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**Globalization of Japanese firms**  
**Long-run Trends, Cross-sectional Variations,**  
**and Policy Implications**

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**Eiichi Tomiura**

*October 2012*



**Center for Asian Studies**

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IFRI  
27, RUE DE LA PROCESSION  
75740 PARIS CEDEX 15 – FRANCE  
Tel: +33 (0)1 40 61 60 00  
Fax: +33 (0)1 40 61 60 60  
Email: [accueil@ifri.org](mailto:accueil@ifri.org)

IFRI-BRUXELLES  
RUE MARIE-THERESE, 21  
1000 – BRUXELLES – BELGIQUE  
Tel: +32 (0)2 238 51 10  
Fax: +32 (0)2 238 51 15  
Email: [info.bruxelles@ifri.org](mailto:info.bruxelles@ifri.org)

WEBSITE: [ifri.org](http://ifri.org)

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# Executive Summary

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Japanese firms are increasingly involved in various global business operations – not only in traditional international trade in goods, but also in offshore production and the new mode of globalization: offshore outsourcing.

While it had been persistently low, the share of international trade in the Japanese national economy began to rise at the start of the 21<sup>st</sup> century. Cross-border relocations of production are likely to be at least partly related to shrinking trade surplus.

Japanese manufacturing firms produce more and more of their outputs abroad. The production networks of Japanese multinational firms are deeply integrated with intra-region international trade in East Asia.

Cross-border outsourcing between firms without ownership relations is of increasing importance in international trade, though only a limited number of productive large firms are actively offshoring. The range of offshorable tasks has been expanded from production of intermediates to wider varieties of service functions through the development of information technologies, but our firm-level analyses suggest that complex tasks such as R&D remain largely outsourced within the same country. The role of innovation in Japanese competitiveness should be emphasized in this context.

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# Introduction

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Firms are increasingly involved in various modes of global business operations – not only in traditional international trade in goods, but also in foreign direct investment (FDI) and offshoring. This is facilitated by trade liberalization and wider use of information and communication technologies (ICT). Japanese firms are no exception. Import penetration of a wider range of goods and expanding offshore production are happening at the same time as declining domestic manufacturing employment. The accumulation of FDI by Japanese multinational corporations in East Asia and the rapid development of China should have substantial influence on Japanese manufacturing in the longer term. However, short-run volatile fluctuations in recent years should not be neglected. This article reviews recent trends in the globalizing Japanese economy and discusses their policy implications, especially how changing trends in international trade, expanding FDI, and emerging new globalization modes are related to domestic manufacturing in Japan.

The rest of this article is organized as follows. Section 2 overviews long-term trends of Japanese international trade (export and import). Section 3 discusses the extent of FDI and offshore production. Section 4 investigates the new forms of globalization: offshoring and offshore outsourcing, and discusses their relations with firm characteristics, such as productivity and R&D. Section 5 adds concluding remarks.

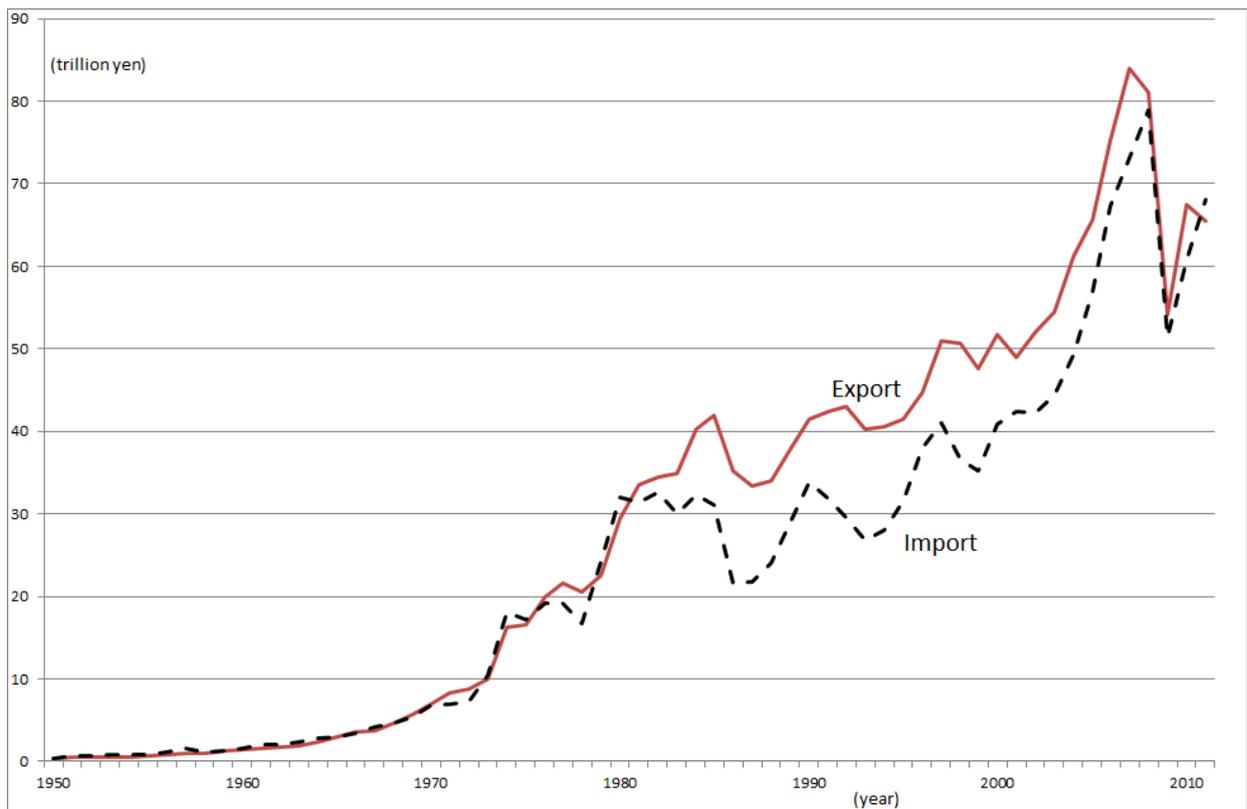
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**Dr Eiichi TOMIURA** is professor at the Department of Economics, Yokohama National University, Japan.

# Japan's Shrinking Trade Surplus

Japan's foreign trade has expanded almost consistently since the end of World War II, as shown in Figure 1. The decline of exports after 2007 is due to weak demand in North America since the Lehman Shock and in Europe due to the Euro crisis, and partly due to supply vulnerability following the Japanese earthquake last year. In the context of these global financial shocks and disruptions, it is beyond our purpose and capacity to predict long-term trends. Whether or not Japanese's exports will begin to rise again remains to be seen. This article instead discusses underlying structural changes behind the short-term fluctuations.

Figure 1: Japan's international trade



Source: Trade statistics, Ministry of Finance (MoF)

On the other hand, the recent fluctuation in imports is characterized by a sharp decline in intermediate imports, possibly for re-exporting during the Lehman Shock. This implies that we cannot discuss exports and imports separately in a period of active cross-border trade in intermediates. This article will later investigate offshoring and intermediate imports in Japanese foreign trade. Imports, however, have increased this year, mainly due to stronger demand for more highly priced oil and gas as nuclear power plants in Japan ceased operating following the damage caused directly by the earthquake or for safety reasons, amid heightened concerns in Japanese society triggered by the Fukushima power-plant incident.

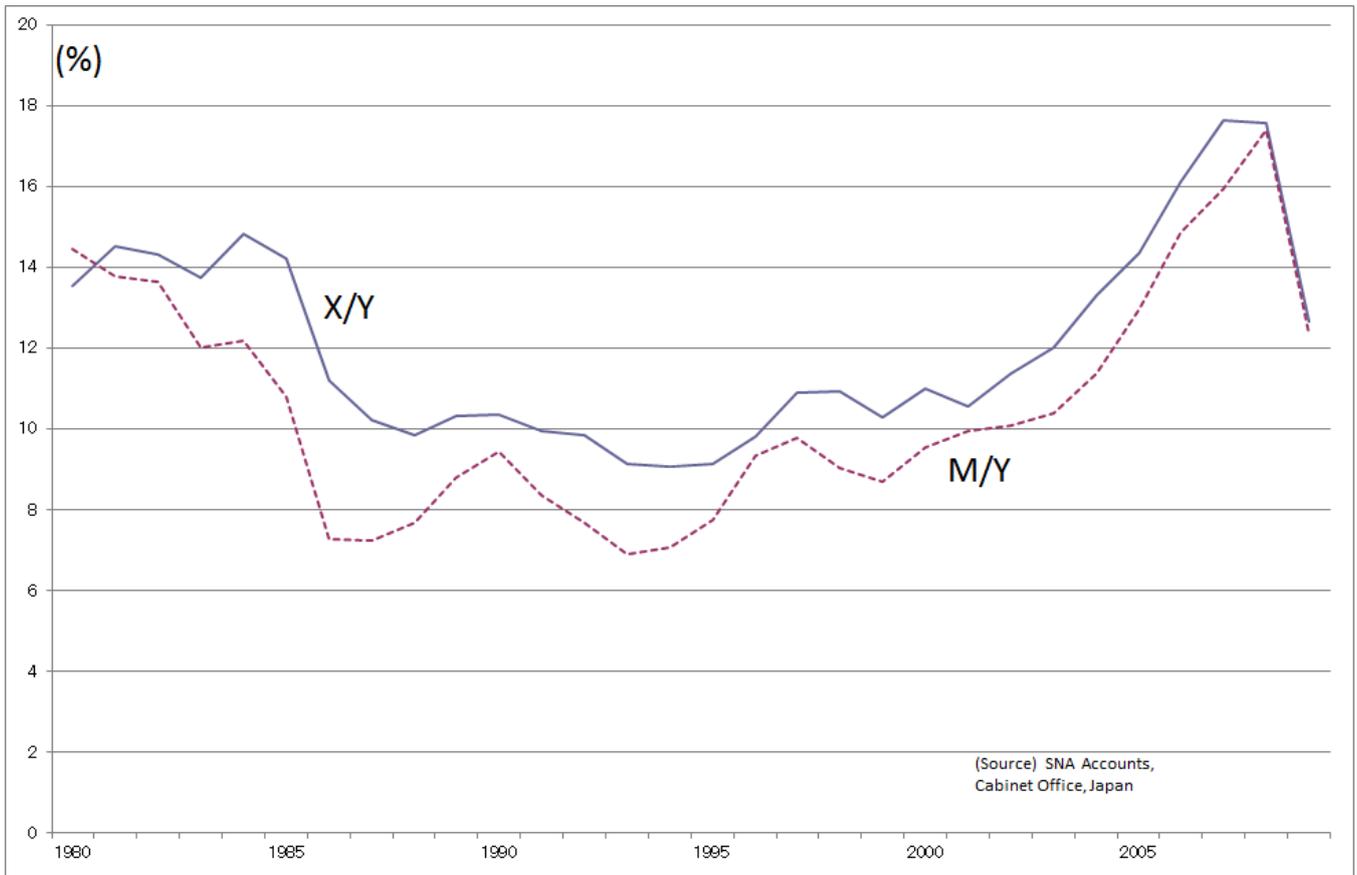
Another point to note in Figure 1 is the change in Japan's trade surplus. Reflecting the accumulating trade surplus (shown as the widening export-import gap in Figure 1), trade disputes between Japan and other advanced countries intensified politically during the 1980s and 1990s. Japan's trade had been almost balanced for around three decades until 1980. The turning-point around 1980 was characterized by the end of historic high economic growth (especially the saturation of domestic demand for consumer durables) combined with the transformation of Japanese industrial configuration from heavy industries to high-tech industries. After nearly three decades of persistent trade surplus, Japan's trade has returned to equilibrium in recent years. An important factor behind this historic change might be industrial relocations across national borders (to be discussed below).

