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**ITO Takatoshi**  
RIETI

**KOIBUCHI Satoshi**  
Chuo University

**SATO Kiyotaka**  
Yokohama National University

**SHIMIZU Junko**  
Gakushuin University



The Research Institute of Economy, Trade and Industry  
<http://www.rieti.go.jp/en/>

## **Choice of Invoice Currency in Japanese Trade: Industry and commodity level analysis<sup>1</sup>**

ITO Takatoshi<sup>2</sup>, KOIBUCHI Satoshi<sup>3</sup>, SATO Kiyotaka<sup>4</sup> and SHIMIZU Junko<sup>5</sup>

### Abstract

This paper develops the estimation method of the choice of invoice currency at a detailed commodity level by using the export and import price indices published by the Bank of Japan (BOJ). The new evidence is presented on the industry and commodity level differences of the invoice currency choice from 2000 to 2015. It is found that highly differentiated products such as production machinery equipment tend to be invoiced in yen in Japanese exports. While the recent increase in Japanese imports of electronics products has likely increased the share of yen-invoiced imports, the share of U.S. dollar invoicing is larger than that of yen invoicing. Despite growing economic interdependence between Japan and Asia, the U.S. dollar is still a dominant invoice currency in Japanese trade.

*Keywords:* Invoice currency, Japanese trade, Pricing-to-market (PTM), Exchange rate pass-through

*JEL classification:* F23, F31, F33

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<sup>2</sup> Columbia University and RIETI

<sup>3</sup> Faculty of Commerce, Chuo University

<sup>4</sup> (Corresponding author) Department of Economics, Yokohama National University (sato@ynu.ac.jp)

<sup>5</sup> Faculty of Economics, Gakushuin University

## 1. Introduction

Exporter's price setting and currency invoicing practices have important implications for transmission of macroeconomic shocks among countries. Indeed, many papers have examined the firms' pricing and invoicing behavior in response to, or in anticipation of, the exchange rate changes, but there have been only a small number of papers written with empirical investigation. Although the aggregate data are available in some countries, they are not sufficient for a rigorous empirical examination. In particular, detailed data and information on the choice of invoicing currency by industry/commodity and by destination/source country have not been collected, published or disclosed, with only a few exceptions.

There are three strands of empirical studies on the invoicing currency choice. The first strand of research is to conduct a cross-country analysis of the invoicing currency choice by collecting as many information as possible on the share of currency invoicing at a country level (Goldberg and Tille, 2008, Kamps, 2006). Second, Goldberg and Tille (2009) utilize the highly detailed Canadian import data at a customs level spanning from February 2002 to February 2009 with rich information on the source country, invoice currency, and value of transactions, etc. The determinants of invoicing currency choice in Canadian imports are empirically tested using a large number of observations. It is difficult, however, to follow the approach of Goldberg and Tille (2009) because such a highly detailed customs level data is rarely available. Third, Friberg and Wilander (2008) conducted a questionnaire survey analysis on Swedish exporting firms and tested empirically determinants of currency invoicing. This approach was innovative to obtain the detailed data at a firm level.

Due to the limitation of the data availability, however, these studies fail to analyze the changing pattern of the choice of invoice currency at an industry or a detailed commodity level over the longer sample period. Since the aggregate data are readily available, this paper summarizes the data on the choice of invoice currency in Japanese trade with three major regions: the United States, European Union (EU) and Asia, although it is hard to obtain far more breakdown data by destination/source country. Moreover, commodity breakdown data on the choice of invoice currency are not available at all.

The novelty of this paper is to develop the estimation method of the choice of invoice currency at a detailed commodity level by using the export and import price indices published by the Bank of Japan (BOJ), and to present the new evidence of the changing pattern of the invoice currency choice from 2000 to 2015 at a detailed

commodity level. The goal of this paper is to draw policy implications for the Japanese firms' pricing decision by investigating differences and changes in the industry/commodity breakdown share of invoice currency in Japanese exports and imports.

The remainder of this paper is organized as follows. Section 2 overviews the choice of invoice currency in Japanese exports and imports by using the aggregate data. Section 3 shows the estimation method of the choice of invoice currency at a commodity level by using the BOJ export and import price indices. Section 4 presents the empirical evidence on the industry/commodity level difference of the choice of invoice currency. Finally, Section 5 summarizes the empirical findings and draws policy implications for the pricing strategy of Japanese exporters and importers.

## **2. Choice of Invoice Currency in Japanese Trade: 1980–2015**

It is generally hard to collect the detailed data on the choice of invoice currency in exports and imports, but Japan is an exception. Japanese governmental agency has published the data on the share of invoice currency in Japanese exports and imports. The purpose of this section is to show the changing pattern of the invoice currency choice in Japanese exports and imports by observing the published data.

### **2.1 Share of Invoice Currency in Japanese Exports and Imports<sup>1</sup>**

Japanese governmental agency has published the data on the share of invoice currency in Japanese trade. Ministry of Finance (MOF) semi-annually publishes the share of invoice currency in Japanese exports and imports.<sup>2</sup> Although industry breakdown data is not available, we can get information on the choice of invoice currency in trade with four destinations and sources: the world, the United States, European Union (EU) and Asia.

#### ***Invoice Currency Choice in Japanese Exports***

Figure 1 shows how the choice of invoice currency in Japanese exports has changed from 1980 to 2015. First, the share of yen invoicing in exports increased after changing the foreign exchange related laws in 1980, i.e., the amendment of Foreign

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<sup>1</sup> This section mainly relies on Ito, Koibuchi, Sato and Shimizu (2012).

<sup>2</sup> The data is available from the website of the Trade Statistics of Japan from the second half of 2000 (<http://www.customs.go.jp/toukei/shinbun/trade-st/tuuka.htm>).

Exchange and Foreign Trade Control Act (FEFTCA) of 1980. Figure 1 shows that, in Japanese exports to the world, the share of yen-invoicing transactions rose from 28.9 percent in 1980 to 42.0 percent in 1983. But, after 1983, the share of yen invoicing declined to 33.4 percent in 1987, even though further liberalization was put into practice in 1984.<sup>3</sup> Why did such liberalization policy fail to promote the further use of the yen in Japanese exports? The fall of the yen invoicing share from 1983 is generally attributed to the PTM strategy of Japanese exporters.<sup>4</sup> Specifically, during a rapid appreciation period of the yen against the U.S. dollar from 1985 to 1987, Japanese firms are said to have stabilized the selling price in the local (U.S.) market by invoicing in U.S. dollars in order to maintain their own market share. From the mid-1980s to 2015, however, the share of yen invoicing has stayed within a narrow range from 33 to 41 percent in Japan's exports to the world, even though further liberalization, the Japanese Big Bang, was put into force in April 1998.<sup>5</sup> The above observation suggests that the Japanese government's policy of financial liberalization for yen internationalization in practice failed to promote the use of the yen in trade transactions.

Second, Japanese currency invoicing pattern differs across destination countries (regions). The destination breakdown data in Figure 1 provides us with more interesting evidence, though the data is available only from 1987. The share of yen invoicing is very low in exports to the United States, which may reflect a special position of the U.S. dollar as an international currency (Tavlas and Ozeki, 1992). As of 2015, 88.3 percent of Japanese exports to the United States are invoiced in U.S. dollars. In exports to the Euro area, the share of yen invoicing has declined from 44.0 percent in 1987 to 30.1 percent in 2015. Although not reported in Figure 1(c), 49.6 percent of Japanese exports to EU were invoiced in euro as of 2015.<sup>6</sup> The above observation strongly suggests that Japanese firms tend to choose local currency invoicing in exports to advanced countries, which is consistent with the PTM behavior of Japanese exporting firms.<sup>7</sup>

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<sup>3</sup> The real demand principle was abolished in April 1984 and the restriction on so-called "yen conversion" was abolished in June 1984. See Appendix for details.

<sup>4</sup> See Krugman (1987), Marston (1990, 1991) and Tavlas and Ozeki (1992).

<sup>5</sup> The revised Foreign Exchange and Foreign Trade Law in April 1998 brought the first major step of the Japanese "Big Bang" by deregulating domestic and foreign capital transactions and foreign exchange operations in principle, which largely affected Japanese firms' exchange rate risk management.

<sup>6</sup> If including the UK pound and Swedish krona, the share of local currency invoicing in Japanese exports to EU amounts to 56.1 percent in the second-half of 2014. See the website of the Trade Statistics of Japan (<http://www.customs.go.jp/toukei/shinbun/trade-st/tuuka.htm>).

<sup>7</sup> For an empirical analysis of the PTM behavior and the exchange rate pass-through in Japanese exports, see Knetter (1989, 1992), Marston (1990), Takagi and Yoshida (2001) and Parsons and Sato (2008).

Third and more importantly, the share of yen invoicing has not increased for the last twenty-eight years in Japanese exports to Asia. Specifically, the share of the yen rose to about 50 percent or more in the early 1990s and in the first-half of 1990s. But, the share of the yen declined to a large extent from 49.2 percent in 2010 to 43.2 percent in 2015, while the share of the U.S. dollar increased from 48.7 in 2010 to 52.2 in 2015. Now, the share of U.S. dollar invoicing largely exceeds that of yen invoicing (Figure 1(d)).

Such an invoicing pattern is puzzling, because until around the mid-1990s, when a question of the internationalization of the yen was lively debated, it was generally conjectured that the use of the yen as the invoice currency would be growing in Asia if intra-firm trade increased between Japanese parent companies and local subsidiaries through active foreign direct investment in Asia by Japanese firms.<sup>8</sup> In particular, as most exports from Japan to Asia were regarded as capital goods and differentiated products, the share of yen invoicing was expected to increase steadily.

Figure 1(d) clearly shows, however, that the share of yen invoicing has not increased from 1990 to 2015, even though Japanese firms have built a regional production network during that period. Instead, the U.S. dollar has been used more than the yen in Japanese exports to Asia. To get a clue to understanding of this puzzling pattern of the invoicing choice in Japanese exports, it is necessary to obtain the detailed data on the invoice currency in Japanese exports both by commodity/industry and by destination.

### ***Invoice Currency Choice in Japanese Imports***

Let us turn to the share of invoice currency in Japanese imports. Figure 2 shows the share of the yen and the U.S. dollar in Japanese imports from 1980 to 2015. First, in Japan's imports from the world, the share of yen invoicing increased gradually from 2.4 percent in 1980 to 25.5 percent in 2002, but it declined to 20.8 percent in 2014. In 2005, the share of yen invoicing imports percent. Second, the U.S. dollar is the most used currency in Japanese imports and its share is 69.8 percent in 2015. It is well known that trade of crude oil and raw materials tends to be invoiced in U.S. dollars. Indeed Japan has long been dependent heavily on imports of oil and raw materials, but Japanese import pattern has structurally changed in recent years with a substantial increase in procurements of manufactured products from Asian countries. As the regional integration has been deepening and production network has been developed

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<sup>8</sup> Kawai (1996), for instance, pointed out that the international use of the yen would naturally grow as Japan's economic interdependence with Asia deepened through intra-industry trade, foreign direct investments and various types of financial flows.

further by Japanese firms, the use of the yen can be expected to increase in Japan's imports from Asia. Figure 2(d) shows, however, that more than 70 percent of imports from Asia are invoiced in U.S. dollars and the share of yen invoicing has never exceeded 30 percent. In 2015, only 22.9 percent of Japan's imports from Asia are invoiced in the yen, and 73.5 percent are invoiced in U.S. dollars. It is confirmed that the U.S. dollar is still dominantly used in trade between Japan and Asia.

## 2.2 Stylized Facts and Puzzles

When investigating the choice of invoicing currency, a main obstacle to rigorous empirical examination is the limitation of data availability. It is generally possible to collect the data only on the aggregated share of currency invoicing. Either destination/source country breakdown data or industry breakdown data is rarely published. Based on such limited information, previous studies found the empirical regularities on the choice of invoice currency that show that the invoicing choice is conditional on a trading partner country and the characteristics of goods traded.<sup>9</sup> Let us call the regularities the "classical stylized facts".<sup>10</sup>

**Classical Stylized Fact 1:** Trade of manufactured products between advanced countries tends to be invoiced in the exporter's currency, which is known as the "Grassman's Law" (Grassman, 1973, 1976).

**Classical Stylized Fact 2:** Trade of manufactured products between advanced and developing countries tends to be invoiced in the advanced country's currency or, to a lesser extent, in a major international currency such as the US dollar (Grassman, 1973, and Page, 1977, 1981).

**Classical Stylized Fact 3:** Differentiated products such as machinery products tend to be invoiced in the exporter's currency. More homogeneous products such as crude oil and primary commodity are typically invoiced in the international currency such as the US dollar (McKinnon, 1979).

Does the Japan's currency invoicing pattern conform to the classical stylized

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<sup>9</sup> See, for instance, Tavlas and Ozeki (1992), Ito (1993), Fukuda and Ji (1994), Kawai (1996) and Sato (1999) for a good summary and discussion on the empirical regularities of the choice of invoice currency..

<sup>10</sup> Ligthart and da Silva (2007) make a good literature review and propose the following three stylized facts.

facts? As we have discussed above, Japan violates the classical stylized facts 1 and 2. Figure 1 shows that, in Japanese exports to the United States and EU, the share of the importer's currency invoicing is very large. This evidence clearly conflicts with the classical stylized fact 1, which is one of the puzzles of the Japan's invoicing choice. In addition, the invoicing pattern of Japanese trade is characterized by the small share of the home currency (yen) invoicing and the large share of the U.S. dollar invoicing. Table 1 makes international comparison of the share of home currency invoicing among advanced countries. The share of home currency invoicing is much lower in Japan than in European countries, while the share of the U.S. dollar invoicing is the highest in Japan except for the United States.

As discussed earlier, Figure 1 shows that the share of yen invoicing is lower than U.S. dollar invoicing in Japanese exports to Asia, which is contradictory to the classical stylized fact 2—an another puzzle. It is widely discussed and recognized that Japanese firms have established regional supply chains and production network in Asia, which facilitates intra-firm trade between Japan and Asia, as a part of their global production and sales strategy. In trade within group companies, Japanese exporters may well have an incentive to choose yen-invoicing trade.<sup>11</sup> In addition, as long as Japan exports differentiated products to Asia, the share of yen invoicing is expected to be high, as suggested by the classical stylized fact 3. However, the actual share of yen invoicing is contrary to the conventional prediction. Thus, we have two puzzles to be investigated in empirical studies:

**1st Puzzle:** Japanese exports to advanced countries tend to be invoiced in the importer's currency, which contradicts the Grassman's Law.

**2nd Puzzle:** The share of U.S. dollar invoicing is higher than that of yen invoicing in trade with Asia, even though Japanese firms have built a regional production and sales network where goods are traded between group companies (intra-firm trade).

To get a clue to understanding these puzzles of the Japan's currency invoicing pattern, this study collects the detailed data on the invoicing choice of Japanese exports not only by destination but also by commodity/industry.

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<sup>11</sup> Kawai (1996), for instance, pointed out that the international use of the yen would naturally grow as Japan's economic interdependence with Asia deepened through intra-firm trade, foreign direct investments and various types of financial flows.



### **3. Invoice Currency Choice by Industry**

BOJ publishes the industry-breakdown data on the share of invoice currency in Japanese exports and imports. Specifically, BOJ collects the export price data when cargo is loaded in Japan at the customs clearance stage, and the free on board (FOB) prices at the Japanese port of exports are surveyed. As long as traded in foreign currencies, the sample prices are recorded on the original contract currency basis, and finally compiled as the “export price index on the contract currency basis”. To compile the “export price index on the yen basis”, the sample prices in the contract currency are converted into the yen equivalents by using the monthly average exchange rate of the yen vis-à-vis the contract currency. Import price index is similarly constructed using the port level information.<sup>12</sup>

#### **3.1 Comparison of the Time-series Data**

Before observing the industry breakdown data of the invoicing choice, let us check differences of the invoice currency share between the MOF data and the BOJ data. Table 2 presents the BOJ data of the invoice currency share in both Japanese exports to and imports from the world from December 1990 to December 2014. The BOJ data shows that the share of yen invoicing in Japanese exports is 25.1 percent as of December 1990 (Table 2). In contrast, the MOF data indicates that 37.5 percent of Japanese exports to the world are invoiced in yen as of 1990 in Figure 1. The similar difference is observed in Japanese imports. The MOF data shows that 14.6 percent of Japanese imports are invoiced in the yen, while the BOJ data indicates that only 3.9 percent of imports are invoiced in the yen.

