84.62

67	IRON AND STEEL	0.98	1.38	0.25	0.21	9.5	6.8	0.80	0.88	20.47	11.79
68	NON-FERROUS METALS	0.41	0.43	1.05	1.96	12.2	6.3	-0.07	-0.30	92.54	70.04
69	METALS MANUFACTURES,NES	1.25	1.35	0.70	1.17	27.7	21.0	0.60	0.48	40.37	52.15
7	Machinery and transport equipment	76.34	75.79	42.70	38.53	33.3	27.1	0.60	0.66	40.45	34.16
71	POWER GENERATNG.MACHINES	5.09	4.91	2.99	3.37	40.1	30.0	0.58	0.56	42.01	43.55
72	SPECIAL.INDUST.MACHINERY	4.05	5.10	3.71	2.57	22.6	19.8	0.41	0.66	58.70	33.96
73	METALWORKING MACHINERY	2.26	2.16	1.03	1.58	34.4	24.2	0.66	0.54	34.27	45.64
74	GENERAL INDUSTL.MACH.NES	4.14	4.94	2.10	2.79	23.4	20.8	0.63	0.63	37.32	37.29
75	OFFICE MACHINES,ADP MACH	9.27	5.37	8.28	3.97	37.9	32.8	0.42	0.54	57.63	46.12
76	TELECOMM.SOUND EQUIP ETC	8.63	5.66	4.58	3.37	40.7	24.8	0.61	0.61	38.75	38.84
77	ELEC MCH APPAR,PARTS,NES	12.07	7.22	10.78	8.08	20.6	12.2	0.42	0.38	57.63	62.39
78	ROAD VEHICLES	29.82	39.30	3.91	2.83	48.6	41.4	0.89	0.94	11.21	5.66
79	OTHR.TRANSPORT EQUIPMENT	1.01	1.11	5.34	9.96	12.0	9.7	-0.41	-0.57	58.96	43.28
8	Miscellaneous manufactured products	8.95	7.55	14.83	15.69	29.8	21.1	0.14	0.09	85.81	91.45
81	PREFAB BLDGS,FTTNG ETC	0.02	0.03	0.18	0.08	24.4	28.6	-0.57	-0.09	42.63	91.21
82	FURNITURE,BEDDING,ETC.	0.11	0.17	0.34	0.55	34.3	28.6	-0.16	-0.13	84.41	86.60
83	TRAVEL GOODS,HANDBGS ETC	0.01	0.00	0.15	0.29	20.3	8.3	-0.85	-0.96	14.70	3.60
84	CLOTHING AND ACCESSORIES	0.06	0.06	0.71	0.52	17.2	19.0	-0.67	-0.54	33.08	45.95
85	FOOTWEAR	0.00	0.00	0.15	0.05	3.1	2.9	-0.97	-0.90	3.15	9.78
87	SCIENTIFIC EQUIPMENT NES	2.97	2.97	6.37	7.20	28.7	22.1	0.01	0.01	98.63	99.08
88	PHOTO.APPARAT.NES;CLOCKS	2.73	1.93	1.83	1.43	25.1	16.1	0.54	0.54	46.49	46.24
89	MISC MANUFCTRD GOODS NES	3.05	2.38	5.11	5.56	38.2	25.7	0.14	0.03	86.40	97.20
9		3.68	4.16	2.03	2.76	30.3	18.4	0.60	0.58	40.07	42.32
93	SPEC.TRANSACTION NOT CLASSD	3.68	4.16	2.02	2.74	31.5	20.2	0.60	0.58	39.84	42.10
96	COIN NONGOLD NONCURRENT	0.00	0.00	0.00	0.00	77.7	16.3	-0.78	-0.78	21.55	21.75
97	GOLD,NONMONTRY EXCL ORES	0.00	0.00	0.01	0.02	0.3	0.1	-0.69	-0.53	30.70	46.54
	Total	100.00	100.00	100.00	100.00	30.0	22.8	0.38	0.42	62.37	57.67

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**A Japan-U.S. Economic Partnership Agreement:
Impact and Issues**
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