Although we have referred to the expansion of exports and imports (Figure 1), the share of international trade in the national economy does not necessarily increase when the economy as a whole is growing. To investigate this issue, Figure 2 presents the percentage of exports (X) and imports (M) in GDP (Y) over the last three decades. As evident from this graph, international trade as a share of GDP began to rise only after the arrival of the 21<sup>st</sup> century. The abrupt kink in the last year was due to the global financial shock. Back in the 1990s, the share of international trade stayed as low as around 10% of GDP and dropped even lower than in the early 1980s. No systematic trend of globalization was observed during these two decades, contrary to the general perception. The volume of exports and imports actually expanded during this period (as depicted in Figure 1), but the growth of the entire Japanese economy outpaced the growth of international trade. On the other hand, after the millennium, both exports and imports began to increase more than proportionally compared with stagnant Japan's GDP growth. Only after we enter the 21<sup>st</sup> century did the Japanese economy begin to experience persistently increasing dependence on both exports and imports.<sup>1</sup>

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<sup>1</sup> This observation does not imply that the impact of international trade was negligible before 2000. The factor content calculation by Ito and Fukao (2005), for example, shows that the increase in imports during 1980-2000 has an impact equivalent to an

Figure 2: Share of international trade in Japan's GDP



Source: National Accounts, Cabinet Office

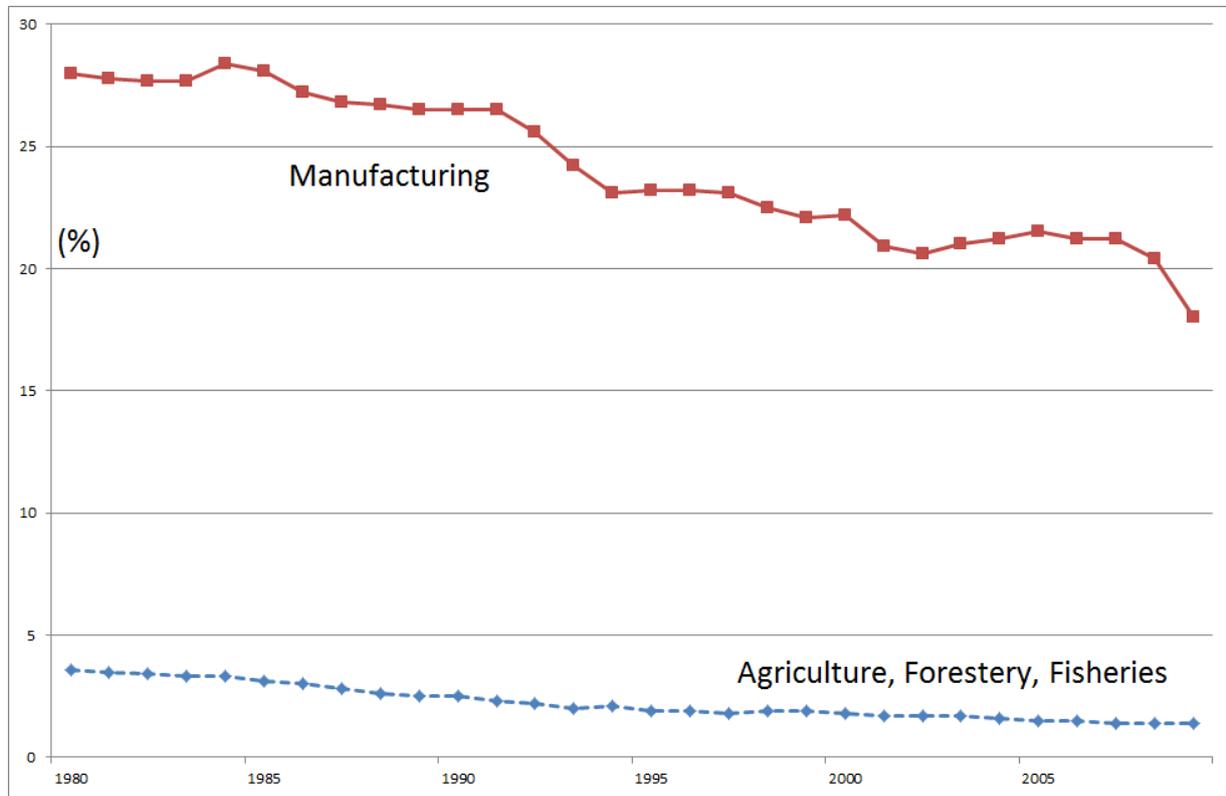
Concerning another issue related to GDP statistics, we must note that the share of manufacturing has declined in Japan. Figure 3 displays the percentage of manufacturing in Japan's GDP over the last three decades. The persistent shrinkage of manufacturing in the Japanese economy in terms of value-added, from 28% to 18%, is particularly notable. The manufacturing sector now produces less than one-fifth of Japan's value-added. On the other side of the same coin, various non-manufacturing industries have gained shares. Although non-manufacturing and non-tradable were traditionally regarded as interchangeable, increasing parts of non-manufacturing activities have become tradable across national borders, facilitated by development of ICT, most notably the Internet. Consequently, the simultaneous observation of expanding international trade and a rising share of non-manufacturing in the Japanese economy is no

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increase of around 3% in domestic production workers. We must also note, however, that the factor content calculation inevitably overestimates the impact of trade, as technological changes are neglected in calculations based on fixed input requirement coefficients.

surprise.<sup>2</sup> This article will later relate the declining share of manufacturing, with cross-border industrial relocation and expanding non-manufacturing, to active cross-border offshoring.

**Figure 3: Industrial composition of Japan's value-added**



Source: National Accounts, Cabinet Office

In sum, a shrinking trade surplus characterizes Japan's recent international trade. These trends partly reflect changes in the underlying comparative advantages of Japanese industries, but are also affected by the changing location patterns of Japanese manufacturing firms. We will discuss the latter issue in the next section.

<sup>2</sup> Exports and imports in Figure 2 include not only trade in goods but also trade in services, in national income statistics.

# Offshore Production as the Critical Part of Japanese Manufacturing

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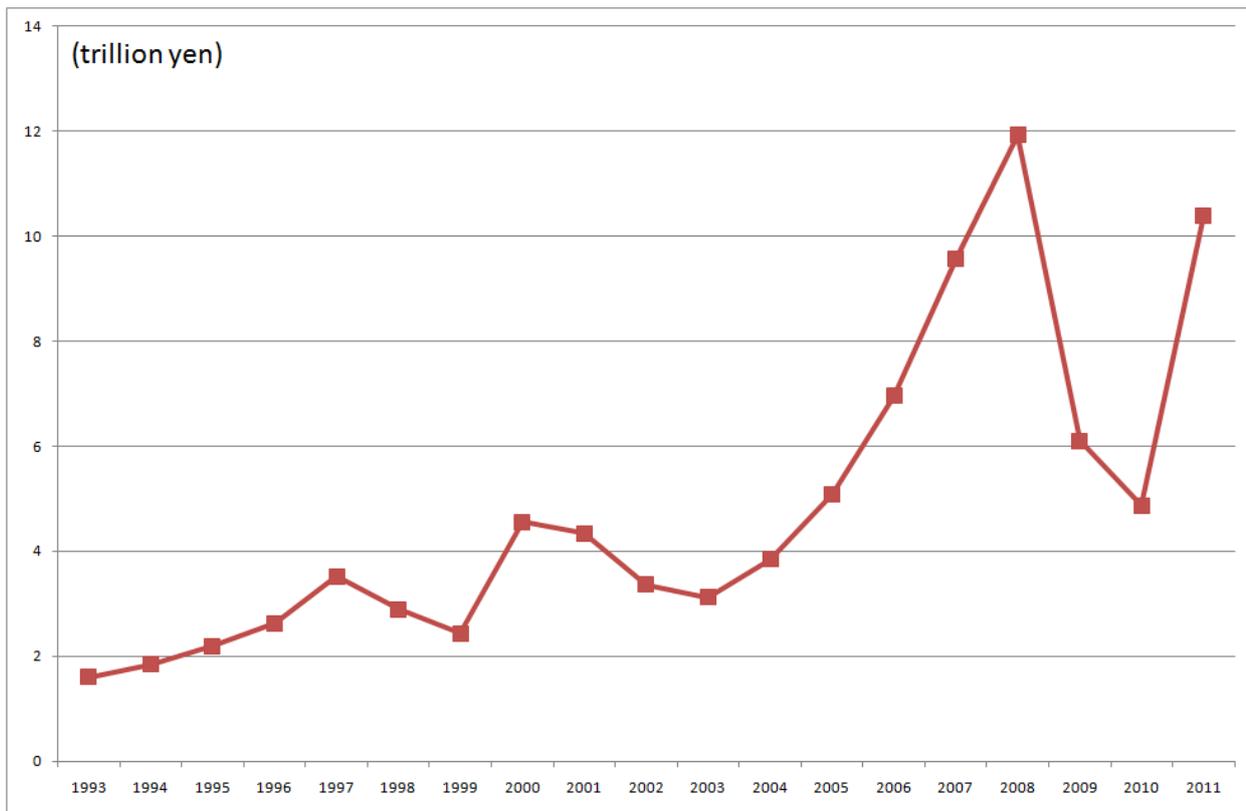
While the previous section focuses on cross-border transactions in goods, the description of a globalizing Japanese economy cannot be complete without reference to cross-border capital mobility. Even if we concentrate on manufacturing, discussion of foreign direct investment (FDI) is indispensable. Although the recent fluctuations are no longer characterized by a simple monotonic expansion, outward FDI flows from Japan have increased remarkably since the early 1990s, as shown in Figure 4. Though some operations abroad, especially in recent years, may be financed locally by earnings from past FDI stocks, without funds crossing national borders, this sizable growth should not be ignored. This rising trend has continued since the burst of the Japanese bubble in the early 1990s, with a precedent peak in the late 1980s after the historic exchange rate appreciation triggered by the Plaza Accord. The recent drop in 2009-2010 was obviously influenced by the global financial turmoil. But, in the following year, the outward FDI flow swiftly returned to its pre-crisis level. According to corporate statistics, the number of parent firms with foreign affiliates has increased and now surpasses the number of parent firms owning affiliates only in Japan.<sup>3</sup> Numerous concerns, including electricity supply after the earthquake last year, are likely to accelerate the outflow. Nearly 70% of Japanese firms predict that the relocation of supply chains toward offshore locations may be accelerated.<sup>4</sup> Briefly summarizing the points made in the previous section, one may conclude that bilateral trade and investment ties are at risk of weakening. However, it is imperative that Japan and the EU cooperate more closely on issues they face in common, as well as on global issues. Here we will cite several of the more important challenges and discuss some current problems.

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<sup>3</sup> According to the Basic Survey of Business Structure and Activities in 2010 conducted by the Ministry of Economy, Trade and Industry (METI), 24.9% of medium- or large-sized firms own affiliates abroad, while 20.8% own affiliates only in Japan.

<sup>4</sup> This survey result is reported in the White Paper on International Trade 2011.

Figure 4: Outward FDI from Japan



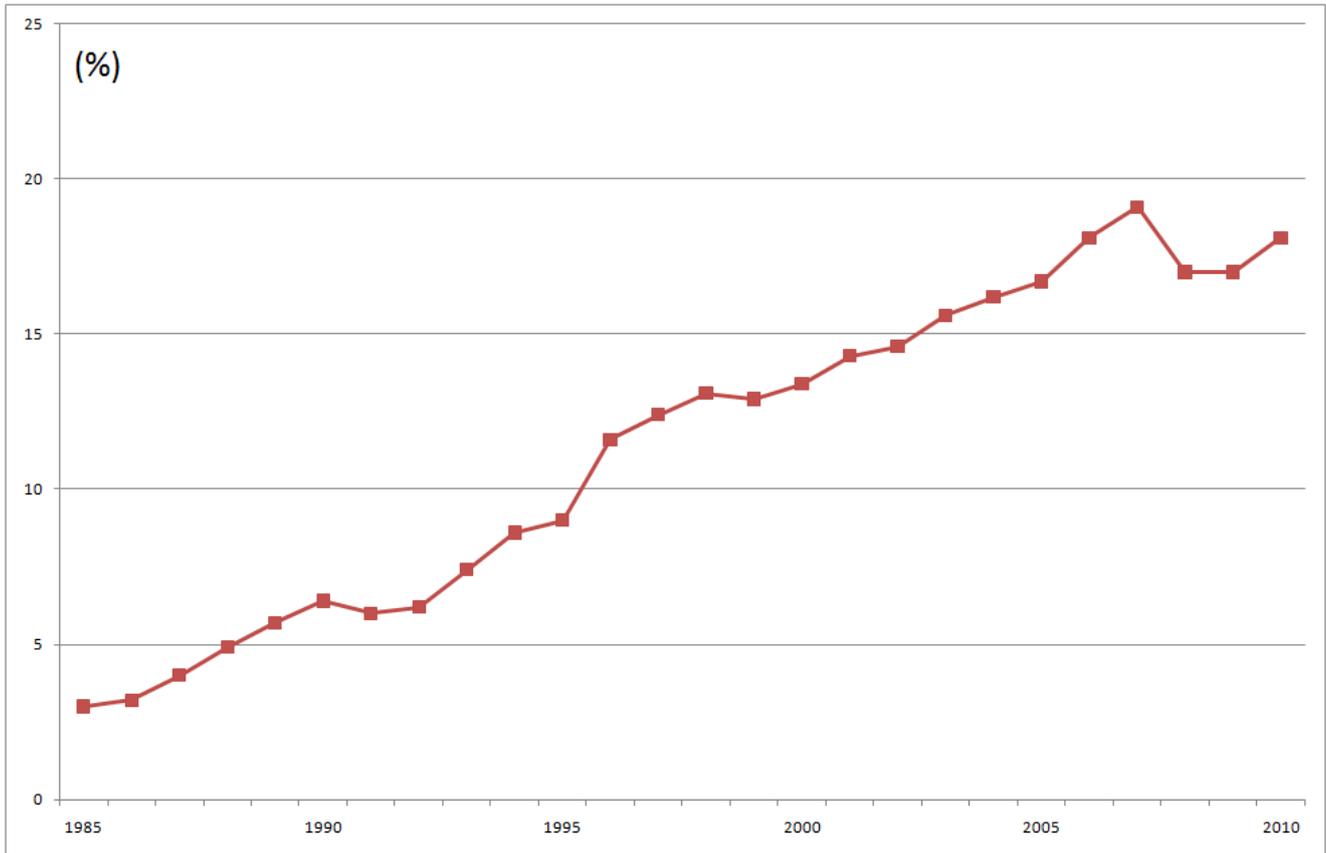
Source: Balance of payments statistics, MoF