The difference in the share of invoice currency choice between two data may be due to the smaller coverage of the BOJ data. The MOF data collects all information on the invoice currency choice at the port level, while the construction of the BOJ data is based on the survey with a limited number of sample firms. The difference between the BOJ data and the MOF data gets smaller in 2000s, and becomes quite similar after 2010. BOJ publishes the industry breakdown data from December 1999, which seems to be accurate information especially after 2010.

#### **3.2 Industry Level Data on the Choice of Invoice Currency**

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<sup>12</sup> See the BOJ website ([https://www.boj.or.jp/en/statistics/pi/cgpi\\_2010/index.htm/](https://www.boj.or.jp/en/statistics/pi/cgpi_2010/index.htm/)) for further details.

Table 3 presents the industry breakdown data of the invoice currency choice in Japanese exports and imports as of December 2015, while the share of the invoice currency by destination and/or source countries is not available.<sup>13</sup>

First, in both exports and imports, the share of invoice currency differs across industries. The stylized fact 3 tells us that the differentiated products (machinery products) tend to be invoiced in the exporter's currency, and Japanese machinery products can be considered differentiated ones. In the case of General Machinery, 59.4 percent of exports are invoiced in the yen (Table 3). In contrast, only 36.0 percent and 29.8 percent of exports are invoiced in the yen in the Electric Machinery and Transport Equipment, respectively, while about 50 percent or more of exports are invoiced in U.S. dollars as of December 2015. Thus, the PTM behavior tends to be chosen in both the Electric Machinery and Transport Equipment industry. Tables 4 and 5 present the invoice currency share as of December 2005 and December 1999, respectively, which show that 80 percent or more of Japanese exports are invoiced in U.S. dollars as of December 1999 in the Electric and Transport Equipment industry.

Second, imports of petroleum, coal and natural gas tend to be invoiced in U.S. dollars. 100 percent of the above imports are invoiced in U.S. dollars as of December 1999 (Table 5), and 91.3 percent are invoiced in U.S. dollars as of December 2015 (Table 3). This evidence is consistent with the Classical Stylized Fact 3. Table 3 shows that 77.4 percent of metal exports and 86.1 percent of metal imports are invoiced in U.S. dollars.

Third, in Japanese imports of three major machinery industries (General Machinery, Electric Machinery, and Transport Equipment), 40 percent or more are invoiced in the yen, while the share of U.S. dollar invoicing is higher in the three machinery industries. More interestingly, the share of yen invoicing is higher in Japanese imports of Electric Machinery and Transport Equipment than in the corresponding exports. This result is quite interesting, because the classical stylized fact 1 says that trade of machinery exports between advanced countries tends to be invoiced in the exporter's currency. This pattern of the invoicing choice may be explained by the PTM behavior of Japanese trading partners. Foreign exporters tend to stabilize the local currency price of export products.

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<sup>13</sup> BOJ publishes the data on the invoice currency pattern by industry for every year from 1999, but only December data is available.

## 4. New Approach to Estimating the Invoice Currency Share

We have so far observed the choice of invoice currency in Japanese exports and imports by using the data published by Japanese governmental agency and BOJ. While MOF publishes the semi-annual data on the share of invoice currency in Japanese exports and imports for three destination/source countries (regions), industry or commodity breakdown data are not published. BOJ publishes not the destination/source country breakdown data but the industry breakdown data on the choice of invoice currency from 1999, but only December data is available. In addition, more detailed data such as commodity breakdown data are not available.

In this section, we propose a new estimation method on the choice of invoice currency in Japanese exports and imports by using the price data published by BOJ. The novelty of this approach is to estimate the commodity and industry breakdown share of invoicing currency by using the monthly series of the BOJ export and import price indices. As discussed earlier, Japanese currency invoicing pattern is puzzling in that the share of own currency invoicing is much lower in Japan than in other advanced countries.<sup>14</sup> Contrary to the stylized facts of trade invoicing choice, Japanese firms tend to choose the importer's currency invoicing in their exports to advanced countries, and also to conduct U.S. dollar invoicing transactions in exports to Asian countries. By estimating the share of invoice currency by industry/commodity, we reveal the actual currency invoicing pattern that has not yet been analyzed empirically in the literature.

### 4.1 Estimation Method of the Share of Invoice Currency

BOJ publishes two types of price indices of Japanese exports and imports: (i) the *yen* based export/import price index and (ii) the *contract currency* based export/import price index. As explained in Section 2, BOJ collects the information from sample firms on export prices based on contract (invoice) currency, and then calculate the yen-based export price by using the bilateral nominal exchange rate (monthly average) of the yen vis-à-vis each contract currency. For a clear exposition, let us assume that Japanese exporters use only three currencies, the yen, the U.S. dollar and the euro, in their exports and also that BOJ constructs the yen invoiced export price

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<sup>14</sup> See Ito, Koibuchi, Sato and Shimizu (2012) for the puzzles of Japanese currency invoicing pattern.

( $P_{yen}$ ), U.S. dollar invoiced export price ( $P_{\$}$ ), and euro invoiced export price ( $P_{euro}$ ).<sup>15</sup>

Then, we can define the yen based export price index ( $P_{yen}^{EX}$ ) as follows:

$$P_{yen}^{EX} = (P_{yen})^{\alpha} (P_{\$} \cdot E_{yen/\$})^{\beta} (P_{euro} \cdot E_{yen/euro})^{\gamma}, \quad (1)$$

where  $\alpha$ ,  $\beta$ ,  $\gamma$  represent the share of yen invoicing, US dollar invoicing, and euro invoicing exports, respectively, and  $\alpha + \beta + \gamma = 1$ ;  $E_{yen/\$}$  and  $E_{yen/euro}$  denote the bilateral nominal exchange rate of the yen vis-à-vis the U.S. dollar and the euro, respectively. The export price based on contract currencies ( $P_c^{EX}$ ) can be defined as:

$P_c^{EX} = (P_{yen})^{\alpha} (P_{\$})^{\beta} (P_{euro})^{\gamma}$ . Thus, the yen based export price index ( $P_{yen}^{EX}$ ) can be shown as:

$$\begin{aligned} P_{yen}^{EX} &= (P_{yen})^{\alpha} (P_{\$})^{\beta} (P_{euro})^{\gamma} \cdot (E_{yen/\$})^{\beta} \cdot (E_{yen/euro})^{\gamma} \\ &= P_c^{EX} \cdot (E_{yen/\$})^{\beta} \cdot (E_{yen/euro})^{\gamma}. \end{aligned} \quad (2)$$

By dividing both sides of equation by  $P_c^{EX}$  and taking the natural logarithm, we obtain:

$$\ln(P_{yen}^{EX} / P_c^{EX})_t = \beta \cdot \ln E_{yen/\$,t} + \gamma \cdot \ln E_{yen/euro,t}. \quad (3)$$

By definition, the share of U.S. dollar invoicing ( $\beta$ ) and that of euro invoicing ( $\gamma$ ) can be estimated by equation (3). The share of yen invoicing can be obtained by subtracting the share of both U.S. dollar and euro invoicing from unity:  $\alpha = 1 - \beta - \gamma$ . To ensure the stationarity of variables, we use the first-difference model for OLS estimation.

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<sup>15</sup> This is not an extreme assumption. In the second half of 2015, for instance, the three currencies account for 96.3 percent of the invoice currency in the Japanese total exports (see Tables 2 and 3).

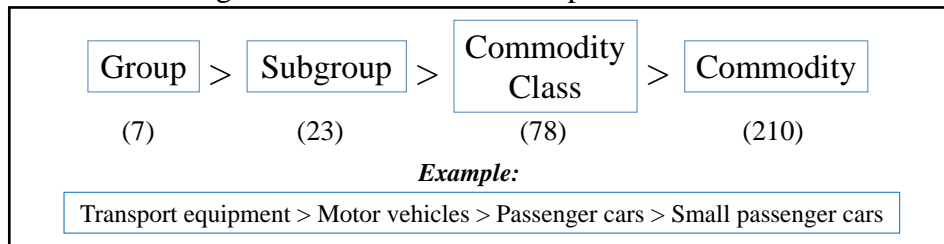
$$\Delta \ln(P_{yen}^{EX} / P_c^{EX})_t = \beta \cdot \Delta \ln E_{yen/\$,t} + \gamma \cdot \Delta \ln E_{yen/euro,t} + \varepsilon_t, \quad (4)$$

where  $\Delta$  is the first-difference operator and  $\varepsilon$  is an independently and normally distributed error term with zero mean and a constant variance.

## 4.2 Data Description

Our analysis is based on the BOJ export and import price indices, where both yen based and contract currency based export and import price indices are published.<sup>16</sup> The export price index is, for example, classified into four levels: Group, Subgroup, Commodity Class, and Commodity, as shown in Figure 3.

Figure 3. Classification of Export Price Index



*Note:* Figures in parenthesis denote the numbers compiled in each classification. Indexes for upper classification levels (Group, Subgroup, and Commodity Class) are compiled from Commodity indexes.

The monthly series of both yen based and contract currency based export price indices are available from January 1975 to the present at the Group level, while the indices at the lower classification (Subgroup, Commodity Class, and Commodity) levels are available from January 1980 or after for a limited number of commodities. We estimate the share of invoicing currency at the Group level from January 1975 and at a

<sup>16</sup> The data are downloadable from the BOJ website (<http://www.boj.or.jp/en/theme/research/stat/pi/cgpi/index.htm>). In the case of export price index, for example, the BOJ surveys export prices at the stage of shipment from Japan. At the beginning of every month, firms are requested to report the representative price of the previous month. The surveyed prices are chosen as a representative that is sensitive to supply and demand conditions of the commodities concerned. If commodities are exported by invoicing in foreign currency, the surveyed prices are recorded on the original contract (invoice) currency basis. Then, the contract currency based prices are converted into the yen based prices by using the monthly average spot exchange rate.

more disaggregated level from January 1980 to December 2015.

All monthly series of the nominal exchange rate are taken from IMF, *International Financial Statistics*. The exchange rate of the yen vis-à-vis the Deutsche mark (DM) is used as a substitute for the yen/euro exchange rate from January 1975 to December 1998. To connect the yen/DM rate to the yen/euro rate, we use the euro conversion rate published in the website of the European Central Bank.

### **4.3 Choice of Invoice Currency by Industry/Commodity**

#### ***Invoice Currency Choice in Japanese Exports***

Table 6 presents the result of estimation of the invoice currency choice in Japanese exports. First, Table 6 shows that 70-80 percent of Japanese exports of textiles (6-A), chemicals and related products (6-B), and metals and related products (6-C) are invoiced in U.S. dollars. It is also found that there is a large difference in the share of invoice currency across commodities. Some of commodities are mostly invoiced in the yen, but on average the share of yen invoicing is around 20 percent in chemicals and related products (6-B) and metals and related products (6-C), while only 9 percent of exports of textiles (6-A) are invoiced in the yen during the period of 2012-2015.

Second, Table 6-D shows that 61 percent of Japanese exports of general machinery (general purpose, production and business oriented machinery) are invoiced in the yen during the period of 2012-2015, which may reflect the strong competitiveness of general machinery products.<sup>17</sup> For instance, exports of the semiconductor manufacturing equipment and the flat panel/display manufacturing equipment are totally invoiced in the yen, reflecting the strong competitiveness and a large share in world market of these products.

Third, in contrast, more than 50 percent of electric and electronic product exports are invoiced in U.S. dollars (Table 6-E). 70 percent or more of semiconductors and electronic components are invoice in U.S. dollars. In addition, 70 percent of transportation equipment exports are invoiced in foreign currencies (Table 6-F). 85 percent of motor vehicle exports are invoiced in foreign currencies, reflecting a strong tendency of the PTM behavior. Interestingly, about 50 percent of engines for motor vehicles are invoiced in the yen, which likely due to the high degree of product differentiation of the engines.

#### ***Invoice Currency Choice in Japanese Imports***

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<sup>17</sup> This finding is consistent with Ito, Koibuchi, Sato and Shimizu (2012).

Table 7 shows the share of invoice currency in Japanese imports. About 70 percent or more of Japanese imports of foodstuffs and feedstuffs (Table 7-A), metals and related products (7-C), and wood, lumber and related products (7-D) are invoiced in U.S. dollars. The share of U.S. dollar invoicing is especially high in imports of petroleum, coal and natural gas (7-E). In contrast, chemicals and related products are imported more in the yen than in U.S. dollars (7-F).

Turning to Japanese machinery imports, more than 60 percent of general machinery products are invoiced in U.S. dollars (7-G). The share of U.S. dollar invoicing is also higher than that of yen invoicing in imports of electric and electronic products (7-H) and transportation equipment (7-I). Other primary products and manufactured goods, which are characterized as low-end and less differentiated products, are largely invoiced in U.S. dollars (7-J).

In the electric and electronic products, 42 percent of Japanese imports are invoiced in the yen. Japanese imports of these products have been increasing steadily in recent years as Japanese firms has built regional production network in Asia. Intra-firm imports from Asian subsidiaries to Japanese parent companies may facilitate the yen invoicing trade. But, it must be noted that the share of U.S. dollar invoicing is higher than that of yen invoicing in imports of the electric and electronic products. Still, U.S. dollar is widely used in Japanese trade with Asia.

## **5 Concluding Remarks**

For the last few decades, Japanese firms have made foreign direct investment and built production and sales network especially in Asia. Despite the active overseas operations of Japanese firms and growing intra-firm trade, the share of yen invoicing in both Japanese exports and imports has not increased remarkably. Rather, U.S. dollar invoicing trade is largely observed in Japanese trade. To get a clue to understand this unique trade invoicing pattern, we propose the new method of estimating the share of invoice currency at an industry/commodity level by using the BOJ price data. It is found that the share of the yen invoicing has been changing over the sample period from 1980 to 2015, and the invoicing pattern differs markedly across industries and commodities. We have also found that highly differentiated products such as production machinery equipment tend to be invoiced in the yen in Japanese exports. Although the recent increase in Japanese imports of electronic products has likely increased the share of yen

invoiced imports, the share of U.S. dollar invoicing is larger than that of yen invoicing. Despite growing economic interdependence between Japan and Asia, the U.S. dollar is still a dominant invoice currency in Japanese trade.