### ***Characteristics of growing outward Japanese FDI***

This surge of outward FDI from Japan naturally results in an increase in offshore production. Japanese manufacturing multinational corporations now produce around one-third of their output abroad. In some globalized industries, such as automobiles, the offshore production ratio reaches around 40% (42% in 2007 and 39% in 2008-2010). Some leading global multinational corporations, such as Honda and Nissan-Renault, produce more automobiles abroad than in Japan. Substantial offshore production is also prevalent in other industries. For example, Japanese firms produce 28% of their outputs abroad in ICT equipment and general machinery industries. Production in the home country for export is no longer the typical pattern for Japanese multinationals, which actively produce in offshore sites and export/import to and from third countries. As shown in Figure 5, the offshore production ratio now reaches nearly 20% even if we sum all corporations in Japan, including a large number of domestic companies without any offshore production. The rising trend

evident in this graph indicates that offshore production by a limited number of large multinationals has consistently grown faster over decades than domestic production by Japanese firms, most of which are small in size and have no offshore production sites.

**Figure 5: Offshore production ratios of Japanese firms**



*Note:* The denominator includes production of all corporations (with or without FDI) in Japan.

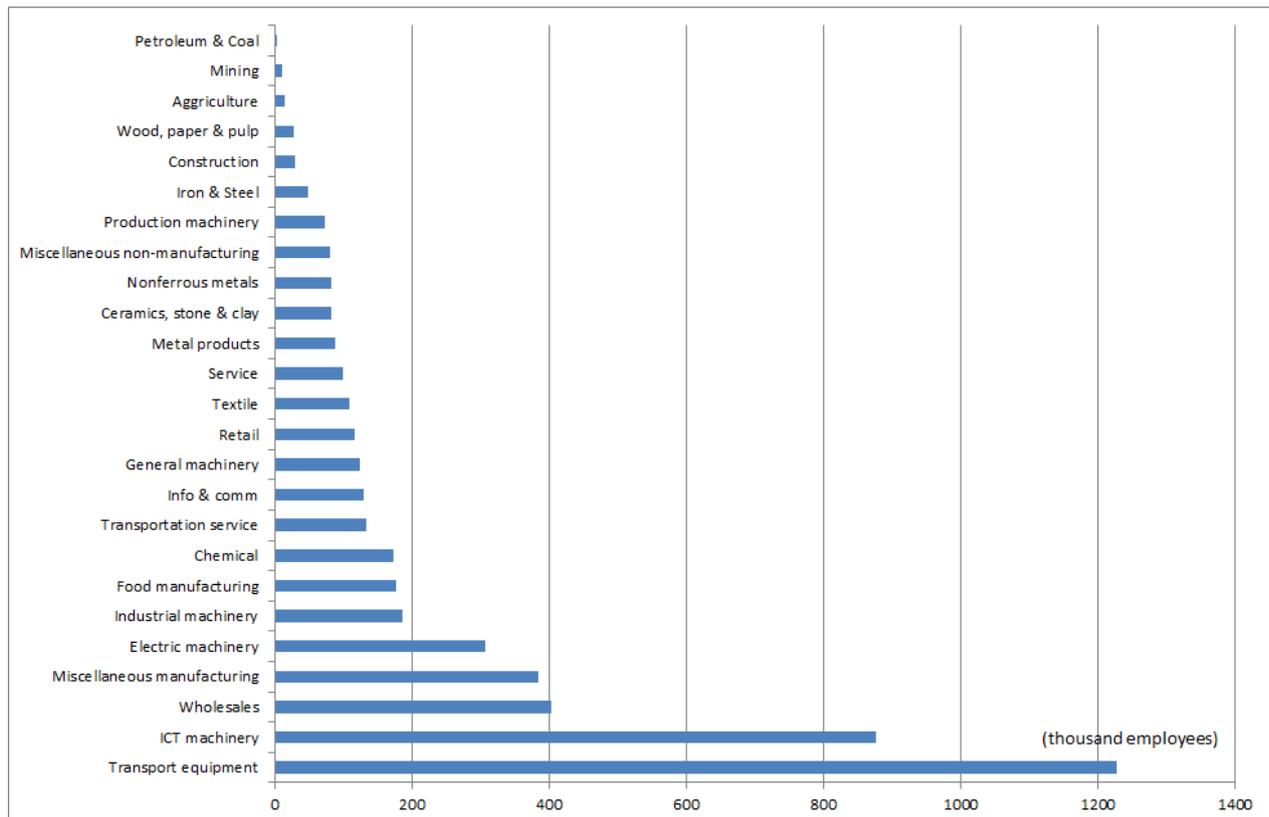
*Source:* Survey on Overseas Business Activities, Ministry of Economy, Trade and Industry (METI)

Outward FDI by Japanese multinational firms is disaggregated by industries in Figure 6 and by locations in Figure 7.<sup>5</sup> More than one million people are employed abroad by Japanese firms in the automobile industry, which is included as part of transport equipment industry in this graph (an 8% increase from the previous year). Many other manufacturing industries, such as ICT equipment (11.5% increase from previous year), are lined up in the list of top industries in terms of offshore employment size. However, some non-manufacturing industries such as wholesale and retail are also ranked

<sup>5</sup> The number of regular employees is counted in thousands.

high in this ordering. This indicates that we can no longer ignore the potential impact of FDI on domestic employment in the non-manufacturing sector. As the Japanese economy will further shift toward the service sector, the role of non-manufacturing in FDI will become more important.

**Figure 6: Offshore employment by Japanese multinationals (industrial breakdown)**



Source: Survey on Overseas Business Activities, 2010, METI

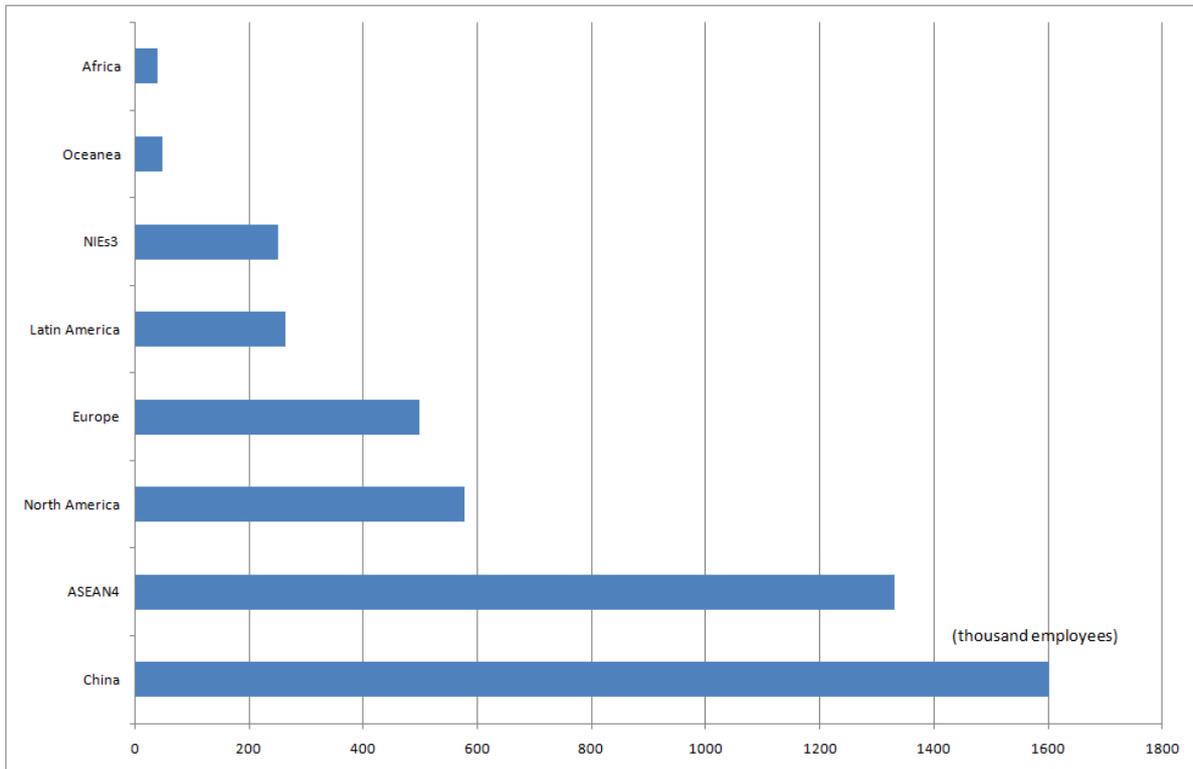
As shown in Figure 7, Japanese FDI concentrates on East Asia. China ranks as the number one destination, with 1.6 million employees, followed by the major four ASEAN countries with 1.3 million.<sup>6</sup> Japanese multinationals employed roughly an equal number of workers in the USA and China at the turn of the century, but the US share has noticeably declined. This shift reflects the corporate strategies of Japanese multinationals responding to China's high economic growth.<sup>7</sup> In Japanese offshore business activities, the presence of other regions, including Europe, is smaller. While located

<sup>6</sup> The ASEAN4 countries are Indonesia, Malaysia, Philippines and Thailand.

<sup>7</sup> However, the share of China has declined recently in terms of the number of foreign affiliates due to the increasing establishment of new affiliates in new locations such as India and Vietnam.

close to Japan and likely to be part of an international production network covering East Asia, Japanese affiliates in high-cost Asian newly industrialized economies (NIEs) employ fewer workers than those in distant Latin America.<sup>8</sup>

**Figure 7: Offshore employment by Japanese multinationals (regional breakdown)**



*Note:* The measure is in thousand regular employees.

*Source:* Survey on Overseas Business Activities, 2010, METI

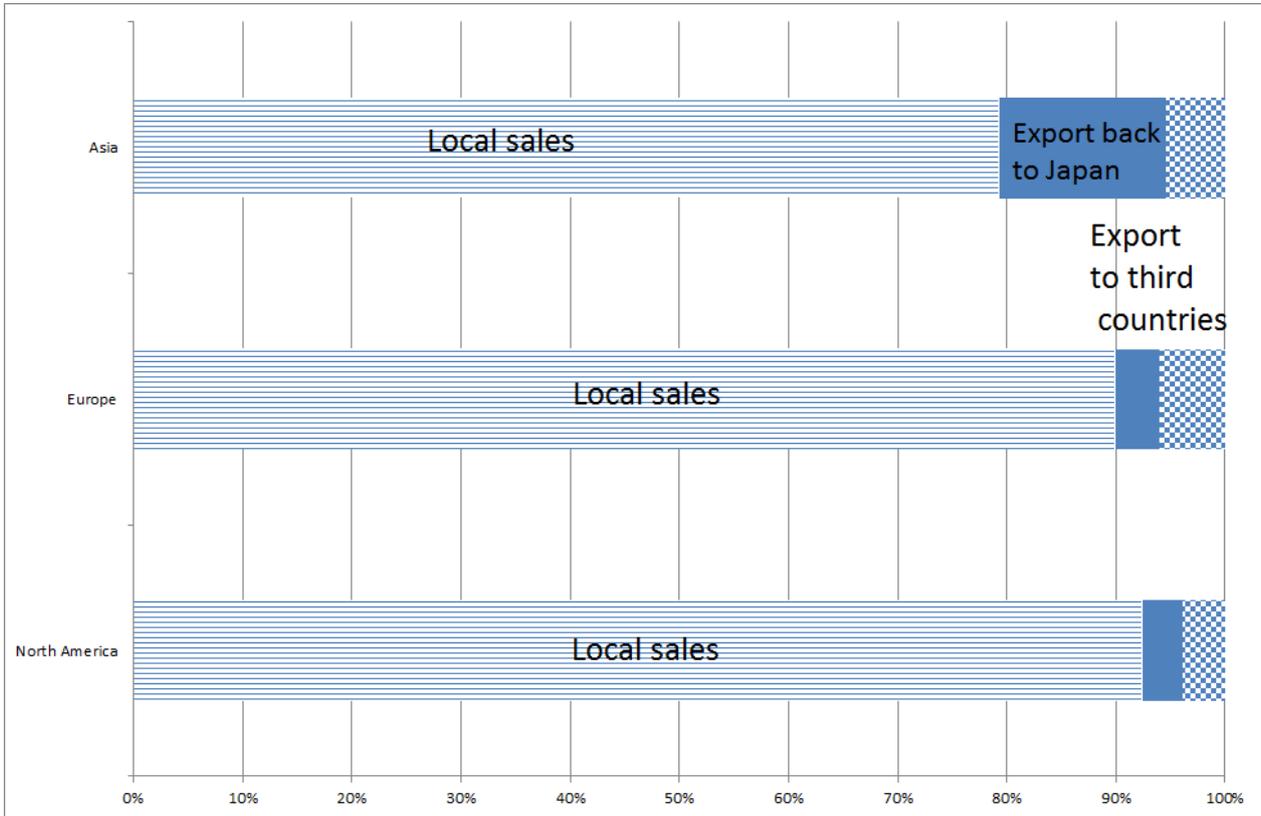
We next relate FDI to international trade. Figure 8 shows the destinations of outputs produced by Japanese affiliates located in each region. Most notably, Japanese affiliates in Asia are no longer export platforms for Japanese multinationals.<sup>9</sup> Although the ratio of local sales remains lower than that of affiliates in North America or in Europe, Japanese affiliates in Asia export less of their output to third countries than do Japanese affiliates in Europe. In the graph, export to countries in Europe is counted as “local sales” for affiliates in Europe. If we include “exports back to Japan” as part of intra-region

<sup>8</sup> The NIEs in this graph are Korea, Singapore, Taiwan and Hong Kong.

<sup>9</sup> The intra-region sales ratio of Japanese affiliates has consistently risen in Asia in recent years. For example, in 1997, one year before the Asian economic crisis, only two-thirds of output was sold in Asia (excluding Japan).

sales in the case of Asia, the share of export becomes slightly lower than that of affiliates in North America or in Europe.

**Figure 8: Destinations of offshore production**



Source: Survey on Overseas Business Activities, 2010, METI

During the period of intense trade conflict in the 1980s, many Japanese firms established offshore production sites in order to bypass tariffs or other import restrictions imposed by US or European governments. However, Japanese multinationals no longer produce offshore for this bypass purpose, but mainly in order to serve the regional market, even in Asia. Asia no longer attracts FDI from Japan because of low production costs but rather for expanding market demand. Nearly 70% of Japanese firms choose Asia as their FDI destination because of strong or growing local demand, while only around a quarter invest there because of low wages.<sup>10</sup> Japanese firms no longer relocate their production sites out of Japan toward neighboring Asian countries in order to establish low-cost export platforms for US or European markets, but to capture strong local demand in Asia. This indicates that FDI outflows from Japan into

<sup>10</sup> According to the survey reported in the White Paper on International Trade 2011, in response to the question on the factors influencing a firm's investment decision, 68.1% cited strong or growing local demand, while 26.2% cited low-wage labor availability.

Asia, especially to China, will persist even if wage/income levels in Asian developing countries (China, followed by Vietnam and other less-developed countries) increase in the near future.

The strategies of Japanese firms are not necessarily common across industries. Local sales account for nearly 90% of output in the case of the transport equipment industry, but the ratio tends to be lower in other industries such as electronics and other machinery industries. In general machinery industry, for example, exports to Japan and to third countries make up around half and over 10%, respectively. Such cross-industry differences will at least partly be due to differences in trade/transport costs. Automobiles and heavy/bulky goods are mostly produced for local sale, but electronics and light-weight machinery are traded globally. Notwithstanding this obvious cross-industry difference in tradability, exports to third countries make up at most around 10% of output in Japanese foreign affiliates. Assuming that all the products are traded globally is an oversimplification. Since after-purchase services and customer supports are increasingly important for consumer durables, and as some services are efficiently provided only from proximate locations, multinational companies are likely to locate their offshore production sites so as to target local or adjacent regional markets rather than low-cost export-platform production bases.

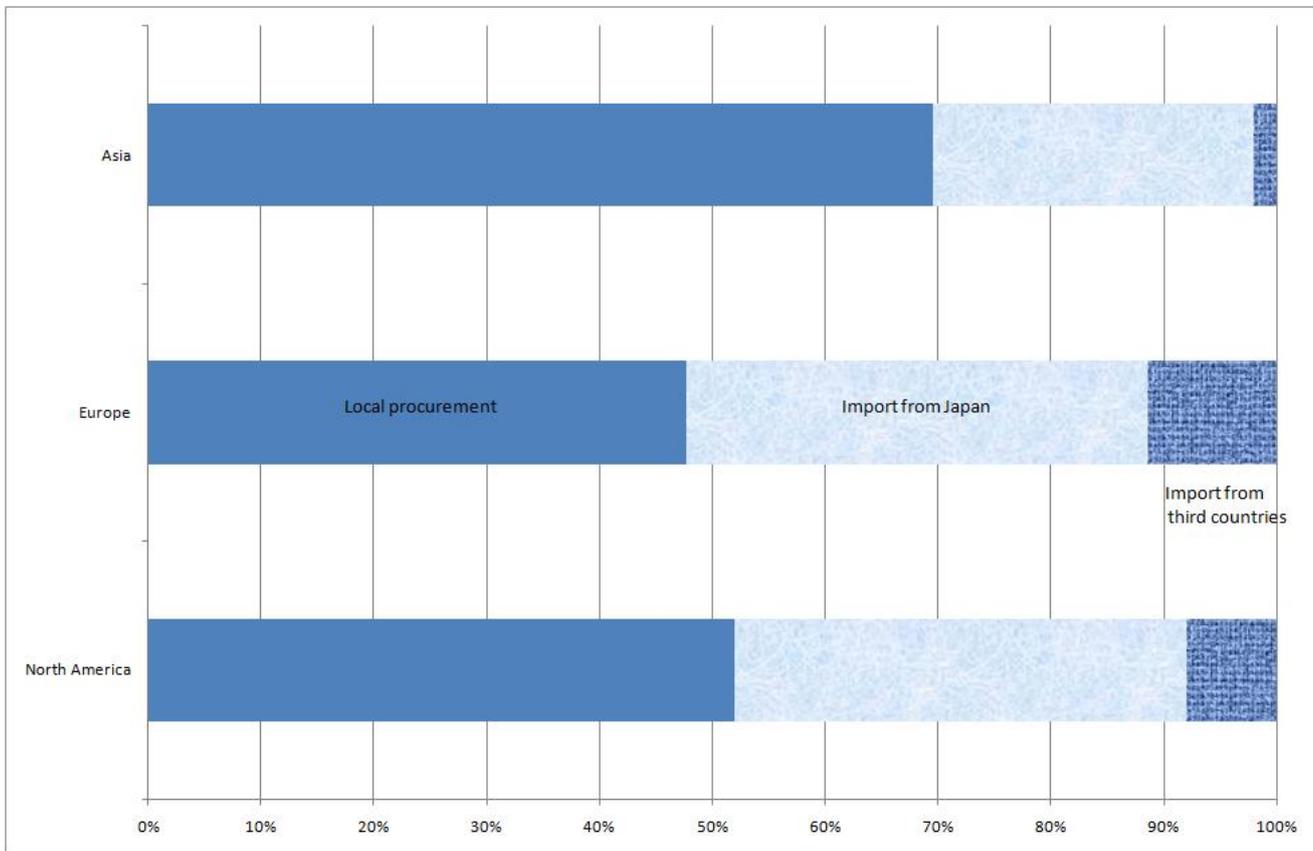
### ***International procurement by Japanese firms***

We next report the procurement side of Japanese multinationals. Figure 9 displays the percentages of different procurement sources: local procurement, import from Japan, and import from third countries. Affiliates of Japanese multinationals in North America and Europe procure roughly half of their inputs within the region, import around 40% from Japan, and import the remaining 10% from other continents/regions. Compared with these affiliates in advanced countries, Japanese offshore affiliates located in Asian countries procure 70% of their inputs within Asia (excl. Japan). The dependence on imports from Japan is at 28%, which is noticeably lower than for affiliates outside Asia (40%). Imports from sources outside Asia amount to merely 2%.<sup>11</sup> This indicates how tightly the cross-border production network in East Asia has been formed.

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<sup>11</sup> We must again recognize cross-industry variations. Asia (excl. Japan) accounts for more than 70% not only in transport equipment but also in many machinery industries. However, in industrial machinery and ICT equipment industries, Japan supplies more than 40% of inputs.

Figure 9: Sources of procurement by Japanese affiliates



Source: Survey on Overseas Business Activities, 2010, METI

This composition of input sourcing suggests that the positive impacts of offshore production in Asia on domestic employment in Japan are likely to be limited in magnitude.<sup>12</sup> The share of inputs exported from Japan has substantially decreased in procurement by Japanese affiliates located not only in Asia but also in North America during the last decade (this is not shown in the graph).<sup>13</sup> Even if we include arm's-length trade across firm boundaries, a different data source confirms that the percentage occupied by Japan in the intermediate exports to ASEAN drastically declined, from 22.9% in

<sup>12</sup> Even if final assembly lines are relocated to offshore sites, it is possible that increased export of parts and components for these offshore assembly sites offsets the negative impact on domestic employment. In East Asia, Japan played a substantial role as the key supplier of parts and components when offshore affiliates were still in their early phase.

<sup>13</sup> In Europe, the share of imports from Japan has also declined, though at a more modest pace, during the same decade.

1990 to 11.8% in 2009.<sup>14</sup> Although Japanese firms have expanded production in East Asian developing countries, their inputs are supplied heavily by other Asian economies, and no longer overwhelmingly by imports from Japan. As Japanese affiliates have matured after years of operation in ASEAN, and as China and ASEAN economies have developed, the role of Japanese exports has become less critical in the sourcing of Japanese affiliates. In the early phase of FDI, the relocation of production sites out of Japan toward East Asia resulted in expanding exports of high-tech parts and components for “screwdriver” transplants, but one can no longer expect domestic employment to increase much through this export stimulus channel. In other words, Japan is no longer the major supply center of parts and components for final-assembly plants in East Asia. In the cross-border supply chain, China, ASEAN and Japan are involved in two-way international trade of intermediates. Such international fragmentation of production processes indicates that the traditional “flying geese” pattern no longer characterizes the current state of trade in East Asia.

While we have examined the trade flows associated with FDI, Figure 10 shows how profitable the offshore affiliates are in major FDI destinations.<sup>15</sup> Japanese multinationals earn more in China than in Europe, the USA or ASEAN. However, the dominance of China over other destinations is much less impressive in this profit ordering than in volume ordering, such as production and employment.<sup>16</sup> Whether Japanese affiliates will continue to earn more from operations in China remains to be seen. Rising wages in Chinese coastal cities must be an early warning for this prospect. Whether demand in China will be saturated in the near future remains to be seen, but the situation is likely to vary across industries. . It’s also worth noting that Japanese multinationals still earn roughly comparable profits in North America and ASEAN. On the other hand, FDI in NIEs, such as Korea, is much less profitable than FDI in China or ASEAN, possibly due to intense competition from local firms.