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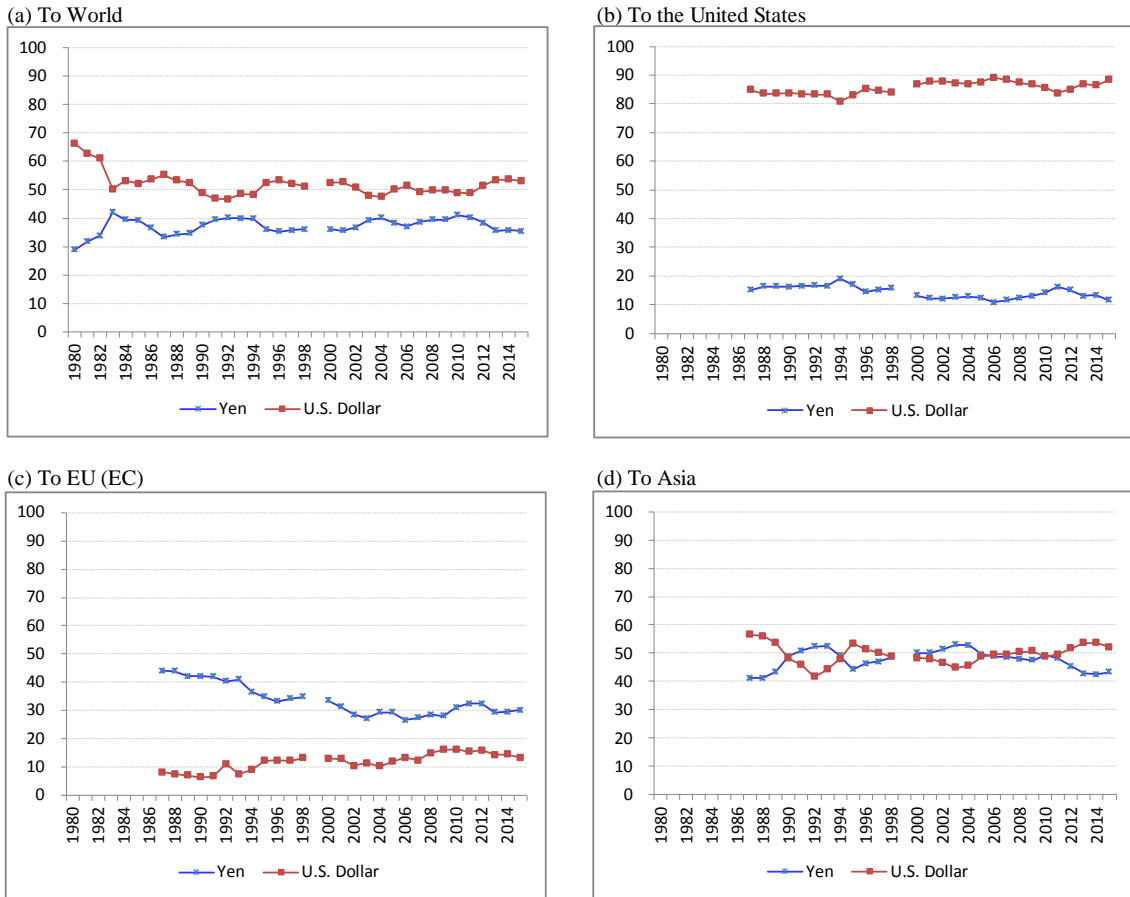
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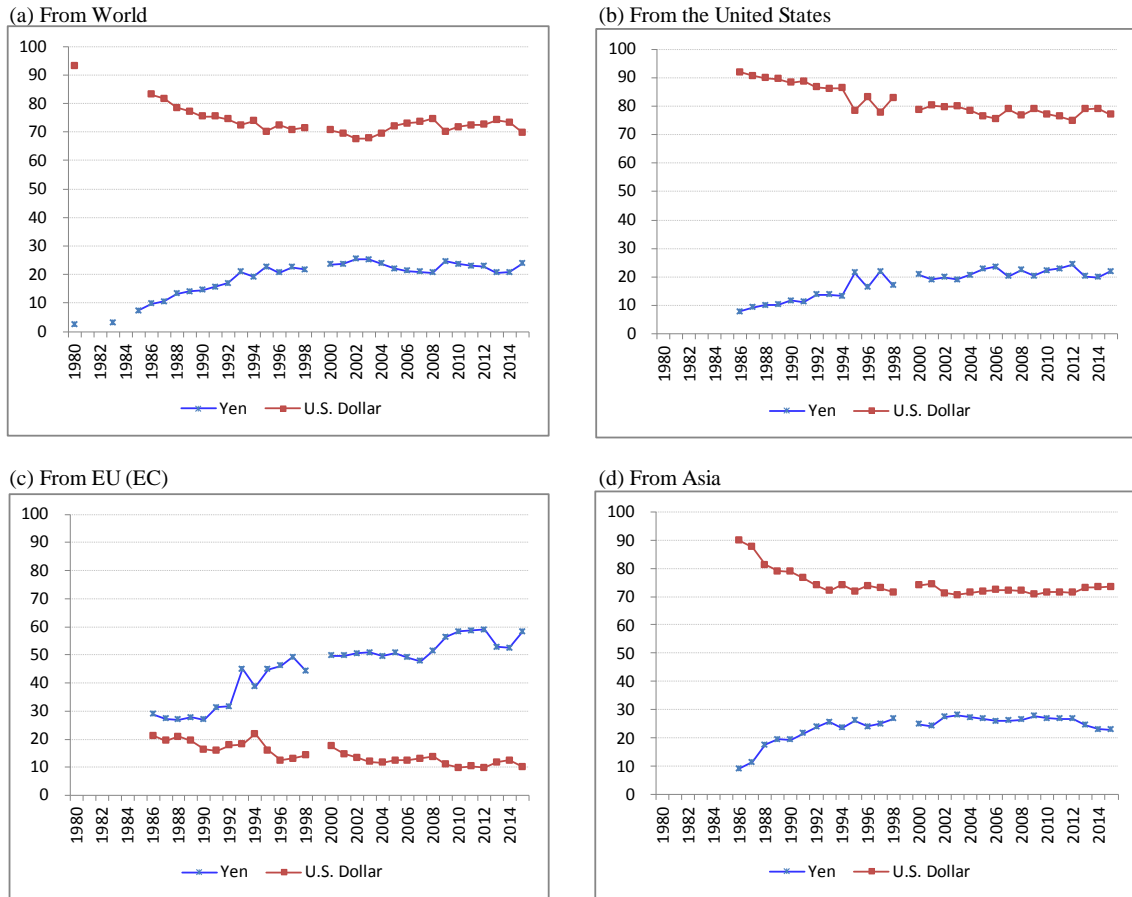
Figure 1. Share of Invoice Currency in Japanese Exports: 1980-2015 (Percent)



Notes: The data for 1999 is not available. The September data is used for 1992-97, the March data for 1998, the 2nd half of the year data for 2000-2015.

Sources: Bank of Japan, *Yushutsu Shinyojo Tokei (Export Letter of Credit Statistics)*; MITI, *Yushutsu Kakunin Tokei (Export Confirmation Statistics)*; MITI, *Yushutsu Hokukoshu Tukadate Doko (Export Currency Invoicing Report)*; MITI, *Yushutsu Kessai Tsukadate Doko Chosa (Export Settlement Currency Invoicing)*; the website of the Japan Customs.

Figure 2 Share of Invoice Currency in Japanese Imports: 1980-2015 (Percent)



Notes: The data for 1999 is not available. For imports from the world, the data on yen invoicing is not available for 1981, 1982 and 1984, and the data on US dollar invoicing is not available for 1981-85. The 1986 data is the fiscal year data. The September data is used for 1992-97, the March data for 1998, and the 2nd half of the year data for 2000-15.

Sources: MITI, *Yunyu Shonin Todokede Hokokusho (Import Approval Notification Report)*; MITI, *Hokokushorei ni Motozuku Hokoku (Report Based on Report Guidance)*; MITI, *Yunyu Hokoku Tokei (Import Report Statistics)*; MITI, *Yunyu Hokukosho Tukadate Doko (Import Currency Invoicing Report)*; MITI, *Yunyu Kessai Tsukadate Doko Chosa (Import Settlement Currency Invoicing)*; the website of the Japan Customs.



Table 1. International Comparison of Currency Invoicing: Advanced Countries (%)

	(a) Home Currency Invoicing Ratio: Exports				(b) US Dollar Invoicing Ratio: Exports			
	1980	1988	1992-96	2002-04	1988	1988	1992-96	2002-04
United States	97.0	96.0	98.0	95.0	97.0	96.0	98.0	95.0
Germany	82.3	79.2	76.4	61.1	7.2	8.0	9.8	24.1
Japan	28.9	34.3	35.9	40.1	66.3	53.2	53.1	47.5
United Kingdom	76.0	57.0	62.0	51.0	17.0	n.a.	22.0	26.0
France	62.5	58.5	51.7	52.7	13.2	n.a.	18.6	33.6
Italy	36.0	38.0	40.0	59.7	30.0	n.a.	23.0	n.a.

	(c) Home Currency Invoicing Ratio: Imports				(d) US Dollar Invoicing Ratio: Imports			
	1980	1988	1992-96	2002-04	1980	1988	1992-96	2002-04
United States	85.0	85.0	88.8	85.0	85.0	85.0	88.8	85.0
Germany	43.0	52.6	53.3	52.8	32.3	21.3	18.1	35.9
Japan	2.4	13.3	20.5	23.8	93.1	78.5	72.2	69.5
United Kingdom	38.0	40.0	51.7	33.0	29.0	n.a.	22.0	37.0
France	34.1	48.9	48.4	45.3	33.1	n.a.	23.1	46.9
Italy	18.0	27.0	37.0	44.5	45.0	n.a.	28.0	n.a.

Notes: The 1992-96 data denotes March 1996 for the United States, 1994 for Germany, March 1996 for Japan, 1992 for the United Kingdom, 1995 for France, and 1994 for Italy. The 2002-04 data denotes 2003 for the United States, 2004 for Germany, the 2nd half of 2004 for Japan, 2002 for the United Kingdom, 2003 for France, and 2004 for Italy. For Germany, France and Italy, the 2002-04 data shows the share of euro invoicing.

Source: Deutsche Bundesbank (1991); Tavlas and Ozeki (1992); Tavlas (1997); Goldberg and Tille (2008); Kamps (2006); Bank of Japan, *Yushutsu Shinyojo Tokei (Export Letter of Credit Statistics)*; MITI, *Yunyu Shonin Todokede Hokokusho (Import Approval Notification Report)*; MITI, *Yushutsu Kakunin Tokei (Export Confirmation Statistics)*; MITI, *Yunyu Hokoku Tokei (Import Report Statistics)*; MITI, *Yushutsu Kessai Tsukadate Doko Chosa (Export Settlement Currency Invoicing)*; MITI, *Yunyu Kessai Tsukadate Doko Chosa (Import Settlement Currency Invoicing)*.

Table 2. Invoice Currency Choice in Japanese Exports and Imports: BOJ Data (percent)

	Export					Import				
	Yen	USD	Euro	D.Mark	Others	Yen	USD	Euro	D.Mark	Others
1990	25.1	64.3	-	4.9	5.7	3.9	92.9	-	1.1	2.1
1991	25.2	62.3	-	8.6	3.8	4.0	92.9	-	1.1	2.1
1992	24.0	64.2	-	9.2	2.7	9.7	82.2	-	4.4	3.7
1993	22.9	65.1	-	9.4	2.5	9.4	82.5	-	4.4	3.7
1994	23.7	64.1	-	9.5	2.7	9.9	82.2	-	4.4	3.5
1995	23.8	63.3	-	9.5	3.4	10.0	82.5	-	3.7	3.7
1996	23.7	64.7	-	8.1	3.5	10.6	82.0	-	3.7	3.7
1997	27.2	64.4	-	5.7	2.6	16.6	76.6	-	2.0	4.9
1998	27.5	63.7	-	5.7	3.1	17.0	76.8	-	2.0	4.3
1999	26.7	62.4	5.8	3.0	2.1	17.0	76.9	0.8	1.2	4.1
2000	29.7	59.6	6.2	2.8	1.7	18.3	75.6	1.0	1.4	3.7
2001	24.3	62.8	8.0	2.5	2.4	18.7	74.9	2.1	0.9	3.3
2002	28.5	59.0	10.1	-	2.4	23.1	71.3	3.4	-	2.2
2003	31.8	55.5	9.8	-	2.9	23.9	70.5	3.5	-	2.1
2004	32.3	53.8	10.8	-	3.1	23.6	71.1	3.6	-	1.7
2005	33.3	53.0	11.1	-	2.6	23.4	71.1	3.5	-	2.0
2006	34.0	53.4	10.1	-	2.5	23.8	70.7	3.5	-	2.0
2007	32.1	54.4	11.0	-	2.5	23.3	71.8	3.1	-	1.8
2008	30.3	54.7	12.5	-	2.5	24.6	70.4	3.0	-	2.0
2009	30.0	55.7	11.9	-	2.4	24.0	70.6	3.2	-	2.2
2010	39.2	51.0	6.3	-	3.4	27.2	69.1	2.6	-	1.2
2011	39.1	50.7	6.7	-	3.5	27.4	68.9	2.4	-	1.3
2012	38.6	51.4	6.7	-	3.3	27.5	68.9	2.3	-	1.3
2013	38.1	51.2	7.0	-	3.6	27.2	69.1	2.3	-	1.4
2014	36.7	53.1	6.9	-	3.2	27.2	69.0	2.4	-	1.5
2015	35.9	53.3	7.1	-	3.6	25.0	71.3	2.4	-	1.3

*Note:* The data on the share of invoice currency in exports to and imports from the world are presented.

All data are December data. "D.Mark" denotes the Deutsche Mark.

*Source:* The website of BOJ.



Table 3: Share of Invoice Currency in Japanese Exports and Imports (December 2015)

Industry :	Export Price Index				Industry :	Import Price Index			
	JPY	USD	EUR	Others		JPY	USD	EUR	Others
					Foodstuffs & feedstuffs (75.8)	32.1	60.9	4.2	2.8
Textiles (12.5)	9.5	79.8	10.7	0.0	Textiles (53.5)	56.4	40.1	0.5	2.9
Chemicals & related products (95.4)	26.4	70.5	1.3	1.8	Chemicals & related products (83.3)	51.3	36.4	9.8	2.5
Metals & related products (118.2)	21.9	77.4	0.6	0.0	Metals & related products (117.1)	11.9	86.1	0.0	2.0
					Wood, lumber & related products (16.5)	4.1	79.7	16.1	0.0
					Petroleum, coal & natural gas (305.4)	8.7	91.3	0.0	0.0
General Machinery (192.0)	59.4	27.7	9.6	3.3	General Machinery (53.9)	35.0	59.5	2.7	2.7
Electric & electronic products (232.9)	36.0	55.6	7.8	0.5	Electric & electronic products (184.3)	33.7	64.9	0.6	0.9
Transportation equipment (240.6)	29.8	48.3	11.4	10.5	Transportation equipment (34.1)	37.1	47.4	15.5	0.0
Other Products (108.4)	34.0	60.7	3.7	1.5	Other Products (76.1)	23.3	71.7	2.0	3.0
All Industries (1,000.0)	35.9	53.3	7.1	3.6	All Industries (1,000.0)	25.0	71.3	2.4	1.3

*Note:* Monthly data (as of December 2015). The share (percentage) of invoice (contract) currency is presented. Figures in parentheses under the name of each industry are weights for all industries (=1,000.0). “General Machinery” denotes “General purpose, production & business oriented machinery”. “Other Products” denotes “Other primary products & manufactured goods”.

*Source:* Bank of Japan, Export and Import Price Indices (2010 base).

Table 4: Share of Invoice Currency in Japanese Exports and Imports (December 2005)

<i>Industry :</i>	Export Price Index				<i>Industry :</i>	Import Price Index			
	JPY	USD	EUR	Others		JPY	USD	EUR	Others
					Foodstuffs & feed stuffs (93.1)	18.8	69.7	7.0	4.4
Textiles (18.5)	27.0	72.7	0.0	0.0	Textiles (74.1)	46.1	49.3	2.4	2.1
Chemicals & related products (76.8)	21.1	74.7	2.9	1.2	Chemicals & related products (66.7)	42.5	52.4	3.6	1.4
Metals & related products (64.5)	15.4	83.4	1.1	0.0	Metals & related products (80.9)	14.2	83.2	0.0	2.6
					Wood, lumber & related products (32.3)	5.4	80.1	11.4	2.8
					Petroleum, coal & natural gas (221.0)	0.3	99.7	0.0	0.0
General machinery & equipment (192.4)	51.0	32.1	13.9	2.9	Machinery & equipment (348.8)	36.6	57.1	4.1	2.2
Electrical machinery & equipment (358.3)	36.8	53.8	9.4	0.0					
Transportation equipment (203.6)	21.0	49.6	21.9	7.5					
Precision instruments (25.4)	30.5	62.7	6.3	0.2					
Other manufacturing industry products (60.3)	34.9	55.9	3.2	5.8	Other primary products & manufactured goods (83.1)	15.2	74.3	7.4	3.0
All Industries (1,000.0)	33.3	53.0	11.1	2.6	All Industries (1,000.0)	23.4	71.1	3.5	2.0

*Note:* Monthly data (as of December 2005). The share (percentage) of invoice (contract) currency is presented. Figures in parentheses under the name of each industry are weights for all industries (=1,000.0).

*Source:* Bank of Japan, Export and Import Price Indices (2000 base).

Table 5: Share of Invoice Currency in Japanese Exports and Imports (December 1999)

Industry :	Export Price Index					Industry :	Import Price Index				
	JPY	USD	EUR	D.Mark	Others		JPY	USD	EUR	D.Mark	Others
						Foodstuffs & feed stuffs (119.4)	20.4	72.4	0.0	0.3	6.9
Textiles (21.3)	9.1	88.2	0.0	2.4	0.4	Textiles (87.5)	22.3	70.6	0.0	0.9	6.1
Chemicals & related products (76.8)	9.2	90.2	0.0	0.3	0.2	Chemicals & related products (75.3)	35.2	63.8	0.0	0.0	0.8
Metals & related products (73.0)	14.8	82.8	0.0	0.0	2.3	Metals & related products (112.6)	14.7	83.6	0.0	0.0	1.6
						Wood, lumber & related products (51.7)	0.0	100.0	0.0	0.0	0.0
						Petroleum, coal & natural gas (178.2)	0.0	100.0	0.0	0.0	0.0
General machinery & equipment (212.2)	64.1	26.8	4.9	2.1	2.0	Machinery & equipment (282.6)	24.9	65.4	2.7	2.1	5.0
Electrical machinery & equipment (354.8)	19.7	74.8	3.4	0.5	1.6						
Transportation equipment (178.0)	12.8	52.1	18.5	11.3	5.2						
Precision instruments (26.9)	34.6	56.4	8.7	0.0	0.0						
Other manufacturing industry products (57.0)	16.2	78.2	0.0	4.3	1.2	Other primary products & manufactured goods (92.7)	13.8	68.2	0.0	5.2	12.8
All Industries (1,000.0)	26.7	62.4	5.8	3.0	2.1	All Industries (1,000.0)	17.0	76.9	0.8	1.2	4.1

*Note:* Monthly data (as of December 1999). The share (percentage) of invoice (contract) currency is presented. Figures in parentheses under the name of each industry are weights for all industries (=1,000.0).

*Source:* Bank of Japan, Export and Import Price Indices (1995 base).

Table 6. Estimated Invoice Currency Share in Japanese Exports

6-A. Textiles (Exports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
Textiles	<b>(12.5)</b>	0.74	0.76	0.75	0.80	0.29	0.23	0.16	0.09
Raw & semi-processed fibers for spun yarn & raw	<b>(3.0)</b>	1.01	1.00	1.00	1.01	0.00	0.00	0.01	0.00
Raw & semi-processed fibers for spun yarn	(3.0)	1.01	1.00	1.00	1.01	0.00	0.00	0.01	0.00
Acrylic staple fibers	(3.0)	1.01	1.00	1.00	1.01	0.00	0.00	0.01	0.00
Woven fabrics	<b>(7.4)</b>	0.96	1.01	0.76	0.78	0.07	0.01	0.05	0.07
Natural fiber fabrics	(2.1)	0.96	1.01	0.77	0.75	0.07	0.01	0.10	0.30
Cotton fabrics	(2.1)	0.96	1.01	0.77	0.75	0.07	0.01	0.10	0.30
Synthetic fiber fabrics	(5.3)	0.67	0.69	0.80	0.79	0.33	0.30	0.02	0.00
Synthetic filament & spun synthetic yarn fab	(5.3)	0.67	0.69	0.80	0.79	0.33	0.30	0.02	0.00
Other textile products	<b>(2.1)</b>	0.59	0.62	0.60	0.59	0.42	0.39	0.38	0.30
Other textile products	(2.1)	0.59	0.62	0.60	0.59	0.42	0.39	0.38	0.30
Nonwovens	(2.1)	0.59	0.62	0.60	0.59	0.42	0.39	0.38	0.30

*Note:* Estimated invoice currency share is reported. For example, 1.00 indicates that the share of invoice currency is 100 percent. Shaded figures in gray denote an insignificant share (coefficient). Weight indicates the share of each industry or commodity in total exports (1,000).

## 6-B. Chemicals & Related Products (Exports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Chemicals &amp; related products</b>	<b>(95.4)</b>	0.82	0.79	0.74	0.71	0.16	0.18	0.24	0.26
<b>Industrial inorganic chemicals</b>	<b>(8.7)</b>	0.81	0.79	0.79	0.87	0.19	0.21	0.21	0.13
Industrial inorganic chemicals	(8.7)	0.81	0.79	0.79	0.87	0.19	0.21	0.21	0.13
Caustic soda	(1.8)	1.00	1.00	1.00	1.00	0.01	0.01	0.00	0.01
Titanium oxides	(3.8)	1.01	1.00	1.00	1.00	0.00	0.00	0.00	0.00
Silicon dioxides	(3.1)	0.44	0.42	0.40	0.58	0.57	0.58	0.61	0.44
<b>Industrial organic chemicals</b>	<b>(61.8)</b>			0.89	0.85			0.10	0.14
Basic petrochemicals	(3.9)			1.00	1.00			-0.01	0.01
Ethylene	(1.4)			1.01	1.01			-0.02	0.00
Propylene	(2.5)			0.99	0.99			0.00	0.00
Aliphatic intermediates	(9.0)			1.00	1.00			-0.01	0.01
Vinyl chloride monomer	(4.7)	1.02	1.01	1.00	1.00	-0.02	-0.01	0.00	0.01
Acrylonitrile	(2.4)			1.02	1.00			-0.02	0.00
Methyl methacrylate	(1.9)	1.02	1.00	0.99	1.00	-0.01	0.01	0.00	0.01
Cyclic intermediates	(21.1)	1.02	1.01	1.00	1.00	-0.01	0.00	0.00	0.00
Terephthalic acid	(0.9)	1.03	1.00	1.00	1.00	-0.02	0.00	0.00	0.00
Styrene monomer	(4.8)	1.00	1.01	1.01	1.00	0.00	0.01	0.00	0.01
Toluylene diisocyanate	(1.3)	1.01	1.00	1.00	1.00	-0.01	0.00	0.00	0.01
Caprolactam	(4.6)	1.01	1.01	0.99	1.01	-0.02	-0.01	0.00	0.01
Phenols & bisphenol A	(1.7)	1.00	1.00	1.01	1.00	0.02	0.00	-0.01	0.01
Methyl diphenyl diisocyanate	(0.7)	1.01	1.00	0.99	1.00	-0.01	0.00	0.00	0.00
Para-xylene	(7.1)	1.03	1.00	1.00	1.00	-0.02	-0.01	0.00	0.00
Plastic resins & materials	(22.6)			0.73	0.71			0.26	0.27
Phenolic resins	(0.6)	0.35	0.36	0.31	0.29	0.65	0.63	0.68	0.72
Polyester resins	(2.2)	0.79	0.72	0.86	0.78	-0.05	0.01	0.10	0.23
Polyethylene resins	(2.0)	1.01	1.00	0.99	1.00	0.00	0.00	0.00	0.00
Polystyrene resins	(1.5)	1.02	1.01	1.00	0.82	-0.02	0.01	-0.01	0.11
Acrylonitrile-butadiene-styrene resins	(1.0)	0.95	0.76	0.59	0.64	0.09	0.25	0.41	0.35
Polypropylene resins	(1.8)	1.02	1.01	0.99	1.00	-0.01	0.01	0.00	0.01
Polyvinyl chloride resins	(1.9)	1.01	1.00	1.00	1.00	0.00	0.02	0.00	0.00
Methacrylic resins	(0.6)	1.00	1.01	0.99	1.00	0.02	0.00	0.00	0.01
Polyvinyl alcohol	(0.6)	0.96	0.68	0.99	1.00	0.00	0.02	0.00	0.00
Polyamide resins	(1.5)	1.02	1.00	0.99	0.98	-0.02	0.00	0.01	0.01
Fluorocarbon resins	(0.9)		0.20	0.31	0.46	1.00	0.79	0.69	0.57
Epoxide resins	(1.4)	0.84	0.69	0.44	0.35	0.11	0.31	0.57	0.64
Polycarbonates	(1.5)	1.01	1.00	0.94	0.78	-0.01	0.00	0.05	0.22
Super absorbent polymer	(2.4)			0.33	0.31			0.66	0.68
Ethylene vinyl acetal resins	(0.5)	1.02	1.01	0.99	1.02	-0.02	-0.01	0.00	-0.01
Silicone	(2.2)	1.01	0.35	0.38	0.43	-0.01	0.68	0.62	0.58
Other industrial organic chemicals	(5.2)	0.97	0.88	0.86	0.53	0.01	0.13	0.15	0.44
Synthetic dyes	(0.9)	0.79	0.26	0.25	0.30	0.16	0.75	0.76	0.67
Synthetic rubber	(4.3)	1.01	1.01	0.99	0.60	-0.02	0.00	0.02	0.39
<b>Pharmaceutical products</b>	<b>(6.8)</b>			0.25	0.22			0.75	0.72
Pharmaceutical products	(6.8)			0.25	0.22			0.75	0.72
Epidermal agents	(1.0)			0.31	0.32			0.68	0.69
Antineoplastic agents	(1.1)	0.27	0.28	0.29	0.12	0.67	0.55	0.61	0.63
Antibiotic preparations	(1.4)	0.23	0.01	0.44	0.72	0.74	0.92	0.40	0.36
Diagnostic agents	(3.3)	0.17	0.01	0.00	0.00	0.71	0.95	1.00	0.92
<b>Other chemical products</b>	<b>(18.1)</b>			0.34	0.32			0.65	0.66
Other chemical products	(18.1)		0.44	0.42	0.32		0.46	0.50	0.66
Surface-active agents	(1.0)	0.46	0.27	0.36	0.47	0.54	0.70	0.64	0.53
Paints, varnishes & related products	(3.9)	0.17	0.00	0.00	0.00	0.82	1.00	1.00	1.00
Makeup products, skin care products, etc.	(2.4)	0.24	0.25	0.27	0.21	0.48	0.46	0.57	0.81
Agricultural pesticides	(0.7)	0.68	0.69	0.78	0.80	0.01	-0.01	0.07	0.21
Photosensitive materials	(7.1)		0.76	0.65	0.46		0.10	0.21	0.50
Printing ink	(1.2)	0.03	0.01	0.24	0.29	0.96	0.99	0.79	0.70
Perfume & flavor materials	(0.5)	1.01	1.00	0.85	0.54	-0.01	0.01	0.12	0.48
Adhesives	(1.3)	0.49	0.49	0.49	0.13	0.51	0.50	0.51	0.78

Note: See Table 6-A.

6-C. Metals & Related Products (Exports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Metals &amp; related products</b>	<b>(118.2)</b>	0.87	0.84	0.84	0.80	0.14	0.17	0.15	0.21
Metal materials	<b>(7.8)</b>			0.26	0.14			0.75	0.81
Metal scrap	(7.8)			0.26	0.14			0.75	0.81
Iron & steel scrap	(6.3)	0.00	0.02	0.30	0.10	0.99	0.99	0.75	0.85
Copper & copper alloy scrap	(1.5)			0.34	0.35			0.67	0.68
Iron & steel	<b>(60.5)</b>	1.01	0.98	0.99	0.95	-0.02	0.02	0.01	0.05
Ferro-alloys	(1.0)	1.01	0.98	1.01	1.01	-0.02	0.02	0.00	0.00
Ferro-nickel	(1.0)	1.01	0.98	1.01	1.01	-0.02	0.02	0.00	0.00
Hot rolled ordinary steel products	(18.5)	0.98	1.00	0.98	0.98	0.02	0.00	0.03	0.03
Sections	(1.5)	0.99	1.00	1.00	0.77	0.00	0.01	0.00	0.23
Wire rods	(0.8)	1.01	1.00	1.00	1.00	0.00	0.00	0.00	0.00
Heavy & medium steel plates	(5.2)	1.01	1.00	0.93	1.00	-0.02	0.01	0.09	0.01
Hot rolled steel strips	(11.0)	0.97	0.99	1.00	1.00	0.05	0.00	0.00	0.01
Cold finished & coated ordinary steel products	(19.5)			0.99	1.00			0.00	0.00
Cold rolled steel strips	(5.9)	0.98	1.01	1.00	1.00	0.05	-0.01	0.00	0.01
Cold rolled electrical steel hoops	(2.9)	1.02	1.01	1.00	0.99	-0.01	0.01	0.00	0.01
Tin plates & chromium-coated steel sheets	(1.7)			0.99	1.00			0.00	0.01
Hot-dip zinc-coated steel sheets	(5.6)	1.00	1.00	1.00	1.01	0.02	0.00	-0.01	0.00
Electrolytic zinc-coated steel sheets	(3.4)	1.01	1.00	1.00	1.01	-0.01	0.01	-0.01	0.00
Hot rolled special steel products	(9.0)			0.75	0.74			0.24	0.26
Structural steel	(3.9)		0.49	0.47	0.50		0.50	0.53	0.50
Spring steel	(0.8)	1.01	0.73	0.66	0.70	-0.01	0.25	0.34	0.31
Hot rolled stainless steel sheets	(4.3)			1.01	1.00			-0.01	0.01
Cold finished special steel products	(4.0)			1.00	1.00			0.00	0.00
Cold rolled stainless steel sheets	(4.0)			1.00	1.00			0.00	0.00
Steel pipes & tubes	(7.8)	1.02	1.00	1.00	1.00	-0.02	0.01	0.00	0.01
Ordinary steel pipes & tubes	(5.9)	1.02	1.01	1.00	1.00	-0.02	0.01	0.00	0.00
Stainless steel pipes & tubes	(2.8)	0.94	1.00	1.00	0.99	0.11	0.00	0.00	0.01
Cold finished bars	(0.7)	1.02	1.00	0.81	0.82	-0.02	0.01	0.19	0.19
Cold finished bars	(0.7)	1.02	1.00	0.81	0.82	-0.02	0.01	0.19	0.19
Nonferrous metals	<b>(35.6)</b>			0.80	0.83			0.20	0.17
Unwrought metals	(20.0)		1.00	1.00	1.00		0.01	0.00	0.01
Unwrought gold	(9.9)		0.98	1.00	1.00		0.02	0.00	0.01
Unwrought copper	(10.1)	0.99	1.01	1.00	1.00	0.01	0.00	0.00	0.00
Copper and copper alloy rolled & extruded products	(6.1)	0.69	0.46	0.44	0.41	0.29	0.53	0.56	0.57
Copper strips	(3.9)	0.77	0.44	0.39	0.42	0.22	0.56	0.61	0.59
Copper pipes & tubes	(2.2)	0.54	0.50	0.53	0.41	0.42	0.49	0.47	0.55
Aluminum and aluminum alloy rolled products	(4.1)	0.77	0.65	0.67	0.41	0.21	0.35	0.33	0.57
Aluminum alloy sheets & strips	(2.1)	0.86	0.77	0.68	0.55	0.10	0.25	0.32	0.48
Aluminum foil	(2.0)	0.66	0.53	0.66	0.24	0.32	0.46	0.34	0.69
Other nonferrous metal rolled & extruded products	(5.4)			0.61	0.98			0.40	0.05
Rolled, hammered & stamped precious metals	(5.4)			0.61	0.98			0.40	0.05
Metal products	<b>(14.3)</b>	0.72	0.67	0.65	0.37	0.24	0.26	0.25	0.58
Wire products	(9.0)	0.73	0.76	0.72	0.25	0.35	0.26	0.23	0.75
Bolts, nuts & screws	(9.0)	0.73	0.76	0.72	0.25	0.35	0.26	0.23	0.75
Other metal products	(5.3)	0.69	0.52	0.54	0.54	0.08	0.25	0.27	0.31
Builders hardware	(1.4)	0.69	0.35	0.32	0.38	0.31	0.65	0.68	0.63
Gas & oil appliances	(1.6)	0.94	0.74	0.67	0.49	0.08	0.26	0.32	0.51
Cemented carbide tips	(2.3)	0.50	0.48	0.59	0.66	-0.02	0.00	-0.01	0.01

Note: See Table 6-A.