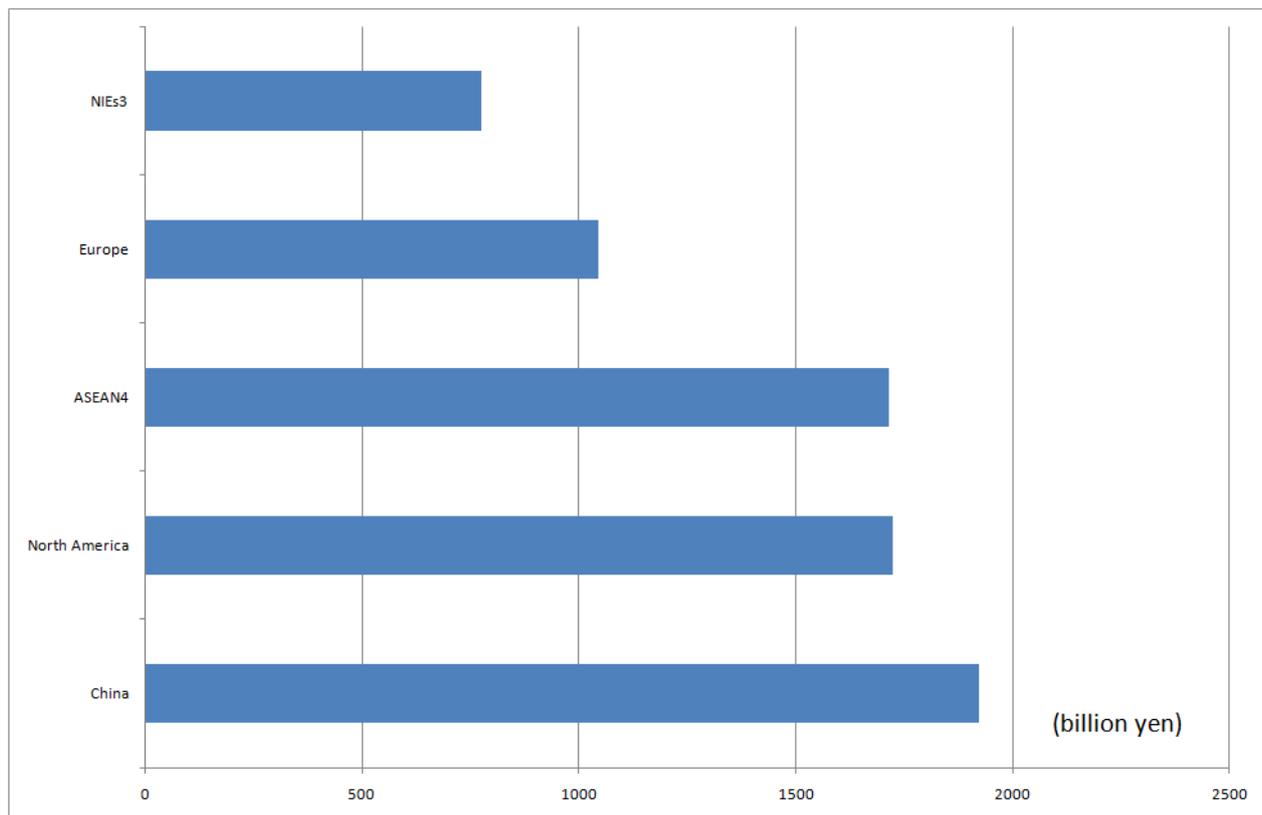
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<sup>14</sup> The percentages are reported in the White Paper on International Trade 2011.

<sup>15</sup> The current profit is defined by the operating profit plus non-operating (financial) profit before tax.

<sup>16</sup> As noted earlier, Japanese multinationals have substantially expanded offshore employment. Partly as a result, per-worker output is noticeably lower in offshore operation than in domestic operation. This difference might reflect technology choice responding to North-South wage gap, but possibly leads to differentials in profitability.

Figure 10: Current profits of Japanese offshore affiliates



Source: Survey on Overseas Business Activities, 2010, METI

### ***The impacts of Japanese offshore production on employment***

The overall trend in offshore production by Japanese multinationals has been summarized; analysis of its impact follows. Yamashita and Fukao (2010), using firm-level data, estimate the relation between domestic and offshore employment. Their regression demonstrates that employment in Japan is *positively* (not negatively) related with employment abroad at the individual firm level. This result, however, does not necessarily mean that active FDI from Japan increases domestic Japanese employment as a causal mechanism. It is practically impossible to identify which newly employed offshore worker is a replacement for a domestic worker who has been laid off. Multinational corporations assign various functions to different locations around the globe depending on local factors such as wages, technology levels and proximity to market. Offshore affiliates often perform different functions and sometimes produce different varieties of products by different technologies (different factor intensity). It does

not make any sense to find a direct substitute between offshore affiliates and domestic plants. We must be cautious in giving causal interpretation to such regression results.

As a plausible scenario behind this positive relation, active and profitable firms expand their employment at both domestic and offshore sites. In other words, employment expansions at these successful firms are consistent with employment reductions in other firms. Employment is likely to decline in firms where production activities have been relocated abroad but other functions have not been expanded in Japan, or in firms not only in import-competing industries but also firms not engaged in exporting, even in industries with comparative advantage. On the other hand, more workers are likely to be employed in firms that are profitable through low-cost offshore production and/or active in exporting intermediates, R&D and other service functions in Japan. Though the sample of their regression covers early years (1991-2002), the fundamental implications remain valid. The impact of FDI on the domestic economy is thus more nuanced than simply expressed as foreign-domestic substitution or industrial hollowing-out.

Although it is difficult to describe all the patterns of industrial relocations, the overview of employment magnitude is informative. Japanese firms employ nearly five million employees abroad, among which nearly four million are by manufacturers. While employment by Japanese multinationals has increased abroad, domestic employment in manufacturing has decreased since the 'burst of the bubble' in the early 1990s. Figure 11 displays the narrowing gap between domestic and offshore employment by Japanese firms. The number of workers employed in the manufacturing sector in Japan has declined to fewer than eight million. Although we must be cautious in comparing results from different statistics, these numbers suggest that, in terms of employment, the size of offshore operation is roughly around half that of domestic operation. However, many people are working in non-tradable service sectors and/or in small-sized firms without any offshore affiliates. Nevertheless, the sheer size of offshore activities by Japanese firms has obviously become substantial while domestic manufacturing activities in Japan have been shrinking continuously.

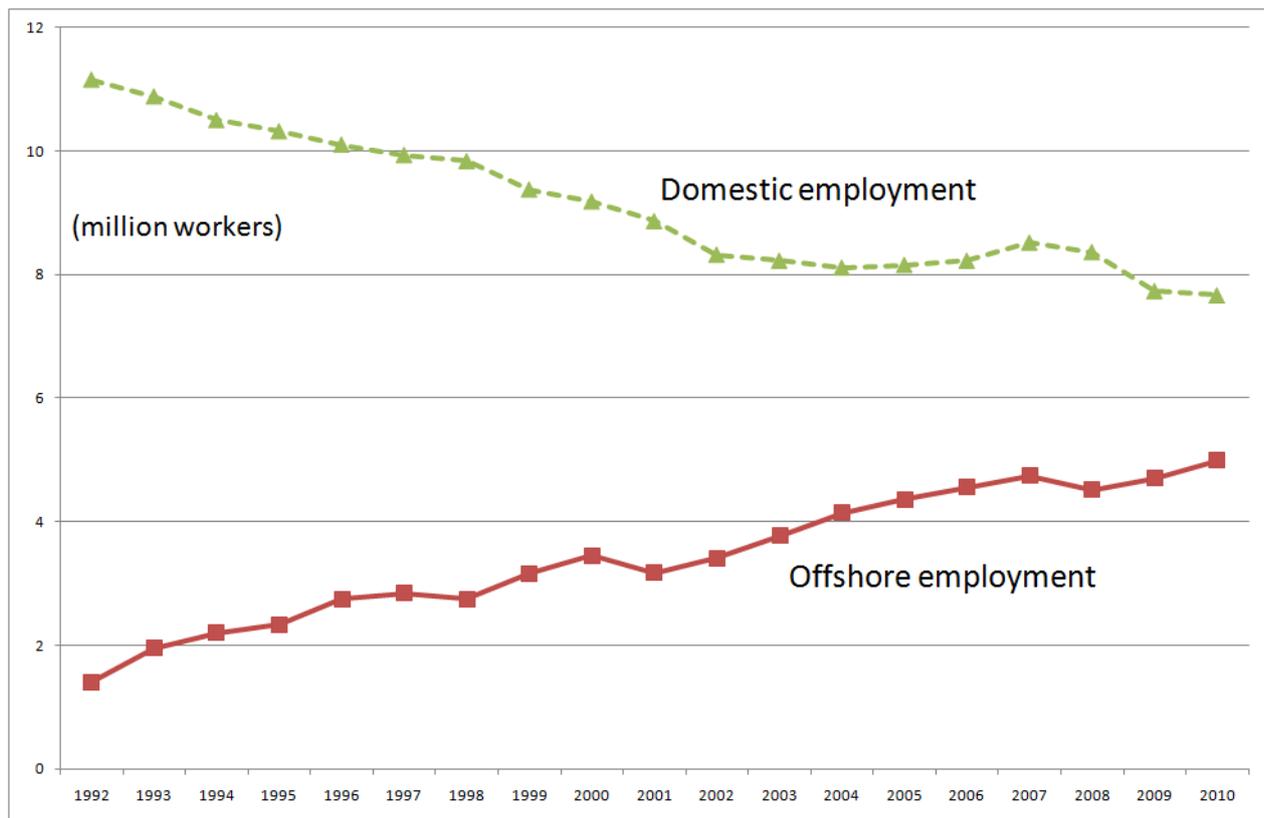
While we have discussed the impact on total employment, we need to pay attention to the obvious fact that workers are heterogeneous. The relocation of production sites out of Japan should have different effects on workers in different occupations (white-collar vs. blue-collar, production vs. non-production, skilled vs. unskilled, tradable vs. non-tradable, etc.). Production workers are likely to be most seriously exposed to the negative impact of production relocation out of Japan.<sup>17</sup> Income inequality has widened

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<sup>17</sup> Though they depend on the data of an earlier period, Higuchi and Genda (1999) find that the relocations of production to offshore locations increase gross job

in Japan in recent years. Most commentators relate the widening inequality to deregulation of the domestic labor market (most notably, more flexible employment of temporary workers). Although we have not arrived at the exact quantitative breakdown, active relocations of production to offshore sites should at least partly be responsible for this change in income distribution. Disentangling the intertwined factors behind this change, such as FDI expansion, ICT revolution, domestic deregulation, financial shocks, population ageing, and so on, is very difficult but worth investigating in future independent research.

**Figure 11: Domestic and offshore employment**



Source: Domestic employment: Annual Survey of Manufactures, METI; Offshore employment: Survey on Overseas Business Activities, METI

### ***The evolution of inward FDI into Japan***

While we have discussed the offshore expansion of Japanese multinationals, Figure 12 reports the other side of cross-border

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destruction not for white-collar workers but for blue-collar workers, based on their survey of small- and medium-sized firms.

multinational business activities: inward FDI into Japan.<sup>18</sup> Japan's ratio of inward FDI relative to GDP is remarkably low compared with other major countries. As smaller countries naturally have a higher share of FDI, all other things being equal, it is not surprising that the inward FDI share in Japan is lower than that of Korea or of small European countries. However, the share in Japan is even lower than that of large countries with only recently liberalized inward FDI, such as China and India.