## 6-D. General Purpose, Production & Business Oriented Machinery

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
General purpose, production & business oriented machinery	(192.0)	0.35	0.36	0.35	0.31	0.49	0.47	0.51	0.61
General purpose machinery	(55.5)	0.33	0.36	0.40	0.34	0.48	0.40	0.43	0.55
Engines & parts	(13.0)	0.05	0.23	0.43	0.46	0.53	0.24	0.31	0.49
Internal combustion gasoline engines for industrial use	(2.3)	0.51	0.48	0.51	0.53	0.22	0.24	0.32	0.48
Internal combustion diesel engines for industrial use	(10.7)	-0.05	0.18	0.41	0.45	0.60	0.23	0.31	0.49
Pumps & compressors	(10.6)		0.31	0.26	0.22		0.70	0.73	0.76
Pumps	(5.6)		0.59	0.47	0.30		0.42	0.52	0.70
Compressors	(5.0)	0.00	0.00	0.02	0.13	1.00	1.00	0.97	0.83
Oil hydraulic & pneumatic machinery	(6.0)		0.62	0.49	0.25		0.38	0.49	0.76
Oil hydraulic pumps	(2.2)	0.94	0.84	0.70	0.57	0.03	0.14	0.29	0.44
Oil hydraulic & pneumatic valves	(3.8)		0.52	0.37	0.05		0.48	0.61	0.95
Power transmission equipment & bearings	(15.9)	0.46	0.53	0.45	0.28	0.42	0.35	0.40	0.49
Speed changers	(2.7)	0.14	0.61	0.45	0.27	0.91	0.40	0.54	0.73
Gears	(2.2)	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Roller chains	(0.7)	1.01	1.01	0.91	0.72	-0.01	0.00	-0.01	0.01
Plain shaft bearings	(1.4)	0.56	0.58	0.47	0.01	0.45	0.42	0.51	0.82
Ball bearings	(5.1)	0.51	0.49	0.47	0.32	0.30	0.33	0.35	0.39
Roller bearings	(3.8)	0.76	0.74	0.59	0.31	-0.03	-0.01	0.05	0.23
Refrigerating machines & appliances	(4.8)	0.51	0.32	0.39	0.48	0.10	0.07	0.00	0.01
Refrigerating machines	(0.9)	0.01	0.04	0.37	0.99	0.35	0.44	0.48	0.02
Commercial air conditioners	(3.9)	0.63	0.38	0.40	0.37	0.04	-0.02	-0.12	0.01
Other general purpose machinery	(5.2)	0.34	0.10	0.42	0.43	0.67	0.77	0.58	0.58
Metal valves	(5.2)	0.34	0.10	0.42	0.43	0.67	0.77	0.58	0.58
Production machinery	(112.8)	0.31	0.28	0.29	0.24	0.54	0.59	0.60	0.70
Agricultural machinery	(4.5)	0.40	0.19	0.29	0.51	0.51	0.80	0.72	0.51
Agricultural tractors	(4.5)	0.40	0.19	0.29	0.51	0.51	0.80	0.72	0.51
Construction machinery	(23.5)	0.32	0.38	0.54	0.42	0.56	0.42	0.24	0.47
Excavators	(19.3)			0.63	0.47			0.17	0.44
Construction cranes	(1.7)			0.14	0.15			0.85	0.85
Construction tractors	(2.5)			0.63	0.29			0.13	0.48
Textile machinery	(6.2)	0.40	0.45	0.49	0.63	0.57	0.38	0.31	0.19
Knitting machines	(2.5)	-0.04	0.00	0.09	0.27	0.94	0.58	0.41	0.24
Industrial sewing machines	(3.7)	0.69	0.75	0.75	0.84	0.31	0.25	0.24	0.17
Printing, plate making & bookbinding machinery	(3.0)		0.01	0.09	0.27		0.79	0.82	0.76
Printing, plate making & bookbinding machinery	(3.0)		0.01	0.09	0.27		0.79	0.82	0.76
Semiconductor and flat panel & display manufacturing machinery	(42.0)		0.12	0.05	0.00		0.88	0.95	1.00
Semiconductor manufacturing equipment	(30.8)	0.09	0.13	0.06	0.00	0.70	0.87	0.93	1.00
Flat panel & display manufacturing equipment	(11.2)		0.00	0.00	0.00		1.00	1.00	1.00
Other special industrial machinery	(7.0)	0.65	0.41	0.30	0.18	0.35	0.59	0.69	0.82
Wrapping & packing machinery	(1.2)	0.67	0.44	0.16	0.00	0.34	0.59	0.83	1.00
Plastic working machinery	(5.8)	0.65	0.41	0.34	0.22	0.35	0.60	0.65	0.79
Metal cutting machine tools	(15.2)	0.42	0.43	0.40	0.24	0.49	0.32	0.37	0.67
Lathes	(4.8)	0.33	0.39	0.38	0.28	0.30	0.19	0.32	0.59
Grinding machines	(1.6)	0.68	0.67	0.43	0.45	0.32	0.33	0.33	0.48
Machining centers	(8.8)	0.42	0.40	0.40	0.18	0.62	0.39	0.40	0.74
Metal forming machinery	(5.4)	0.32	0.47	0.41	0.38	0.32	0.42	0.58	0.64
Presses	(5.4)	0.32	0.47	0.41	0.38	0.32	0.42	0.58	0.64
Tools for machines and pneumatic & electric tools	(3.8)	0.06	0.07	0.26	0.49	0.72	0.55	0.32	0.31
Tools for machines	(2.6)	0.01	0.00	0.17	0.39	0.73	0.73	0.56	0.45
Electric tools	(1.2)	0.19	0.22	0.46	0.72	0.70	0.16	-0.20	-0.02
Other production machinery	(2.2)	0.37	0.37	0.39	0.39	0.24	0.25	0.35	0.60
Industrial robots	(2.2)	0.37	0.37	0.39	0.39	0.24	0.25	0.35	0.60
Business oriented machinery	(23.7)	0.49	0.45	0.46	0.55	0.46	0.45	0.39	0.35
Instruments & appliances for measuring, checking & testing	(9.3)	0.32	0.32	0.21	-0.01	0.68	0.69	0.78	0.97
Precision measuring instruments	(4.4)	0.68	0.67	0.45	-0.04	0.32	0.33	0.53	0.94
Analytical instruments	(4.9)	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Medical appliances	(7.1)	0.65	0.65	0.70	0.87	0.35	0.35	0.09	0.00
Medical equipment	(7.1)	0.65	0.65	0.70	0.87	0.35	0.35	0.09	0.00
Optical instruments & lenses	(7.3)	0.54	0.43	0.53	0.85	0.28	0.25	0.18	0.00
Lenses & exchange lenses for photographic cameras	(3.9)	0.69	0.52	0.54	0.74	0.08	0.02	-0.01	0.00
Microscopes & binoculars	(0.8)	0.36	0.35	0.56	0.92	0.08	-0.02	0.00	-0.01
Optical lenses	(2.6)	0.36	0.32	0.50	1.00	0.64	0.68	0.53	0.00

Note: See Table 6-A.

## 6-E. Electric & Electronic Products (Exports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Electric &amp; electronic products</b>	<b>(232.9)</b>	0.60	0.55	0.51	0.54	0.34	0.37	0.40	0.39
<b>Electronic components &amp; devices</b>	<b>(130.4)</b>	0.63	0.53	0.56	0.60	0.34	0.46	0.42	0.38
Opto electronic devices	(6.3)	0.19	0.32	0.47	0.30	0.86	0.67	0.52	0.53
Opto electronic devices	(6.3)	0.19	0.32	0.47	0.30	0.86	0.67	0.52	0.53
Discrete semiconductors	(6.1)	0.90	0.42	0.38	0.44	0.07	0.59	0.62	0.57
Diodes	(0.6)	0.52	0.39	0.48	0.84	0.43	0.63	0.54	0.16
Rectifiers	(1.2)	0.98	0.31	0.41	0.50	0.04	0.68	0.58	0.50
Transistors	(4.3)	0.94	0.46	0.36	0.36	0.03	0.57	0.65	0.64
Integrated circuits	(56.9)	0.78	0.53	0.66	0.71	0.21	0.48	0.32	0.27
MOS memory integrated circuits	(18.8)			0.83	0.83			0.17	0.23
MOS integrated circuits(except MOS memo	(27.8)			0.55	0.68			0.35	0.25
Linear integrated circuits & hybrid integrated	(10.3)			0.69	0.67			0.30	0.33
Display devices	(11.3)		0.60	0.39	0.38		0.43	0.61	0.65
Display devices	(11.3)		0.60	0.39	0.38		0.43	0.61	0.65
Passive components	(15.6)	0.43	0.59	0.45	0.52	0.56	0.41	0.55	0.46
Resistors for electronic equipment	(2.2)	0.43	0.37	0.43	0.67	0.54	0.63	0.58	0.34
Condensers for electronic equipment	(10.5)	0.34	0.59	0.36	0.39	0.64	0.41	0.64	0.56
Transformers for electronic equipment	(1.6)	0.62	0.67	0.77	0.78	0.37	0.33	0.23	0.22
Crystal oscillators	(1.3)	0.76	0.85	0.83	0.82	0.28	0.16	0.16	0.17
Connecting components	(12.8)	0.14	0.11	0.18	0.37	0.86	0.89	0.82	0.66
Connectors for electronic equipment	(6.2)	0.00	0.00	0.00	0.14	1.00	1.00	1.00	0.90
Switches for electronic equipment	(6.6)	0.26	0.21	0.35	0.55	0.75	0.79	0.65	0.49
Other electronic components	(21.4)		0.79	0.74	0.78		0.13	0.17	0.20
Semiconductor memory media	(1.5)		0.82	0.67	0.43		0.03	0.10	0.48
Recording media	(4.7)		0.76	0.71	0.83		0.01	-0.03	0.01
Printed circuit boards	(6.7)	0.62	0.76	0.72	0.90	0.25	0.22	0.29	0.15
Assemblies	(0.4)		0.72	0.92	0.90		0.01	0.07	0.14
Silicon wafers	(8.1)	0.73	0.75	0.76	0.69	0.02	0.16	0.21	0.31
<b>Electrical machinery &amp; equipment</b>	<b>(66.5)</b>	0.42	0.42	0.42	0.44	0.50	0.52	0.48	0.47
Heavy electrical apparatus	(15.8)			0.35	0.41			0.51	0.52
Generators	(4.4)			0.27	0.32			0.72	0.69
Motors (excluding electronic components)	(6.2)			0.34	0.56			0.31	0.34
Electric welders	(1.9)		0.51	0.57	0.66		0.49	0.44	0.31
Converters	(3.3)			0.25	0.09			0.75	0.77
Electric bulbs and lighting & wiring devices	(5.6)	0.00	0.08	0.17	0.34	1.00	0.93	0.84	0.69
Electric bulbs & discharge lamps	(2.1)	0.00	0.17	0.04	0.10	1.00	0.83	0.96	0.89
Wiring devices	(1.8)	0.00	0.00	0.00	0.34	1.00	1.00	1.00	0.77
Electric luminaries	(1.7)	0.00	0.05	0.48	0.64	1.00	0.96	0.52	0.38
Electronic equipment	(10.0)		0.40	0.38	0.41		0.50	0.48	0.40
X-ray equipment	(4.8)	0.19	0.21	0.21	0.36	0.69	0.80	0.74	0.49
Electromedical equipment	(3.2)		0.23	0.29	0.67		0.45	0.36	0.00
Video projectors	(2.0)		1.02	0.93	0.19		0.01	0.06	0.80
Electrical meters & measuring instruments	(14.6)			0.25	0.31			0.74	0.69
Electrical measuring instruments & parts	(4.9)			0.00	0.06			1.00	0.96
Semiconductor & IC measuring instruments	(3.7)	0.00	0.00	0.03	0.11	1.00	1.00	0.97	0.88
Process control instruments	(6.0)	0.87	0.78	0.71	0.62	0.12	0.23	0.27	0.40
Other electrical machinery & equipment	(20.5)			0.52	0.60			0.27	0.23
Household electric equipment	(1.9)	0.53	0.42	0.32	0.52	0.45	0.41	0.39	0.14
Battery charging alternators & generators	(1.4)	0.26	0.29	0.76	0.75	0.48	0.48	-0.01	0.00
Starting motors	(1.3)	0.80	0.80	0.66	0.27	0.01	0.01	0.10	0.49
Spark plugs	(1.6)	0.74	0.74	0.68	0.54	-0.01	0.00	0.05	0.24
Alkali storage batteries	(1.8)			0.51	0.69			0.49	0.35
Lithium ion batteries	(6.0)			0.86	0.86			0.13	0.08
Primary dry cells	(0.7)	0.76	0.76	0.83	0.65	0.24	0.26	0.06	0.28
Solar batteries	(5.8)			0.22	0.24			0.39	0.42
<b>Information &amp; communications equipment</b>	<b>(36.0)</b>	0.63	0.58	0.54	0.55	0.27	0.22	0.23	0.25
Communications equipment	(9.5)	0.00	0.16	0.14	0.23	1.00	0.81	0.79	0.67
Fixed & mobile radio communications equip	(5.0)	0.00	0.00	-0.01	0.08	1.00	1.00	0.95	0.74
Radar apparatus & radio remote control app	(4.5)	0.00	0.33	0.30	0.39	1.00	0.61	0.61	0.60
Image & audio equipment	(17.3)	0.88	0.75	0.68	0.71	0.04	0.02	0.00	0.01
Video cameras & digital cameras	(17.3)	0.88	0.75	0.68	0.71	0.04	0.02	0.00	0.01
Electronic computers & computer equipment	(9.2)	0.72	0.62	0.67	0.65	0.03	0.11	0.15	0.17
Notebook computers	(4.8)	0.67	0.58	0.84	1.00	0.06	0.00	0.00	0.00
Computer storage devices	(1.0)	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.01
Computer printers	(3.4)	0.67	0.57	0.35	0.14	0.04	0.32	0.41	0.40



## 6-F. Transportation Equipment (Exports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
Transportation equipment	<b>(240.6)</b>	0.55	0.49	0.52	0.57	0.22	0.24	0.24	0.30
Motor vehicles	<b>(225.1)</b>			0.52	0.57			0.30	0.30
Passenger cars	(125.6)	0.65	0.58	0.63	0.72	0.05	0.06	0.06	0.15
Small passenger cars	(15.0)	0.55	0.54	0.49	0.61	0.06	0.01	-0.02	0.11
Standard passenger cars	(110.6)	0.66	0.58	0.66	0.72	0.05	0.07	0.07	0.16
Buses	(4.4)	0.13	0.09	0.15	0.15	0.74	0.55	0.50	0.77
Buses	(4.4)	0.13	0.09	0.15	0.15	0.74	0.55	0.50	0.77
Trucks	(15.2)	0.46	0.48	0.41	0.26	0.49	0.23	0.18	0.58
Small trucks	(1.0)	0.45	0.37	0.48	0.29	0.37	0.35	0.37	0.72
Standard trucks	(14.2)	0.46	0.49	0.41	0.25	0.49	0.22	0.17	0.57
Motorcycles	(4.3)	0.49	0.48	0.52	0.51	0.03	0.26	0.20	0.13
Motorcycles	(4.3)	0.49	0.48	0.52	0.51	0.03	0.26	0.20	0.13
Internal combustion engines for motor vehicles	(75.6)	0.37	0.30	0.34	0.43	0.53	0.58	0.57	0.49
Internal combustion engines for motor vehicles	(25.0)	0.48	0.37	0.47	0.60	0.33	0.39	0.32	0.18
Drive, transmission & steering parts	(33.4)			0.31	0.36			0.69	0.65
Suspension & brake parts	(5.7)			0.26	0.24			0.61	0.72
Chassis & body parts	(9.1)			0.17	0.28			0.74	0.66
Motor vehicle air conditioner parts	(2.4)			0.27	0.22			0.58	0.64
Other transportation equipment	<b>(15.5)</b>	0.69	0.71	0.64	0.60	0.31	0.27	0.31	0.32
Marine engines	(5.6)	0.71	0.71	0.49	0.32	0.31	0.30	0.44	0.42
Internal combustion diesel engines for marine	(3.0)	0.44	0.46	0.26	0.19	0.61	0.55	0.73	0.79
Outboard motors	(2.6)	1.01	1.00	0.76	0.51	-0.02	0.01	0.11	0.01
Aircraft parts & aircraft engines	(6.3)	0.85	0.94	1.00	1.00	0.15	0.05	0.00	0.00
Aircraft engine parts	(2.5)	0.60	0.86	1.00	1.00	0.39	0.13	0.00	0.00
Aircraft parts	(3.8)	1.01	1.00	1.00	1.00	-0.01	0.00	0.00	0.00
Industrial trucks & parts	(2.3)	0.46	0.44	0.36	0.20	0.54	0.40	0.43	0.74
Forklift trucks	(1.9)	0.35	0.32	0.26	0.06	0.65	0.48	0.51	0.91
Forklift truck parts	(0.4)	1.01	1.00	0.89	0.77	-0.02	0.00	0.01	0.01
Bicycle parts	(1.3)	0.25	0.02	0.00	0.00	0.69	0.96	1.00	1.00
Bicycle parts	(1.3)	0.25	0.02	0.00	0.00	0.69	0.96	1.00	1.00

Note: See Table 6-A.

6-G. Other Primary Products & Manufactured Goods (Exports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
Other primary products & manufactured goods	<b>(108.4)</b>	0.65	0.61	0.63	0.67	0.30	0.32	0.31	0.30
Wastepaper	<b>(1.3)</b>		1.00	0.99	0.99		0.02	0.00	0.00
Wastepaper	(1.3)		1.00	0.99	0.99		0.02	0.00	0.00
Wastepaper	(1.3)		1.00	0.99	0.99		0.02	0.00	0.00
Paper	<b>(6.1)</b>		0.99	0.99	1.00		0.02	0.00	0.00
Paper	(6.1)		0.99	0.99	1.00		0.02	0.00	0.00
Printing paper	(6.1)		0.99	0.99	1.00		0.02	0.00	0.00
Ceramic, stone & clay products	<b>(20.3)</b>	0.84	0.81	0.63	0.45	0.16	0.19	0.33	0.55
Glass & related products	(15.7)	0.84	0.81	0.61	0.40	0.16	0.19	0.35	0.63
Glass substrates & cover glass	(11.5)	1.01	1.00	0.75	0.38	-0.01	0.01	0.20	0.64
Glass processing materials	(3.2)	0.23	0.09	0.00	0.30	0.81	0.91	1.00	0.79
Glass fiber products	(1.0)	0.72	1.00	0.94	0.80	-0.01	-0.01	0.04	0.20
Other ceramic, stone & clay products	(4.6)	0.64	0.66	0.51	0.59	0.37	0.31	0.42	0.35
Cement	(0.7)	0.92	0.83	0.75	0.78	0.13	0.17	0.24	0.22
Refractories	(0.9)	0.00	0.35	0.32	0.34	1.00	0.35	0.35	0.32
Grinding stones	(1.1)	0.37	0.34	0.16	0.00	0.64	0.67	0.83	1.00
Artificial graphite electrodes	(1.9)	1.00	0.93	0.72	1.01	-0.01	0.15	0.29	0.01
Other manufactured goods	<b>(80.7)</b>			0.64	0.68			0.30	0.28
Petroleum & coal products	(28.5)			0.77	0.74			0.22	0.26
Jet fuel oil & kerosene	(9.7)			0.40	0.38			0.59	0.62
Gas oil	(10.2)		0.93	1.00	1.00		0.06	0.00	0.00
Fuel oil C	(6.9)		1.00	1.01	1.00		0.01	-0.01	0.01
Lubricating oil	(1.7)			0.51	0.49			0.49	0.52
Plastic products	(28.7)		0.37	0.41	0.57		0.52	0.51	0.38
Plastic laminates	(1.2)		0.00	0.00	0.00		1.00	1.00	1.00
Plastic films & sheets	(21.5)	0.60	0.45	0.48	0.53	0.26	0.42	0.42	0.41
Plastic polarizing films	(6.0)		0.16	0.27	0.78		0.83	0.74	0.19
Rubber products	(15.0)		0.67	0.71	0.81		0.09	0.06	0.13
Motor vehicle tires	(8.9)	0.81	0.76	0.85	0.92	0.06	-0.01	-0.11	0.01
Tires for special vehicles	(2.6)		0.66	0.77	0.87		0.02	-0.03	0.05
Rubber belts	(0.9)	0.68	0.62	0.70	0.49	0.33	0.07	-0.02	0.54
Rubber hoses	(1.2)		0.00	0.14	0.52		0.79	0.69	0.45
Rubber packing	(1.4)	0.23	0.22	0.24	0.49	0.77	0.78	0.76	0.53
Musical instruments and recreational & sporting	(4.3)	0.84	0.78	0.63	0.53	0.16	0.23	0.31	0.36
Musical instruments	(2.1)	1.01	1.01	0.78	0.47	0.00	0.01	0.08	0.30
Toys	(1.1)	0.59	0.39	0.42	0.67	0.41	0.62	0.59	0.32
Golf equipment	(1.1)	0.76	0.74	0.54	0.52	0.23	0.26	0.46	0.48
Other manufactured goods	(4.2)	0.65	0.67	0.67	0.62	0.34	0.35	0.32	0.35
Fasteners, snaps & sewing needles	(0.8)	1.02	0.64	0.38	-0.01	-0.02	0.39	0.60	1.00
Watches & clocks	(1.5)	0.54	0.82	0.99	0.96	0.45	0.22	0.01	0.02
Stationery	(1.3)	0.85	0.84	0.78	0.73	0.14	0.17	0.21	0.30
Frames for spectacles & ophthalmic focus le	(0.6)	0.00	0.00	-0.01	0.17	1.00	1.00	0.94	0.59

Note: See Table 6-A.

Table 7. Estimated Invoice Currency Share in Japanese Imports

## 7-A. Foodstuffs &amp; Feedstuffs (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Foodstuffs &amp; feedstuffs</b>	<b>(75.8)</b>	0.71	0.72	0.70	0.65	0.19	0.17	0.20	0.30
Edible agriculture, livestock & fishery products	(35.6)			0.68	0.66			0.32	0.32
Grains	(11.0)			0.69	0.68			0.31	0.31
Polished rice	(0.8)			0.00	0.00			1.00	1.00
Barley	(0.6)	0.99	1.00	1.00	0.99	0.02	0.02	0.00	0.01
Wheat	(2.7)	0.98	1.00	0.75	0.00	0.04	0.00	0.22	1.00
Corn	(6.4)	0.98	1.00	1.00	1.00	0.02	0.01	0.00	0.01
Sorghum	(0.5)	1.01	1.00	1.00	1.00	0.00	0.01	0.00	0.00
Beans & oilseeds	(5.6)	0.98	1.00	1.00	1.00	0.02	0.01	0.00	0.00
Soybeans	(3.4)	0.99	0.99	1.00	1.00	0.02	0.02	0.00	0.00
Rape seeds	(2.2)	0.98	1.00	1.00	1.00	0.02	0.01	0.00	0.00
Other agriculture products	(4.9)	0.95	0.94	0.92	0.94	0.05	0.07	0.08	0.06
Dry fruits & nuts	(0.9)	0.77	0.69	0.58	0.72	0.23	0.35	0.42	0.25
Coffee beans	(2.4)	0.99	1.01	1.00	1.00	0.01	0.00	0.00	0.00
Feed hay, fodder roots, etc.	(1.6)	0.99	0.98	1.00	1.01	0.01	0.02	0.00	0.00
Livestock products	(14.1)	0.45	0.45	0.41	0.41	0.55	0.55	0.59	0.56
Beef	(3.9)	0.99	0.97	0.86	0.76	0.02	0.04	0.14	0.13
Edible offal & tongues of cattle	(0.6)	0.99	1.00	1.00	1.00	0.01	0.01	-0.01	0.01
Pork	(7.7)	0.00	0.00	0.00	0.00	1.00	0.99	1.00	1.00
Chicken	(1.9)	1.00	1.00	1.00	0.99	0.00	0.00	0.00	0.01
Primary processed foodstuffs	(2.2)	0.77	0.78	0.81	0.79	0.25	0.12	0.10	0.21
Primary processed foodstuffs	(2.2)	0.77	0.78	0.81	0.79	0.25	0.12	0.10	0.21
Raw sugar	(1.6)	0.94	1.00	0.99	1.00	0.11	0.02	0.00	0.00
Malt	(0.6)	0.32	0.21	0.30	0.28	0.62	0.41	0.36	0.70
Prepared & preserved foodstuffs	(22.4)			0.64	0.68			0.23	0.23
Processed agriculture & fishery products	(10.3)			0.78	0.77			0.17	0.19
Canned fruits & vegetables	(1.9)			0.58	0.59			0.18	0.23
Canned seafood	(1.3)	0.78	0.75	0.87	0.99	-0.03	0.02	0.01	0.01
Prepared eel	(3.0)	0.99	0.99	1.00	0.98	0.01	0.02	-0.01	0.02
Prepared crustaceans	(4.1)	0.99	1.00	0.89	0.60	0.02	-0.01	0.10	0.41
Other prepared & preserved foodstuffs	(12.1)			0.50	0.58			0.30	0.27
Olive oil	(0.5)	0.01	0.03	0.07	0.00	0.34	0.33	0.90	0.61
Palm oil	(1.7)	1.01	0.98	1.00	1.00	-0.01	0.00	0.00	0.01
Cheese	(2.4)	0.13	0.15	0.33	0.57	0.00	0.01	-0.02	0.00
Prepared & preserved chicken	(4.0)			0.20	0.40			0.79	0.63
Seasonings	(1.4)	0.99	1.01	0.96	0.92	0.01	0.00	0.00	0.05
Pasta	(0.8)	0.47	0.37	0.37	0.08	0.16	0.15	0.19	0.26
Chocolate confectionery	(1.3)	0.67	0.55	0.64	0.74	0.06	0.00	-0.04	0.02
Beverages	(5.6)			0.33	0.38			0.32	0.19
Beverages	(5.6)			0.33	0.38			0.32	0.19
Mineral waters	(0.6)	0.26	0.27	0.24	0.38	0.74	0.74	0.74	0.44
Fruit juices & soft drinks containing fruit juice	(1.1)	0.99	0.99	1.00	1.00	0.01	0.01	0.00	0.01
Wine	(2.4)	-0.03	0.00	0.04	0.25	0.30	0.31	0.15	0.21
Whisky & brandy	(0.6)		0.09	0.23	0.32		0.64	0.49	0.45
Tea & coffee	(0.9)		0.57	0.73	0.98		0.01	-0.03	0.02
Tobacco products	(5.5)			0.22	0.24			0.77	0.77
Tobacco products	(5.5)			0.22	0.24			0.77	0.77
Tobacco products	(5.5)			0.22	0.24			0.77	0.77
Feedstuffs	(4.5)	0.96	1.00	0.96	0.88	0.05	0.01	0.03	0.13
Feedstuffs	(4.5)	0.96	1.00	0.96	0.88	0.05	0.01	0.03	0.13
Soybean cake & meal	(1.8)	0.98	0.99	1.00	1.00	0.03	0.01	0.00	0.00
Fish meal	(0.9)	0.88	1.01	1.01	1.00	0.17	0.02	-0.01	0.00
Pet food	(1.8)	0.98	1.00	0.91	0.67	0.02	0.01	0.08	0.34

Note: Estimated invoice currency share is reported. For example, 1.00 indicates that the share of invoice currency is 100 percent. Shaded figures in gray denote an insignificant share (coefficient). Weight indicates the share of each industry or commodity in total exports (1,000).

## 7-B. Textiles (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Textiles</b>	<b>(53.5)</b>	0.49	0.46	0.44	0.48	0.50	0.51	0.55	0.51
Raw yarn	(2.0)	0.92	1.00	0.99	0.89	0.13	0.00	0.00	0.09
Yarn of natural fibers	(0.8)	0.99	0.99	0.99	1.01	0.01	0.01	0.00	0.00
Cotton yarn	(0.8)	0.99	0.99	0.99	1.01	0.01	0.01	0.00	0.00
Synthetic yarn	(1.2)	0.87	1.00	0.99	0.82	0.21	-0.01	0.00	0.13
Synthetic filament yarn	(1.2)	0.87	1.00	0.99	0.82	0.21	-0.01	0.00	0.13
Woven fabrics	(1.6)	0.95	1.01	0.96	0.90	0.08	0.01	0.00	0.00
Natural fiber fabrics	(1.0)	1.00	1.01	0.93	0.83	0.00	0.01	0.00	0.00
Cotton fabrics	(1.0)	1.00	1.01	0.93	0.83	0.00	0.01	0.00	0.00
Synthetic fiber fabrics	(0.6)	0.87	1.01	1.00	1.00	0.21	0.00	0.00	0.00
Synthetic filament & spun synthetic yarn fab	(0.6)	0.87	1.01	1.00	1.00	0.21	0.00	0.00	0.00
Apparel	(43.8)		0.38	0.36	0.41		0.60	0.63	0.58
Underwear	(5.2)		0.32	0.30	0.30		0.62	0.65	0.71
Men's or boys' underwear	(2.4)	0.64	0.52	0.45	0.38	0.35	0.49	0.54	0.62
Women's or girls' underwear	(1.0)		0.00	0.00	0.00		1.00	1.00	1.00
Foundation garments	(1.0)	0.01	0.01	0.05	0.00	0.57	0.62	0.71	1.00
Pajamas	(0.8)	0.50	0.51	0.53	0.74	0.50	0.48	0.47	0.30
Shirts, blouses, polo shirts, T-shirts & sweatshirts	(8.0)	0.43	0.46	0.48	0.60	0.61	0.55	0.53	0.39
Shirts	(1.5)	0.27	0.17	0.09	0.26	0.71	0.86	0.92	0.75
Blouses	(1.6)	0.27	0.38	0.41	0.23	0.78	0.63	0.59	0.75
Polo shirts	(2.6)	0.55	0.63	0.66	0.69	0.51	0.35	0.34	0.29
T-shirts	(1.8)	0.48	0.50	0.58	0.97	0.54	0.50	0.44	0.02
Sweatshirts	(0.5)	0.57	0.50	0.52	0.63	0.46	0.50	0.48	0.37
Outerwear	(23.9)		0.35	0.32	0.32		0.62	0.68	0.67
Sweaters	(6.8)	0.41	0.42	0.44	0.46	0.59	0.58	0.56	0.52
Men's or boys' suits, etc.	(1.7)		0.39	0.33	0.42		0.63	0.66	0.62
Women's or girls' suits, etc.	(3.7)		0.00	0.02	0.00		1.00	0.99	1.00
Men's or boys' trousers, etc.	(2.8)		0.69	0.67	0.73		0.31	0.33	0.29
Women's or girls' skirts, etc.	(4.7)		0.58	0.44	0.26		0.42	0.55	0.73
Coats	(4.2)	0.09	0.02	0.03	0.14	0.80	0.81	0.98	0.86
Other apparel	(6.7)	0.48	0.45	0.44	0.56	0.53	0.55	0.55	0.43
Socks	(1.7)	0.59	0.57	0.56	0.56	0.42	0.43	0.45	0.41
Children's garments	(0.4)	0.39	0.40	0.51	0.74	0.61	0.59	0.50	0.28
Work clothing	(2.5)	0.40	0.34	0.37	0.59	0.62	0.67	0.64	0.42
Ties	(0.3)	0.52	0.66	0.64	0.67	0.57	0.34	0.30	0.12
Scarves	(0.5)	0.21	0.29	0.22	0.05	0.79	0.66	0.70	0.89
Gloves & mittens	(0.7)	0.47	0.46	0.52	0.51	0.52	0.53	0.46	0.52
Hats & headgear	(0.6)	0.71	0.61	0.37	0.67	0.28	0.42	0.63	0.34
Other textile products	(6.1)	0.43	0.44	0.56	0.72	0.45	0.46	0.38	0.30
Other textile products	(6.1)	0.43	0.44	0.56	0.72	0.45	0.46	0.38	0.30
Blankets	(0.5)	0.35	0.36	0.35	0.53	0.66	0.63	0.64	0.50
Linen	(1.0)	0.55	0.53	0.88	0.99	0.46	0.47	0.10	0.00
Nonwovens	(1.1)	0.17	0.02	0.17	0.18	0.42	0.63	0.69	0.82
Carpets	(1.5)	0.68	0.84	0.99	1.00	0.19	0.01	0.00	0.01
Towels	(1.5)	0.00	0.14	0.22	0.51	1.00	0.85	0.77	0.53
Curtains	(0.5)	1.00	0.95	0.72	0.96	0.00	0.02	-0.01	-0.01

Note: See Table 7-A.