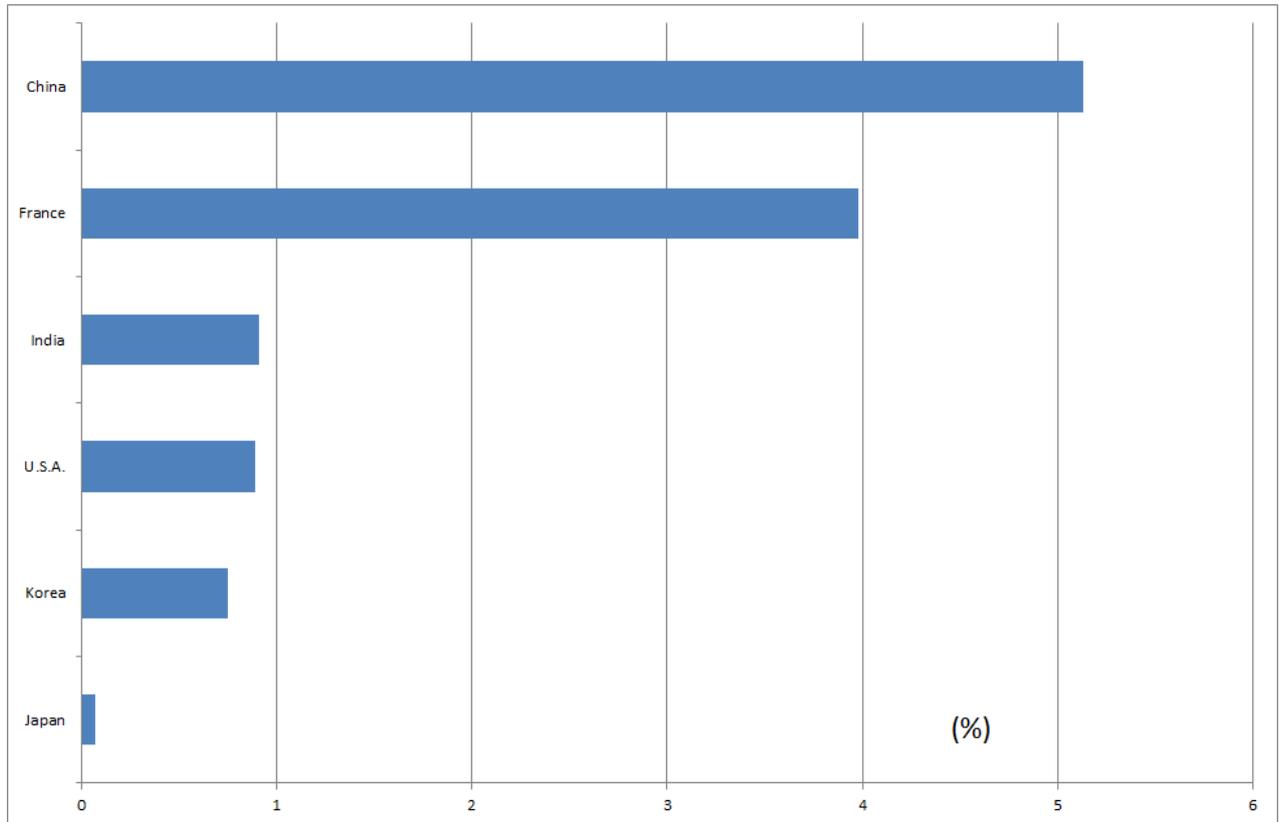
As the wage level in Japan has been among the highest in the world, and as the yen has recently been appreciating sharply amid the global financial crisis, nobody predicts the expansion of inward FDI into Japan for export-platform purpose in manufacturing. Other recent concerns following the Japanese earthquake, such as a possible shortage of electricity supply, may have aggravated the already negative evaluation of Japan as an FDI target. According to a survey by the government of Japan, firms regard Japan as an attractive country in Asia only for the purpose of R&D.<sup>19</sup> This suggests that future expansion of inward FDI into Japan will be sought in non-manufacturing, including R&D.

Although Japan had tightly regulated inward capital flows in the past, the inward FDI flow has not grown even after a series of substantial deregulations. The low level of inward FDI is no longer due to restrictions imposed by the Japanese government but to such factors as high operation costs, the highly appreciated exchange rate of the yen, stagnant domestic demand, or earthquake-provoked concerns. As inward FDI brings new ideas and superior business practices into Japan, inactive inflows will result in serious negative performance by the Japanese economy. Stimulus from European or American multinationals, especially in the traditionally inefficient commerce and finance sectors, will contribute to reorganizing and streamlining these sectors in Japan. We have observed several success stories since the 'burst of the bubble'. For example, Nissan has revived after being partly acquired by Renault, and several financial institutions resumed activities after being acquired by foreign investment funds. The role of foreign entrepreneurs will become even more important for Japan's economy/society as the Japanese population, especially that of the younger generations, continues to decline.

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<sup>18</sup> The percentage is defined by inward FDI flow divided by GDP in 2005. In 2010, Japan recorded negative inflow (withdrawal of capital out of Japan surpassing inward FDI); international comparison is inappropriate for our purpose.

<sup>19</sup> This survey result is reported in the White Paper on International Trade published by METI in 2011. Japan is never ranked at the top, but ranked in second place for R&D sites.

**Figure 12: International comparison of inward FDI**

Source: Percentage of GDP, 2005, derived from database of Japan's Institute for International Trade and Investment

# Offshoring and Outsourcing: New Modes of Globalization

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## *The trends in offshore outsourcing in goods*

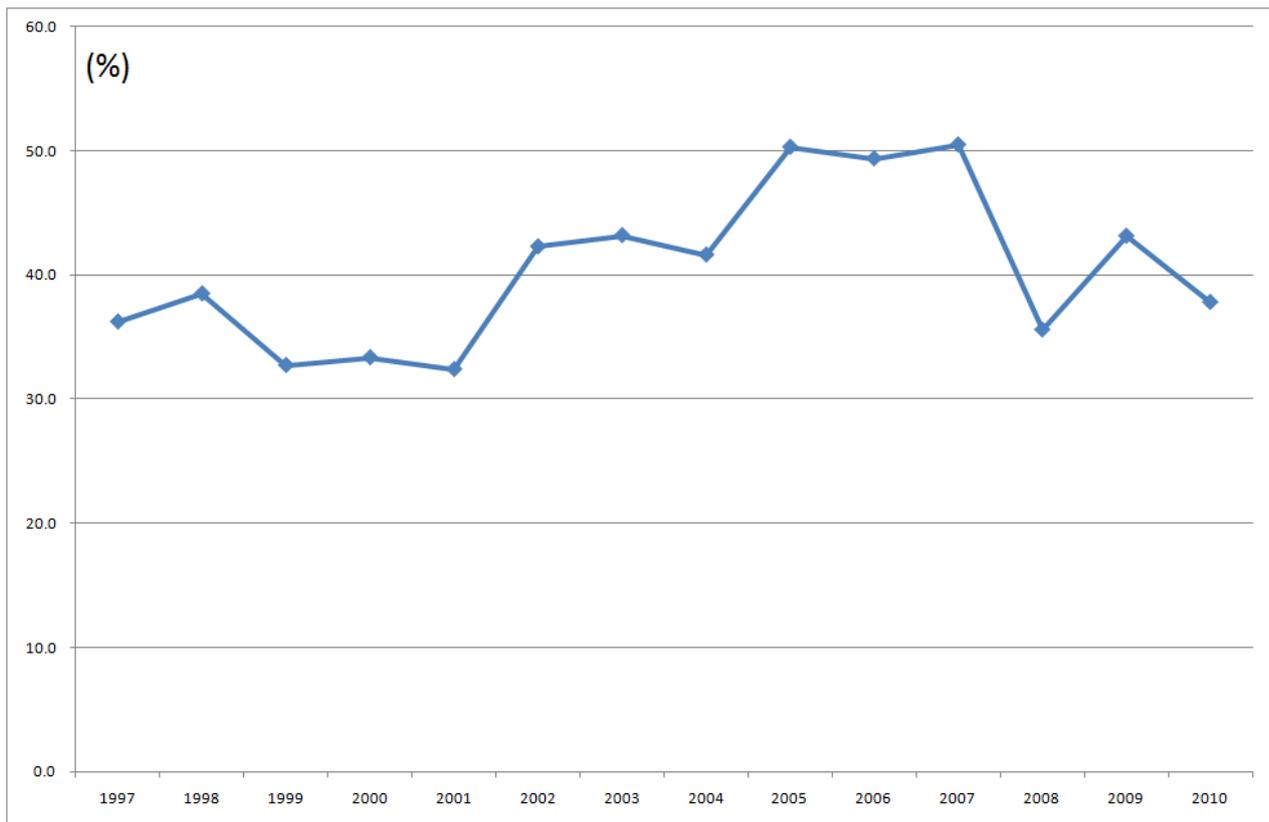
The previous section reports the expansion of outward FDI by Japanese manufacturing firms. This induces us to examine how expanding FDI changes international trade flows. Figure 13 displays the intra-firm trade ratio, which is defined by the percentage of trade within multinational companies (international trade between the parent company and its offshore affiliates located in different countries). As shown by the graph, the ratio remains stable over the years, without any discernible upward or downward trend. The growth of outward FDI combined with this stable intra-firm trade share indicates the expansion of arm's-length trade, i.e. trade not only across national borders but also across the boundaries of firms. Increased international trade flows do not result exclusively from trade within multinational corporations; they are also driven by expanding trade between independent firms without relations of ownership. In other words, expanding FDI coupled with expanding international trade does not mean that large-sized multinational corporations established by FDI dominate international trade flows through their intra-firm trade. We need to look at offshore outsourcing as an important mode of globalization.

Even before the arrival of the current wave of globalization, many large firms in industrialized countries have long been involved in transactions with other independent firms. In Japan, large-sized final assemblers of automobiles and consumer electronics have been actively purchasing specialized intermediate parts and components from small-sized independent input suppliers in proximate locations within Japan. These suppliers are typically not owned by the assemblers.<sup>20</sup> The production process of a particular product is not contained within a single firm but performed by multiple independent firms.

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<sup>20</sup> The Japanese business groups linked with cross-sharing of ownership, traditionally known as keiretsu in Japanese, no longer characterize most Japanese firms. Many firms have reduced cross-sharing of stocks faced with financial pressure after the burst of the Japanese bubble. Besides, the percentage of foreigners among stock owners has persistently risen over the years in Japan.

Figure 13: Intra-firm trade ratios



Source: Intra-firm exports: Survey on Overseas Business Activities, METI; Total exports: Trade statistics, MoF

Outsourcing, which was synonymous with domestic outsourcing in the past, now includes offshore outsourcing, facilitated by trade liberalization and ICT development. Figure 14 shows the percentage of imports in total intermediate demand for manufacturing in G5 countries plus China. While Japan's intermediate import ratio is lower than for any other countries in the graph, even in Japan the growth of input import outpaced the expansion of total input demand. The current level of intermediate import ratio in Japan is as high as that in the USA a decade ago. While China's growth in exports of final products is impressive, the intermediate import ratio has noticeably risen in China since the turn of the century. The supply of advanced parts and components from Japan will be partly accountable for this rise.

This expansion of input trade is observed with the fragmentation of the production process across national borders. In East Asia, the share of parts and components has steadily risen over

the past three decades, from 5% to around one-third.<sup>21</sup> Trade liberalization is one of the driving forces for the surge of this new form of international division of labor, as tariff burdens are heavier for input trade, which crosses national borders more than once before delivery to final consumers. As intermediate parts and components will often be designed to meet the specialized requirements of the final assembler, intensive assembler-suppliers contacts are necessary.<sup>22</sup> The three-dimensional computer-aided design (CAD) system combined with the high-quality, low-cost international communication system should immensely facilitate the spread of international outsourcing. Improvement in the technological capability of input suppliers overseas, especially in neighboring East Asia, is obviously another factor supporting the expansion of international outsourcing by Japanese firms. Many Japanese manufacturers have an established reputation for supplying high-quality intermediates, but recently Japan has increased not only exports but also imports of intermediate inputs, possibly linked with international outsourcing.