### 7-C. Metals & Related Products (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Metals &amp; related products</b>	<b>(117.1)</b>	0.85	0.84	0.86	0.87	0.13	0.15	0.13	0.12
<b>Metal materials</b>	<b>(54.0)</b>			1.01	1.01			-0.01	0.00
<b>Iron ores</b>	<b>(23.8)</b>	0.98	0.98	0.99	1.00	0.01	0.00	0.01	0.01
Iron ores	(23.8)	0.98	0.98	0.99	1.00	0.01	0.00	0.01	0.01
<b>Nonferrous metal ores</b>	<b>(23.0)</b>	1.01	0.99	1.00	1.00	0.00	0.01	0.00	0.01
Copper ores	(19.5)	1.01	0.99	0.99	1.00	0.01	0.01	0.00	0.00
Nickel ores	(0.6)	1.00	1.00	0.99	1.01	0.01	0.01	0.00	0.00
Zinc ores	(1.2)	1.01	1.00	1.00	0.99	-0.01	0.02	0.00	0.01
Manganese ores	(0.6)	0.99	1.00	1.00	1.00	0.01	0.01	0.00	0.00
Molybdenum ores	(1.1)	1.00	1.00	1.01	0.99	-0.03	0.01	-0.01	0.01
<b>Metal scrap</b>	<b>(7.2)</b>			1.00	1.00			-0.01	0.01
Iron & steel scrap	(2.1)	0.94	1.01	1.00	0.99	0.09	0.00	0.00	0.01
Platinum scrap	(1.3)			1.00	1.00			0.00	0.00
Copper & copper alloy scrap	(3.8)	0.93	0.87	1.00	1.00	0.10	0.12	0.00	0.01
<b>Iron &amp; steel</b>	<b>(12.5)</b>	0.48	0.48	0.47	0.51	0.52	0.52	0.52	0.49
<b>Ferro-alloys</b>	<b>(6.0)</b>	0.96	1.00	1.00	1.01	0.05	0.00	0.00	0.00
Silico-manganese	(0.9)	0.90	0.99	0.99	1.00	0.13	0.02	0.00	0.01
Ferro-chromium	(2.7)	0.99	1.01	1.00	1.00	0.00	0.00	-0.01	0.01
Ferro-silicon	(1.9)	0.93	1.00	1.00	1.00	0.12	0.00	0.00	0.01
Ferro-nickel	(0.5)	1.03	0.99	1.00	1.00	-0.04	0.01	0.00	0.01
<b>Hot rolled ordinary steel products</b>	<b>(3.0)</b>	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Hot rolled steel strips	(3.0)	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
<b>Cold finished &amp; coated ordinary steel products</b>	<b>(2.2)</b>	0.00	0.00	0.00	0.01	1.00	1.00	1.00	0.99
Cold rolled steel strips	(1.2)	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Coated steel plates & sheets	(1.0)	0.00	0.00	0.00	0.03	1.00	1.00	1.00	0.96
<b>Special steel products</b>	<b>(1.3)</b>	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
Stainless steel sheets	(1.3)	0.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00
<b>Nonferrous metals</b>	<b>(38.9)</b>		0.95	0.95	0.94		0.07	0.05	0.07
<b>Unwrought precious metals</b>	<b>(10.9)</b>		0.99	0.99	1.01		0.02	0.00	0.00
Unwrought gold	(0.9)	0.99	0.98	1.00	1.00	0.01	0.01	0.00	0.01
Unwrought silver	(2.2)	0.98	0.99	0.99	1.00	0.02	0.01	0.00	0.01
Unwrought platinum	(4.6)	1.00	0.99	0.99	0.99	0.00	0.01	0.00	0.00
Unwrought palladium	(1.9)	0.99	0.99	0.99	1.00	0.00	0.01	0.00	0.00
Unwrought rhodium	(1.3)		1.01	1.00	1.00		0.00	-0.01	0.01
<b>Unwrought heavy metals</b>	<b>(9.7)</b>		0.99	1.00	1.00		0.02	0.00	0.00
Unwrought copper	(1.1)	0.99	0.99	1.00	1.00	0.01	0.02	0.00	0.00
Unwrought indium	(0.4)		1.01	1.00	1.00		0.00	0.00	0.01
Unwrought cobalt	(1.0)	1.00	1.01	0.99	1.00	0.00	0.01	0.01	0.00
Unwrought tin	(1.4)	1.00	1.00	1.00	1.00	0.02	0.02	0.00	0.01
Unwrought nickel	(5.8)	0.94	0.99	1.00	1.00	0.09	0.02	0.00	0.00
<b>Unwrought light metals</b>	<b>(11.3)</b>	1.00	0.99	0.99	0.99	0.01	0.01	0.00	0.01
Unwrought aluminum	(7.2)	1.00	0.99	1.00	1.00	0.00	0.02	0.00	0.01
Unwrought primary & secondary aluminum	(4.1)	0.99	1.00	1.00	0.99	0.01	0.01	0.00	0.00
<b>Unwrought silicon</b>	<b>(3.5)</b>	0.75	0.79	1.00	1.00	0.24	0.22	0.00	0.00
Unwrought silicon	(3.5)	0.75	0.79	1.00	1.00	0.24	0.22	0.00	0.00
<b>Electric wires &amp; cables</b>	<b>(3.5)</b>		0.63	0.48	0.40		0.39	0.52	0.67
Electric wires & cables	(3.5)		0.63	0.48	0.40		0.39	0.52	0.67
<b>Metal products</b>	<b>(11.7)</b>		0.47	0.51	0.57		0.46	0.44	0.40
<b>Wire products</b>	<b>(3.8)</b>	0.34	0.40	0.45	0.86	0.68	0.61	0.57	0.13
Bolts, nuts & nails	(3.8)	0.34	0.40	0.45	0.86	0.68	0.61	0.57	0.13
<b>Other metal products</b>	<b>(7.9)</b>		0.49	0.54	0.43		0.39	0.38	0.53
Metal fittings & related products	(3.0)	0.61	0.13	0.26	0.09	0.08	0.56	0.55	0.80
Metal kitchenware & household utensils	(2.9)		0.68	0.77	0.81		0.28	0.23	0.21
Metal pipe & tube fittings	(2.0)	0.38	0.61	0.63	0.38	0.61	0.39	0.36	0.59

Note: See Table 7-A.

7-D. Wood, Lumber & Related Products (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
Wood, lumber & related products	<b>(16.5)</b>	0.85	0.76	0.73	0.78	0.03	0.10	0.08	0.08
Logs	<b>(1.9)</b>	1.00	1.00	1.00	1.00	0.00	0.01	0.00	0.01
Logs	(1.9)	1.00	1.00	1.00	1.00	0.00	0.01	0.00	0.01
North American logs	(1.9)	1.00	1.00	1.00	1.00	0.00	0.01	0.00	0.01
Lumber	<b>(4.6)</b>		0.55	0.52	0.59		0.23	0.20	0.08
Lumber	(4.6)		0.55	0.52	0.59		0.23	0.20	0.08
North American lumber	(2.2)		1.01	0.99	1.00		0.00	0.00	0.00
Russian lumber	(0.6)	0.81	0.52	0.48	0.47	0.21	0.51	0.52	0.52
European lumber	(1.8)	0.01	-0.01	-0.05	0.01	0.01	0.29	0.32	0.01
Wood chips	<b>(4.6)</b>	0.86	0.86	0.77	0.91	0.02	0.02	-0.12	0.06
Wood chips	(4.6)	0.86	0.86	0.77	0.91	0.02	0.02	-0.12	0.06
Softwood chips	(0.7)	0.99	1.02	1.00	1.00	0.01	0.00	0.00	0.00
Hardwood chips	(3.9)	0.84	0.83	0.73	0.90	0.02	0.02	-0.14	0.07
Processed lumber products	<b>(5.4)</b>	0.76	0.71	0.70	0.77	0.08	0.16	0.18	0.12
Plywood	(3.8)	0.99	0.92	0.93	0.96	0.01	0.09	0.07	0.06
Plywood	(3.8)	0.99	0.92	0.93	0.96	0.01	0.09	0.07	0.06
Other processed lumber products	(1.6)	0.20	0.21	0.14	0.21	0.25	0.35	0.44	0.30
Glued-laminated lumber	(1.1)	-0.01	0.00	-0.02	0.19	0.21	0.36	0.43	0.00
Fiberboard	(0.5)	0.67	0.67	0.50	0.17	0.33	0.34	0.45	0.88

Note: See Table 7-A.

7-E. Petroleum, Coal & Natural Gas (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
Petroleum, coal & natural gas	<b>(206.8)</b>	0.98	0.99	0.92	0.87	0.04	0.02	0.07	0.12
Petroleum & related products	<b>(164.9)</b>			1.01	1.00			-0.01	0.01
Crude petroleum	(164.9)	1.00	0.99	1.00	0.99	0.02	0.02	-0.01	0.00
Crude petroleum	(41.9)	1.00	0.99	1.00	0.99	0.02	0.02	-0.01	0.00
Petroleum products	(22.0)			1.00	1.00			0.00	0.00
Naphtha	(1.1)	0.97	1.01	0.99	1.01	0.04	-0.01	0.00	0.00
Jet fuel oil & kerosene	(2.4)	0.92	1.00	1.00	1.00	0.12	0.01	0.00	0.01
Fuel oil C	(15.0)	0.97	0.99	1.00	0.99	0.06	-0.01	0.00	0.01
Liquefied petroleum gas	(1.4)	0.99	0.99	0.99	1.00	0.02	0.02	0.00	0.01
Petroleum coke	(37.7)			1.00	1.00			-0.02	0.00
Coal & related products	<b>(37.1)</b>		1.01	0.86	0.68		0.00	0.14	0.30
Coal	(16.3)	0.97	1.00	0.85	0.67	0.04	0.00	0.14	0.31
Coal for coke making	(20.8)	0.97	1.00	0.99	1.00	0.03	0.01	0.00	0.01
Coal for general use	(0.6)	0.97	1.00	0.74	0.47	0.04	0.00	0.24	0.50
Coal products	(0.6)		1.02	1.00	1.00		-0.01	0.00	0.01
Coal coke	(60.9)		1.02	1.00	1.00		-0.01	0.00	0.01
Natural gas	<b>(60.9)</b>	0.98	0.95	0.74	0.65	0.02	0.07	0.28	0.35
Natural gas	(60.9)	0.98	0.95	0.74	0.65	0.02	0.07	0.28	0.35
Liquefied natural gas	(60.9)	0.98	0.95	0.74	0.65	0.02	0.07	0.28	0.35

Note: See Table 7-A.

7-F. Chemicals & Related Products (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Chemicals &amp; related products</b>	<b>(83.3)</b>	0.55	0.55	0.47	0.39	0.38	0.40	0.45	0.48
Industrial inorganic chemicals	(8.6)			0.87	0.85			0.13	0.14
Industrial inorganic chemicals	(8.6)			0.87	0.85			0.13	0.14
Titanium oxides	(3.7)	0.01	0.08	0.42	0.68	1.00	0.88	0.58	0.32
Carbon black	(3.3)		1.00	1.00	1.00		0.00	0.00	0.00
Lithium carbonates	(1.6)			1.00	0.91			-0.01	0.08
Industrial organic chemicals	(37.0)			0.48	0.50			0.40	0.38
Basic petrochemicals	(0.4)			1.00	1.00			0.00	0.01
Ethylene & propylene	(0.3)			1.00	1.00			-0.01	0.01
Benzene	(0.1)			1.00	1.00			-0.02	0.00
Aliphatic intermediates	(0.3)	0.99	1.00	1.00	0.99	0.00	0.00	0.00	0.01
Ethylene dichloride	(0.2)	0.99	1.00	1.00	1.00	0.00	0.00	0.00	0.01
Acrylonitrile	(0.1)	1.00	1.00	1.01	1.00	0.01	0.01	0.00	0.00
Plastic resins & materials	(7.8)			0.69	0.70			0.30	0.28
General purpose plastics (except saturated p	(3.1)			1.00	0.99			-0.01	0.01
Polyamide resins	(1.3)			0.25	0.23			0.74	0.76
Saturated polyester resins	(2.7)			0.69	0.63			0.31	0.35
Polycarbonates	(0.7)			0.25	0.37			0.75	0.66
Other industrial organic chemicals	(28.5)			0.40	0.44			0.44	0.41
Synthetic dyes	(1.4)	0.00	0.17	0.17	0.28	1.00	0.82	0.84	0.69
Synthetic rubber	(1.3)	0.67	0.70	0.67	0.71	0.34	0.30	0.35	0.28
Methanol	(1.4)	1.01	1.00	1.00	1.00	-0.01	0.00	-0.01	0.01
Rubber organic chemicals	(0.2)		0.51	0.57	0.81		0.52	0.44	0.18
Synthetic acidifiers	(0.5)	0.20	0.40	0.50	0.57	0.59	0.52	0.49	0.43
Pharmaceuticals intermediates	(23.7)			0.36	0.38			0.45	0.44
Medical material preparations & product preparati	(29.6)			0.04	0.06			0.82	0.79
Medical material preparations & product prepa	(29.6)			0.04	0.06			0.82	0.79
Psychotropic agents	(1.7)		0.01	0.09	0.00		0.68	0.71	1.00
Agents for ophthalmic use	(1.7)	0.42	0.00	0.04	0.00	0.56	1.00	0.97	1.00
Cardiovascular agents	(3.1)	0.11	0.20	0.15	0.00	0.89	0.81	0.84	1.00
Agents affecting respiratory organs	(1.9)	0.20	0.20	0.10	0.00	0.80	0.79	0.79	0.76
Hormone preparations	(3.1)	0.43	0.31	0.22	0.00	0.37	0.35	0.54	1.00
Antidiabetic agents	(1.9)			0.00	0.00			1.00	1.00
Antineoplastic agents	(9.1)	0.01	-0.02	-0.01	0.03	0.49	0.53	0.60	0.57
Antibiotic preparations	(0.8)	0.45	0.37	0.25	0.14	0.27	0.33	0.47	0.63
Chemotherapeutics	(3.9)	0.26	0.26	0.19	0.00	0.74	0.74	0.81	1.00
Diagnostic agents	(2.4)	0.42	0.54	0.89	0.52	0.34	0.40	0.10	0.40
Other chemical products	(8.1)	0.48	0.47	0.45	0.52	0.41	0.41	0.42	0.30
Chemical fertilizers	(1.6)	0.82	0.80	0.79	1.00	0.19	0.21	0.22	0.01
Potassium fertilizers	(0.7)	1.00	1.01	1.00	1.01	0.00	0.00	0.00	0.00
Mixed fertilizers	(0.9)	0.67	0.64	0.63	0.99	0.33	0.38	0.40	0.01
Other chemical products	(6.5)	0.39	0.39	0.37	0.42	0.47	0.46	0.47	0.37
Perfume & cologne	(0.5)	0.17	0.23	0.14	0.01	0.38	0.30	0.45	0.47
Makeup & skin care products	(1.8)	0.14	0.21	0.15	0.22	0.85	0.79	0.69	0.37
Hair care products	(1.1)	0.18	0.09	0.17	0.19	0.26	0.25	0.31	0.32
Agricultural pesticides	(0.6)	0.22	0.13	0.11	0.30	0.69	0.88	0.89	0.71
Photosensitive materials	(0.6)		0.00	0.00	0.00	1.00	1.00	1.00	1.00
Perfume & flavor materials	(1.0)	0.96	0.99	0.99	1.00	0.05	0.01	0.00	0.01
Prepared additives for mineral oils	(0.9)	1.00	1.00	0.87	0.79	0.00	0.01	0.12	0.28

Note: See Table 7-A.

### 7-G. General Purpose, Production & Business Oriented Machinery (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
General purpose, production & business oriented machinery	<b>(53.9)</b>	0.67	0.56	0.55	0.62	0.17	0.25	0.34	0.36
General purpose machinery	<b>(22.1)</b>		0.60	0.63	0.73		0.33	0.31	0.22
Pumps	(5.9)	0.74	0.75	0.78	0.78	0.00	0.01	-0.01	0.00
Pumps	(5.9)	0.74	0.75	0.78	0.78	0.00	0.01	-0.01	0.00
Power transmission equipment & bearings	(5.6)	0.34	0.22	0.33	0.58	0.66	0.74	0.67	0.43
Bearings	(5.6)	0.34	0.22	0.33	0.58	0.66	0.74	0.67	0.43
Refrigerating machines & appliances	(5.3)		0.68	0.66	0.69		0.33	0.33	0.32
Refrigerating machines	(5.3)		0.68	0.66	0.69		0.33	0.33	0.32
Other general purpose machinery	(5.3)	0.79	0.76	0.73	0.84	0.22	0.25	0.28	0.16
Metal valves	(5.3)	0.79	0.76	0.73	0.84	0.22	0.25	0.28	0.16
Production machinery	<b>(1.5)</b>		0.00	0.00	0.00		1.00	1.00	1.00
Tools for machines and pneumatic & electric tools	(1.5)		0.00	0.00	0.00		1.00	1.00	1.00
Tools for machines	(1.5)		0.00	0.00	0.00		1.00	1.00	1.00
Business oriented machinery	<b>(30.3)</b>		0.66	0.54	0.57		0.18	0.39	0.44
Office machinery	(3.8)	1.00	0.71	0.63	0.72	0.00	0.29	0.36	0.26
Copying machines	(3.8)	1.00	0.71	0.63	0.72	0.00	0.29	0.36	0.26
Instruments & appliances for measuring, checking & testing	(6.6)	0.76	0.86	0.34	0.30	0.01	0.01	0.66	0.72
Analytical instruments	(6.6)	0.76	0.86	0.34	0.30	0.01	0.01	0.66	0.72
Medical appliances	(16.9)	0.61	0.54	0.58	0.59	0.09	0.18	0.32	0.44
Medical equipment	(11.6)	0.54	0.44	0.52	0.55	0.01	0.16	0.33	0.49
Medical supplies	(5.3)	0.75	0.78	0.70	0.68	0.27	0.24	0.29	0.34
Optical instruments & lenses	(3.0)		0.77	0.69	0.80		0.23	0.26	0.10
Lenses & exchange lenses for photographic cameras	(3.0)		0.77	0.69	0.80		0.23	0.26	0.10

Note: See Table 7-A.



## 7-H. Electric & Electronic Products (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Electric &amp; electronic products</b>	<b>(184.3)</b>	0.60	0.58	0.53	0.58	0.38	0.41	0.46	0.42
<b>Electronic components &amp; devices</b>	<b>(67.1)</b>			0.50	0.56			0.50	0.44
<b>Electronic devices</b>	<b>(47.9)</b>		0.63	0.49	0.53		0.36	0.50	0.49
Discrete semiconductors	(4.3)	0.55	0.62	0.51	0.41	0.50	0.41	0.45	0.60
MOS logic integrated circuits	(14.6)	0.97	0.85	0.72	0.59	0.02	0.16	0.26	0.41
MOS memory integrated circuits	(16.8)	0.58	0.51	0.31	0.59	0.39	0.49	0.69	0.47
Linear integrated circuits	(4.5)	0.57	0.37	0.39	0.00	0.07	0.43	0.59	1.00
Hybrid integrated circuits	(2.1)		1.01	0.92	0.88		0.01	0.06	0.21
Display devices	(5.6)		0.52	0.37	0.55		0.57	0.65	0.40
<b>Electronic components</b>	<b>(19.2)</b>			0.62	0.65			0.38	0.34
Condensers for electronic equipment	(0.9)	1.00	1.00	0.76	1.01	0.00	0.02	0.25	0.00
Transformers for electronic equipment	(1.9)	0.58	0.35	0.44	0.65	0.34	0.66	0.58	0.36
Crystal oscillators	(1.1)	1.00	1.01	0.99	0.65	0.00	0.01	0.00	0.34
Transducers	(2.3)	0.65	0.67	0.68	0.79	0.37	0.34	0.31	0.24
Connecting components	(2.5)	0.00	0.31	0.43	0.24	1.00	0.66	0.56	0.71
Recording media	(2.8)	0.59	0.56	0.61	0.91	0.39	0.45	0.40	0.11
Printed circuit boards	(3.5)			0.00	0.16			1.00	0.80
Assemblies	(1.0)	0.74	0.55	0.76	1.01	0.20	0.45	0.25	0.00
Silicon wafers	(3.2)	0.25	0.25	0.63	1.00	0.73	0.76	0.40	0.00
<b>Electrical machinery &amp; equipment</b>	<b>(44.7)</b>			0.49	0.54			0.48	0.44
<b>Heavy electrical apparatus</b>	<b>(1.2)</b>			0.35	0.31			0.31	0.34
Converters	(1.2)			0.35	0.31			0.31	0.34
<b>Household electric equipment</b>	<b>(13.7)</b>			0.56	0.62			0.43	0.38
Microwave ovens	(1.1)	0.16	0.19	0.38	0.57	0.84	0.82	0.62	0.42
Household refrigerators & freezers	(2.3)	0.19	0.20	0.29	0.24	0.80	0.80	0.69	0.80
Room air conditioners	(3.2)	0.61	0.49	0.49	0.77	0.43	0.47	0.55	0.23
Air cleaners	(1.2)			1.00	0.99			0.00	0.01
Household washing machines	(2.8)	0.21	0.31	0.41	0.48	0.79	0.68	0.58	0.52
Household vacuum cleaners	(1.7)	0.34	0.30	0.41	0.58	0.65	0.67	0.59	0.43
Shavers, hair clippers & hair dryers	(1.4)	0.27	0.74	0.80	0.80	0.73	0.25	0.20	0.20
<b>Electric bulbs and lighting &amp; wiring devices</b>	<b>(6.9)</b>		0.37	0.46	0.41		0.53	0.52	0.61
Electric bulbs & discharge lamps	(1.1)		0.28	0.64	0.43		0.18	0.35	0.59
Wiring devices	(3.6)	0.35	0.34	0.29	0.18	0.65	0.66	0.69	0.83
Electric luminaries	(2.2)		0.44	0.64	0.70		0.50	0.35	0.32
<b>Electronic equipment</b>	<b>(6.2)</b>	0.40	0.37	0.35	0.38	0.60	0.63	0.66	0.59
X-ray equipment	(6.2)	0.40	0.37	0.35	0.38	0.60	0.63	0.66	0.59
<b>Electrical meters &amp; measuring instruments</b>	<b>(5.1)</b>	0.83	0.66	0.68	0.71	0.15	0.29	0.23	0.22
Electrical meters & measuring instruments in	(3.0)	0.94	0.74	0.78	0.77	0.04	0.26	0.21	0.21
Process control instruments	(1.5)	0.60	0.56	0.63	0.77	0.35	0.28	0.11	0.05
Medical measuring instruments	(0.6)	0.90	0.52	0.33	0.27	0.06	0.48	0.65	0.74
<b>Other electrical machinery &amp; equipment</b>	<b>(11.6)</b>			0.42	0.57			0.57	0.45
Wiring harnesses	(7.6)		0.50	0.47	0.63		0.50	0.53	0.38
Storage batteries	(2.0)		0.39	0.39	0.39		0.59	0.61	0.63
Solar batteries	(2.0)			0.12	0.42			0.88	0.63
<b>Information &amp; communications equipment</b>	<b>(72.5)</b>			0.61	0.63			0.39	0.37
<b>Communications equipment</b>	<b>(30.7)</b>			0.68	0.64			0.32	0.35
Carrier transmission equipment	(8.7)			1.00	0.85			-0.01	0.11
Cellular phones	(10.6)	0.44	0.50	0.31	0.49	0.60	0.50	0.75	0.48
Television receivers	(11.4)	0.50	0.53	0.55	0.56	0.48	0.48	0.47	0.46
<b>Image &amp; audio equipment</b>	<b>(10.1)</b>	0.67	0.66	0.52	0.61	0.33	0.36	0.47	0.39
Video recording and/or reproducing apparatus	(3.5)	0.57	0.56	0.28	0.31	0.45	0.45	0.75	0.68
Video cameras & digital cameras	(2.9)	0.67	0.61	0.42	0.61	0.31	0.45	0.57	0.41
Car audio equipment	(1.0)	0.65	0.72	0.85	0.83	0.34	0.28	0.15	0.16
Home audio equipment	(2.7)	0.74	0.82	0.81	0.77	0.28	0.17	0.12	0.20
<b>Electronic computers &amp; computer equipment</b>	<b>(31.7)</b>			0.54	0.64			0.46	0.39
Servers	(4.4)			0.35	0.52			0.64	0.53
Desktop computers	(3.3)			0.37	0.42			0.64	0.61
Notebook computers	(12.3)			0.40	0.30			0.61	0.69
Computer storage devices using magnetic di	(5.1)	0.26	0.41	0.56	0.94	0.70	0.60	0.45	0.08
Optical disk storages	(0.6)	0.93	0.98	0.94	0.74	0.09	0.04	0.04	0.22
Computer printers	(3.3)	1.00	0.83	0.86	0.95	0.00	0.14	0.15	0.07
Computer monitors	(2.7)	0.47	0.49	0.46	0.78	0.52	0.53	0.56	0.25

Note: See Table 7-A.

## 7-I. Transportation Equipment (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
Transportation equipment	<b>(34.1)</b>	0.46	0.46	0.47	0.47	0.43	0.39	0.39	0.37
Motor vehicles	<b>(24.9)</b>			0.29	0.28			0.50	0.50
Passenger cars	(10.5)			0.02	0.02			0.64	0.57
Small passenger cars	(1.2)	-0.01	0.02	0.00	0.03	1.02	0.83	0.70	0.56
Standard passenger cars	(9.3)	0.09	0.02	-0.03	0.02	0.69	0.80	0.84	0.57
Motorcycles	(1.0)			0.37	0.45			0.48	0.40
Motorcycles	(1.0)	0.01	0.01	0.13	0.45	0.69	0.69	0.76	0.40
Internal combustion engines for motor vehicles	(13.4)			0.49	0.46			0.38	0.45
Internal combustion engines for motor vehicles	(4.9)			0.75	0.76			0.24	0.25
Motor vehicle parts	(8.5)	0.49	0.34	0.31	0.29	0.37	0.43	0.49	0.56
Other transportation equipment	<b>(9.2)</b>			0.90	0.96			0.08	0.05
Aircraft parts & aircraft engines	(7.7)			0.89	0.95			0.09	0.07
Aircraft engine & parts	(5.3)			0.87	0.93			0.13	0.09
Aircraft parts	(2.4)	1.00	1.00	0.97	0.98	0.00	0.00	-0.02	0.01
Bicycles	(1.5)	0.14	0.34	0.63	1.00	0.82	0.64	0.38	0.01
Bicycles	(1.5)	0.14	0.34	0.63	1.00	0.82	0.64	0.38	0.01

Note: See Table 7-A.

## 7-J. Other Primary Products & Manufactured Goods (Imports)

	Weight	U.S. Dollar Invoicing Share				Yen Invoicing Share			
		00-03	04-07	08-11	12-15	00-03	04-07	08-11	12-15
<b>Other primary products &amp; manufactured goods</b>	<b>(76.1)</b>	0.63	0.71	0.70	0.75	0.22	0.17	0.21	0.22
<b>Inedible agriculture, livestock &amp; fishery products</b>	<b>(5.2)</b>			0.95	0.94			0.04	0.06
Feathers & down	(0.3)	0.99	1.00	1.00	1.00	0.01	0.00	0.00	0.00
Feathers & down	(0.3)	0.99	1.00	1.00	1.00	0.01	0.00	0.00	0.00
Natural rubber	(4.4)			1.00	1.00			-0.01	0.00
Natural rubber	(4.4)	0.97	0.99	1.00	1.00	0.05	0.01	0.00	0.00
Pearls	(0.5)			0.48	0.56			0.51	0.45
Pearls	(0.5)	0.54	0.53	0.48	0.56	0.46	0.46	0.52	0.45
<b>Nonmetallic minerals</b>	<b>(2.9)</b>	0.66	1.00	1.00	1.00	0.37	0.00	0.00	0.00
Nonmetallic minerals	(2.9)	0.66	1.00	1.00	1.00	0.37	0.00	0.00	0.00
Industrial diamonds	(0.3)	1.00	1.00	1.00	1.00	0.00	0.00	0.00	0.01
Industrial salt	(2.6)	0.62	1.00	1.00	1.01	0.41	0.00	0.00	0.00
<b>Pulp, paper &amp; related products</b>	<b>(7.7)</b>		0.46	0.45	0.44		0.55	0.55	0.57
Pulp	(2.3)	0.98	1.01	0.99	1.00	0.02	0.02	0.01	0.00
Bleached paper kraft pulp	(2.3)	0.98	1.01	0.99	1.00	0.02	0.02	0.01	0.00
Paper	(3.6)	0.36	0.33	0.33	0.35	0.65	0.67	0.67	0.68
Coated printing paper	(2.4)	0.01	0.00	0.00	0.00	1.02	1.00	1.00	1.00
Liquid packaging carton for milk	(1.2)	1.00	1.00	0.98	0.92	0.00	0.02	0.02	0.14
Paper products	(1.8)		0.00	0.00	0.02		1.00	1.00	0.99
Paper & paperboard containers	(1.8)		0.00	0.00	0.02		1.00	1.00	0.99
<b>Other manufactured goods</b>	<b>(60.3)</b>			0.70	0.76			0.19	0.19
<b>Plastic products</b>	<b>(11.4)</b>		0.89	0.76	0.80		0.12	0.25	0.21
Plastic films & sheets	(9.3)	0.84	0.86	0.70	0.76	0.15	0.14	0.31	0.24
Plastic daily necessities	(2.1)		1.01	1.00	1.00		0.00	0.00	0.00
<b>Ceramic, stone &amp; clay products</b>	<b>(8.9)</b>	0.57	0.52	0.62	0.70	0.39	0.39	0.30	0.22
Flat glass	(3.6)	0.49	0.41	0.51	0.77	0.49	0.59	0.51	0.09
Glass containers, instruments & utensils	(0.9)	0.59	0.62	0.67	0.54	0.42	0.35	0.27	0.30
Glass fiber products	(1.0)	0.37	0.24	0.64	0.80	0.31	0.52	0.36	0.21
Ceramic tableware	(0.9)	0.62	0.65	0.69	0.67	0.40	0.36	0.30	0.35
Masonry products	(2.5)	0.72	0.70	0.73	0.63	0.30	0.08	0.00	0.35
<b>Furniture</b>	<b>(5.5)</b>			0.91	0.92			0.02	0.03
Wood furniture & parts	(4.2)			0.93	0.92			-0.02	0.01
Metal furniture	(1.3)	0.00	-0.01	0.30	0.88	0.33	0.66	0.55	0.13
<b>Rubber products</b>	<b>(9.1)</b>		0.90	0.86	0.87		0.11	0.11	0.14
Motor vehicle tires	(1.7)	0.12	0.36	0.42	0.22	0.14	0.69	0.55	0.81
Rubber footwear	(2.3)	1.00	1.01	1.00	1.00	0.00	0.00	0.00	0.00
Plastic footwear	(5.1)		1.00	0.94	1.00		0.00	0.02	0.00
<b>Musical instruments and recreational &amp; sporting</b>	<b>(9.1)</b>		0.89	0.77	0.77		0.14	0.21	0.22
Musical instruments	(0.7)		1.01	0.90	0.74		0.02	0.00	0.01
Toys	(5.7)	0.88	0.99	0.85	0.82	0.13	0.03	0.14	0.19
Sporting goods	(2.7)		0.64	0.58	0.66		0.36	0.42	0.33
<b>Other manufactured goods</b>	<b>(16.3)</b>			0.42	0.62			0.27	0.26
Leather shoes	(2.1)	0.61	0.64	0.65	0.69	0.08	0.01	0.05	0.15
Leather bags	(2.4)			0.54	0.57			0.29	0.37
Plastic bags	(4.6)			0.70	0.88			0.19	0.04
Watches & clocks	(3.4)	0.18	0.15	0.11	0.43	0.39	0.37	0.39	0.21
Stationery	(0.8)		0.91	0.91	0.82		-0.07	0.07	0.18
Umbrellas	(0.4)	1.00	1.00	0.94	0.81	0.00	0.01	0.05	0.21
Frames for spectacles & ophthalmic focus l	(2.6)	0.64	0.57	0.35	0.21	0.16	0.09	0.19	0.76

Note: See Table 7-A.