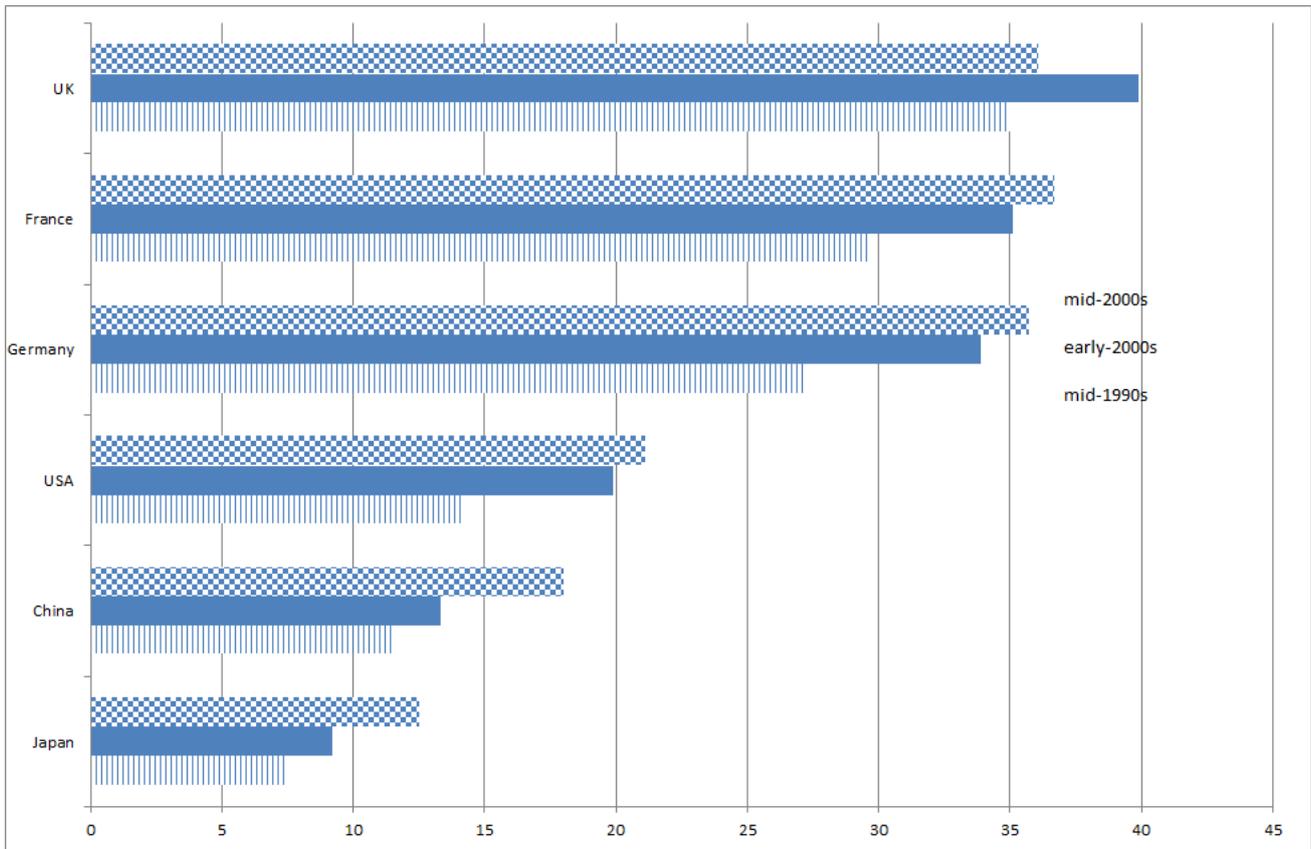
This switch toward imports appears to be accelerated by the recent great earthquake. According to a survey by JBIC (2011), in 80% of firms the area where the earthquake caused most serious damage was procurement of parts and materials. More firms reported damage to input purchases than to domestic sales or distributions. The measure taken most frequently after the earthquake was multiplying supply sources, which implies that most Japanese firms switched from exclusively domestic sourcing to domestic as well as offshore sourcing. In fact, in the JBIC survey sample, 22.5% of firms changed to foreign suppliers (e.g. Korean in automobiles, Chinese and Taiwanese in electronics). Furthermore, 26% of them planned to continue procuring from foreign suppliers. Thus, this trend toward cross-border sourcing appears irreversible. Furthermore, as they need to manage various risks other than earthquakes, already globalized firms need to diversify foreign sources, from a general concentration on China to other countries. Rising wages in Chinese coastal cities, expanding markets in newly emerging economies and other unpredictable social factors are likely to promote this diversification.

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<sup>21</sup> On the other hand, materials and consumer goods declined in share in the 1980s and 2000s. These statistics are from Japan's White Paper on International Trade 2012.

<sup>22</sup> Tomiura (2003) finds that import penetration appeared to weaken regional input-output linkages and to disperse industrial agglomeration in Japan during the yen appreciation after the Plaza Accord.

Figure 14: Intermediate import ratios



Note: The ratio is defined by intermediate import divided by total intermediate demand (%). The exact timing of measurement varies across countries.

Source: OECD STAN Input-output database

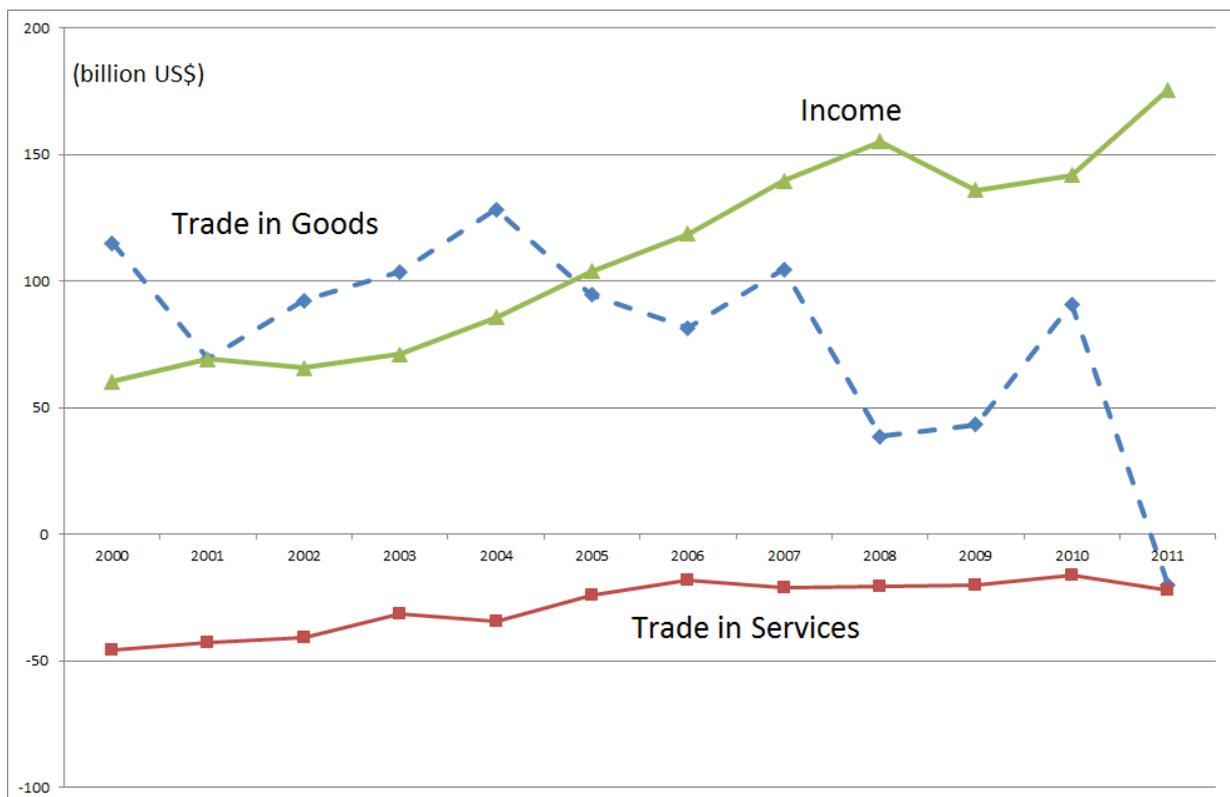
## Offshore outsourcing in service trade

While we have reported the trend in input trade, the activities offshored are not limited to production of intermediates. In the USA, offshore outsourcing of software programming to India provoked political reaction. The operation of call centers is another prime example of offshoring. Even in Japan, sheltered from international competition by its unique language, more firms are offshoring electronic data-entry tasks to independent suppliers in China, where many written characters are shared. Therefore, the share of imports in intermediate demand, as shown in Figure 14, fails to deliver a correct overall representation of current offshoring.<sup>23</sup>

<sup>23</sup> In spite of this limitation, the intermediate import share has been widely used as a proxy for offshoring. This is partly due to easy international comparability based on

We need to evaluate the share of service trade in Japanese international trade, or cross-border transactions broadly defined. To understand Japan's external balance in a wider perspective, Figure 15 breaks down the current account into three parts: (i) trade in goods, (ii) trade in services, and (iii) income account (mainly from foreign investment). The most impressive trend in the last decade is the shift from goods trade to investment income. While large trade surplus in goods was a politically hot issue in international trade disputes during the 1980s and the 1990s, Japan's trade surplus in goods has substantially shrunk in the last decade. Excepting the most recent year, Japan's international trade has continuously recorded a surplus in trade of goods since the oil price hikes during the 1970s. However, Japan has always been in deficit in service trade. While it has approached balance, the trade in services remains in deficit. The overwhelming share of capital inflows into Japan is no longer through earnings from net export of goods but instead through income from past investment stocks accumulated abroad.

Figure 15: Breakdown of Japan's current account balance



Source: Balance of Payments Statistics, MoF

wide availability of international trade data, combined with input-output tables. Another problem associated with use of the input import ratio is the inclusion of standardized inputs purchased at marketplace, which deviates from the original meaning of "outsourcing".

As more firms will further relocate their production toward offshore sites in the future, nobody expects that Japan's trade surplus in goods will rebound back to the previous high level. In service trade, the deficit will continue to shrink as the export of technologies from Japan will keep rising, based on Japanese advantages in technology development. However, it is still unpredictable whether Japan can record trade surplus in services in the near future. Consequently, its future capital availability will critically hinge on the profitability of the offshore business activities of past FDI stocks. Japan's dependence on offshore capital will become even more important as the domestic saving rate will continue to decline with an ageing population and as the fiscal deficit has already been accumulated to an unprecedented level.

We should not ignore service trade even when we discuss the Japanese economy. Although the trade deficit in technologies (e.g. net payment of licensing or patent royalty) has narrowed, the imports of other forms of services (e.g. tourism, financial services) still sizably exceed their exports.<sup>24</sup> As many service activities are sheltered from international competition due to language barriers (especially in the Japanese case), the impact of expanding offshore outsourcing on Japan's balance of trade in services remains to be seen.

Although only a limited fraction of Japanese firms are involved in offshoring (7% of manufacturing offshoring production and 4.5% of offshoring services), the impacts should not be underestimated.<sup>25</sup> Even if the number of active firms is still limited, some large firms might be offshoring a wide range of corporate activities on a large scale. A further point is that manufacturing firms (firms categorized as those belonging to manufacturing industries in official statistics) perform various non-manufacturing activities, such as research, information processing, customer support, logistics, and legal/financial services. Japanese manufacturing firms export 2.5 trillion yen and import one trillion yen of services.<sup>26</sup> Even if we concentrate on manufacturing firms, we should include non-manufacturing tasks in discussing the impact of globalization on employment.

As the data availability for offshoring and outsourcing is limited, the analysis of its impact has been scarcer than for trade and FDI. Within this data constraint, Tomiura (2007) reports, based on firm-level data for 118,300 Japanese manufacturers, that offshore

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<sup>24</sup> The shrinking deficit in technology trade does not necessarily indicate Japan's improving technological advantages, because technology exports from Japan are likely to increase in intra-firm exports to offshore affiliates, accelerated by expanding FDI. While this is an interesting theme, it is impossible to disentangle intra-firm technology trade in the publicly available balance of payments statistics.

<sup>25</sup> The percentages are from the Basic Survey of Business Structure and Activities at 2009.

<sup>26</sup> The figures are from the Basic Survey of Business Structure and Activities at 2010.

outsourcing firms are larger and substantially more productive than domestic firms (firms engaged neither in exporting, outsourcing or FDI). Among globalized firms, FDI firms are larger and more productive than outsourcing firms and exporting firms.<sup>27</sup> This pecking order suggests differentials in entry costs across various globalization modes. While the reverse causality (firms becoming larger and more productive after offshoring due to learning or restructuring) is theoretically possible, the self-selection story (larger and more productive firms selected into global activities) has been supported for other globalization modes (exporting and FDI).

## ***Future choices in terms of outsourcing and opportunities***

The firm-level data examined by Tomiura (2007) also show that only a limited fraction (merely 3%) of Japanese firms are active in offshoring, though later studies focused on large firms naturally show higher participation rates.<sup>28</sup> This limited current participation in offshoring at the same time implies ample future offshoring opportunities for the Japanese economy. The gains from offshoring (sufficiently high-quality inputs available at substantially lower costs) will become further realized in the Japanese economy if the spread of new technologies for inexpensive, high-quality international communications, for example, helps Japanese small-sized firms to overcome non-negligible fixed entry costs for offshoring (e.g. language barriers).

As high-quality, low-cost ICT has become available to a wider range of firms, including small-sized enterprises, the variety of tasks outsourced to suppliers located abroad will naturally be increasing. Production costs, especially wages, are high and will become even higher in Japan as the working-age population continues to decline. The important question is whether almost all the tasks previously performed in Japan will be offshored in the near future. Obviously, certain categories of tasks delivered face-to-face or *in situ*, such as catering, nursing and construction, cannot be offshored. The relevant issue, then, is the offshorability of manufacturing tasks.

Among manufacturing tasks, R&D-intensive tasks are relatively difficult to be offshored. It is easy to offshore simple and standardized tasks, but complicated tasks with uncertain outcomes are difficult to be contracted upon and to be monitored from remote locations, especially across national borders with different legal

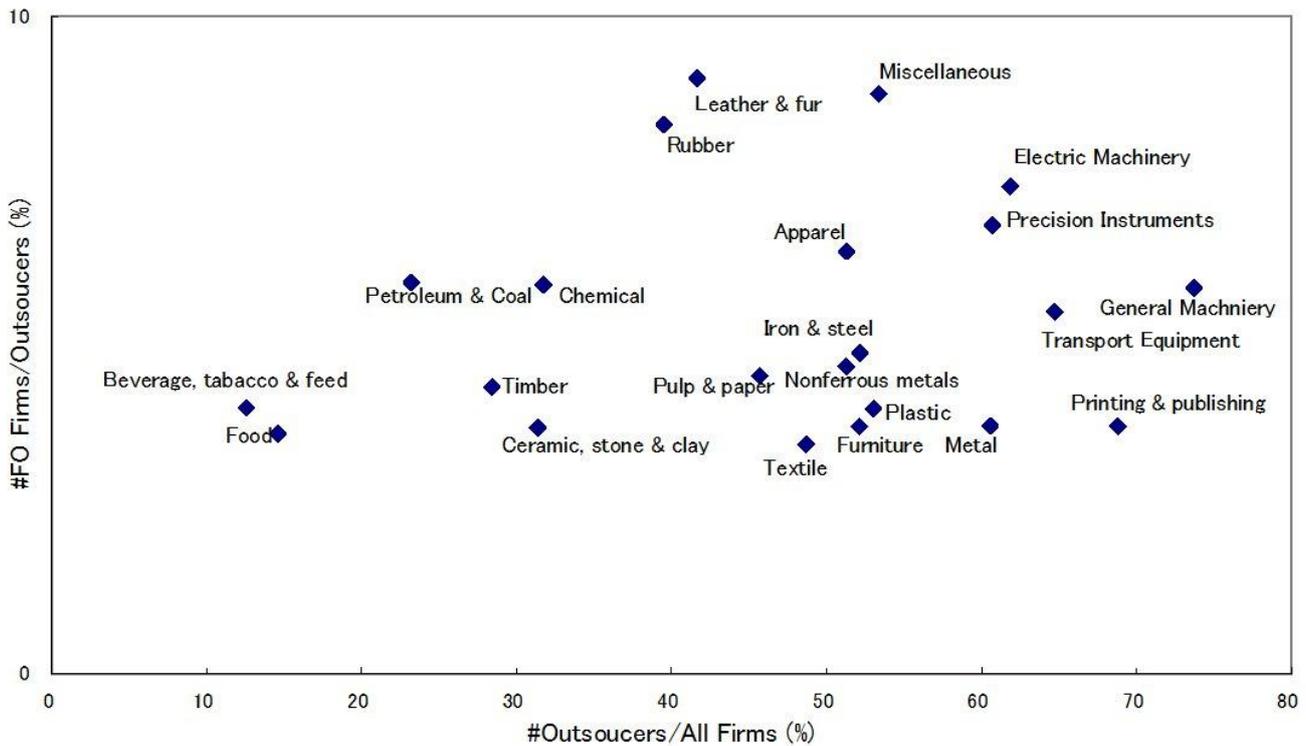
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<sup>27</sup> The finding is confirmed to be robust irrespective of industry, firm-size class, capital intensity intervals, and productivity measures.

<sup>28</sup> Tomiura (2007) covers small firms without any firm size threshold, but concentrates on the offshoring of production, excluding service offshoring, in 1998.

systems. We know that many automobile manufacturers are outsourcing, but within the home country (e.g. Toyota surrounded by local suppliers), while outsourcing to low-wage countries is active in apparel, rubber and leather industries (e.g. Nike outsourcing around the world). This cross-sectional contrast appears consistent with our prior observation on R&D effect. Figure 16 displays how industries differ in their extent of offshore versus domestic outsourcing. The horizontal axis measures the percentage of outsourcers (offshore and domestic combined), while the vertical axis measures the percentage of offshore outsourcers in total outsourcers. Transport equipment and general machinery industries are actively outsourcing, but mostly within the home country, while the apparel, leather and rubber industries are actively outsourcing across national borders, possibly to low-wage countries. This industrial contrast obviously indicates the role of technological complexity or R&D intensity in the choice of offshore versus domestic outsourcing.

Figure 16: Foreign and domestic outsourcing



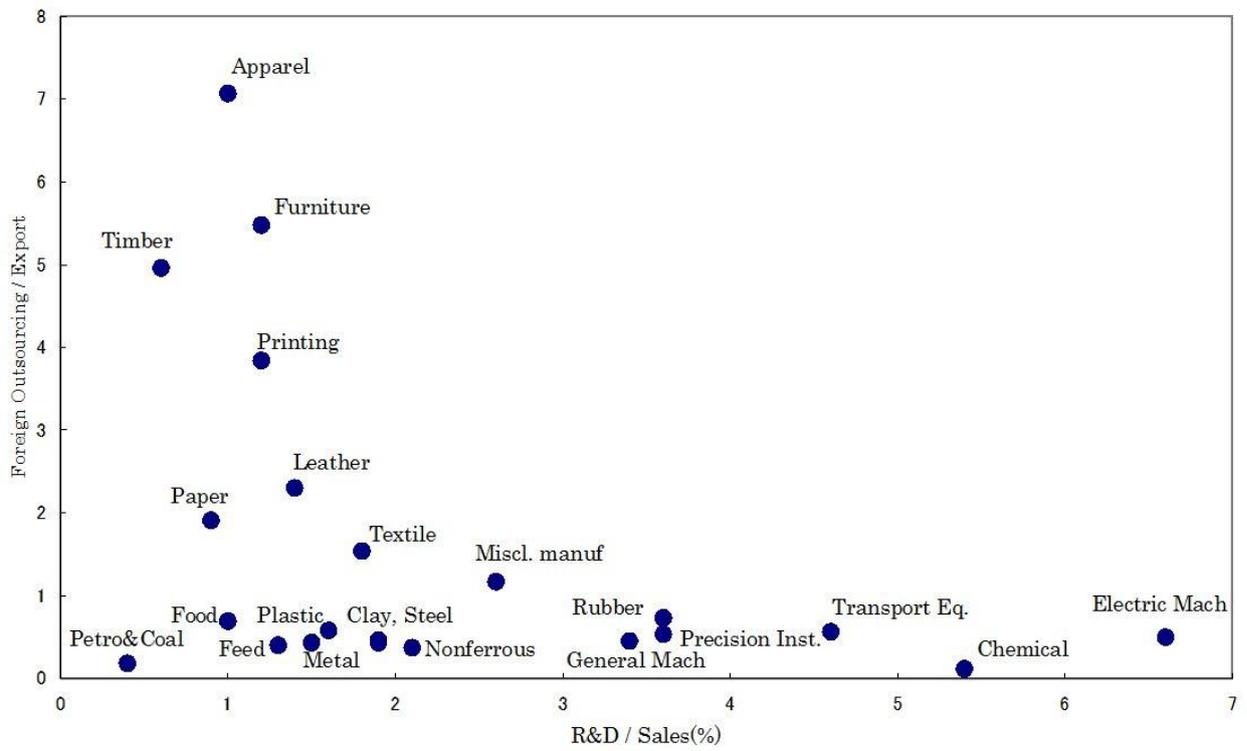
Notes: The horizontal axis shows the percentage of outsourcing firms (foreign and domestic combined), while the vertical axis measures the percentage of foreign outsourcing firms among total outsourcing firms. Percentages are within each industry. This graph was originally presented as Figure 1 in Tomiura (2009).

Using disaggregated firm-level data, Tomiura (2009) shows that R&D-intensive firms tend to prefer domestic outsourcing to offshore outsourcing. This finding is based on firm-level data covering all manufacturing industries and after controlling for basic firm characteristics. These empirical findings suggest that R&D-intensive activities remain performed in Japan, even if the cross-border outsourcing of various tasks will expand in the future. We will certainly have to reconsider the impact on R&D offshoring if protection of intellectual property rights is sufficiently enhanced in China, but, in the near future, offshoring will continue to concentrate on simple and standardized manufacturing tasks and limited categories of services easily delivered via the Internet. As all workers in Japan are not well suited to jobs in research laboratories, we need to look at the distributional consequences of expanding offshoring.

If we expand our scope to the long-run impact of offshoring on domestic employment, we need to consider technological changes. As Viner once proposed in his product cycle theory, new products require innovation but the same products can later be produced in developing countries at lower cost as production technologies mature and become standardized. Based on the firm-level data of 118,300 manufacturers, Tomiura (2008) finds that firms producing in and exporting from Japan are on average more R&D-intensive than firms producing in Asian developing countries based on FDI, followed by firms outsourcing across national borders (typically to low-wage countries). This ordering in R&D intensity is consistent with the product cycle theory.

Figure 17 confirms this firm-level result by comparing industries. R&D-intensive industries (such as electric machinery, chemical, and transport equipment) have fewer outsourcers (compared with the number of exporters), while many firms in the apparel industry are actively outsourcing offshore. This graph again indicates that R&D-intensive activities will remain in Japan even if we consider long-run trends, such as product cycles.

Figure 17: R&D and outsourcing



Notes: The vertical axis measures the percentages within each industry in terms of the number of firms. This graph was originally presented as Figure 1 in Tomiura (2008).

## Concluding Remarks

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This paper surveys recent trends in the globalizing Japanese economy. The share of international trade, both export and import, has begun to rise during the last decade, but recent turbulences caused by the global financial crises (originated in the USA and the Euro area) and the great earthquake in Japan prevent us from identifying new trends. Although it is practically impossible to predict the future, especially in exact magnitudes, it is certainly clear that Japanese firms no longer predominantly produce at home and export to US or European markets, but produce largely in East Asia within tightly linked production-trade networks, and increasingly for regional demand. This change results in shrinking manufacturing employment in Japan, though firms that are actively expanding offshore employment tend to be successful also in retaining domestic employment. The opportunities and threats of service offshoring for the Japanese economy remain to be seen.

While the industrial hollowing-out has provoked social concerns and political reactions, we need to be careful in discussing policy interventions in the globalization trend. As reported by Okubo and Tomiura (2012), Japanese industrial policies succeeded in relocating manufacturing plants from congested core regions to relatively undeveloped peripheral regions within Japan, but failed to attract productive plants. Although the impact was found to be minor in magnitude, their finding suggests that the policy measures have not narrowed the core-periphery productivity gap in Japan. The reason behind this unpleasant result is that the firms most attracted by relocation policy incentives are those unsuccessful in competitive cores. While we should not jump to the conclusion of industrial hollowing-out, the policy measures intended to attract manufacturing plants to domestic sites are likely to attract unproductive plants among Japanese business. We need to seriously consider such possibly perverse effects of relocation policies on productivity. As the population of Japan continues to decline, what we should care for in the long run is the productivity of the national economy rather than the sheer size of domestic employment.

As suggested by our previous research results, R&D-active firms will continue to source R&D-intensive tasks mostly from domestic suppliers, often located close to each other. On the other hand, labor-intensive goods and standardized tasks will be increasingly imported physically or delivered via the Internet from low-wage countries. As it is also the key in enhancing productivity, the

role of innovation will become even more critical for Japanese manufacturing in particular and the national economy in general. In discussing policies concerning the survival of the globalizing Japanese economy, we need to expand our scope from narrow industrial and trade policies to a wider range of policies, such as fiscal discipline, human capital formation, and protection of intellectual property rights.

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