International Economic Integration and Competitiveness: An Analysis of Market Share in Manufacturing Industries in Japan, Korea, Taiwan and the United States

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ABSTRACT

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Constant market share analysis of imports in apparent consumption in manufacturing industries of four major economies—Korea, Japan, Taiwan and the United States, is conducted over the most recent available data. The analysis provides an alternative to existing conventional studies of market share in imports. It provides a quantitative measure of the extent to which international economic integration has occurred in manufacturing in these four economies. This study, in addition, disaggregates import penetration in manufacturing, including in sectors with relatively high technological requirements. Statistical tests of the significance of changes in import penetration in manufacturing industries are conducted. Real growth of exports and apparent consumption in the two largest OECD markets is decomposed into (1) the commodity composition effect and (2) the market share or competitiveness effect. Finally, a statistical test of the significance of changes in trade policy for changes in import penetration in Japan and the United States is conducted.

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Introduction

Measurement of the extent of international economic integration at the global level is, at best, imprecise. There is little doubt that over the long run, international trade has expanded in volume relative to global output (Maddison 1995). However, it is in recent years with the explosion of information technology, transportation and telecommunications that international mobility has been perceived to have increased. The increase in the measured amount of foreign direct investment is seen as one indicator of increased global economic integration. The large volume of international financial transactions is another. The extent of international economic integration is also thought to have responded positively to trade liberalization through the Uruguay Round negotiations at the multilateral level as well as through the proliferation of regional preferential trading arrangements (EU, NAFTA, etc.).

East Asia has been perceived to be a major force in the process of global economic integration through trade and investment. In particular, the strong trade-orientation and growth of manufactured exports over the three decades between 1960 and 1990 have been documented in numerous studies (e.g., Papanek 1988, James, Naya, and Meier 1989, World Bank 1993). The "manufactured export-led growth model" of East Asian newly industrialized economies, particularly of the Republic of Korea (Korea hereafter) and of Taiwan, has attracted much notice.[1] Some economists have observed that such a model may not be generalized as the surge of manufactured exports would exceed demand or would provoke protectionist responses in the advanced OECD economies (Cline 1982).[2]

[1] The export-led success of Taiwan and Korea contradicted the export-pessimism that was prevalent among the developing countries in the post-war decades and that served as the justification for import-substitution policies in much of Latin America, Asia and Africa.
[2] Meier (1989: 411-412) refers to this argument as the "new export pessimism."

The emergence of new exporters in China and Southeast Asia as well as Latin America appears to contradict such an analysis. One possible interpretation of this is that openness to trade is advancing and this is facilitating the emergence of new exporters. Consistent with this thesis is the proposition that comparative advantage is dynamic and that the Asian NIEs are shifting out of traditional export sectors into newer ones, thus creating space for other countries to expand into these markets.

At the global level, the ratio of exports to GDP has risen substantially in recent decades and this is a palpable indicator of globalization or international integration (Maddison 1995). Previous analysis has examined the competitive position of East Asia NIEs and Japan in world export markets using constant market share analysis (Lloyd 1994, Low 1994, Chow and Kellman 1993, Lloyd and Toguchi 1996).

Compared with these previous studies, we have made a number of contributions. First, we have examined the extent of international economic integration and competitiveness at a disaggregated level, distinguishing, in particular, manufacturing sectors with relatively high technological intensity. Second, we have verified the significance of international economic integration using analytic tools from non-parametric statistics. Finally, while some of the applications of fixed market share analysis derived export growth rates from nominal data, we have done this with data in constant terms.

In the following section, we discuss constant market share analysis. Next, in the third section we discuss data and methods of testing for the significance of the results of the constant market share analysis. Fourth, we present our empirical findings and interpret these with the aid of trade theory. Fifth, we assess the importance of trade policy changes in influencing market shares. Finally, we conclude

with some observations of the implications of our findings for international economic integration and export competitiveness in the East Asian context.

Market Share Analysis: An Interpretation

Traditional market share analysis measures a country's export performance relative to the total imports of partner countries. Constant market share analysis allows one to evaluate why a country's exports may grow faster than world exports. This may occur if the commodities a country exports experience relatively rapid growth in world trade (the commodity composition effect). It may also happen that a country exports to partners with relatively high import growth (the partner country composition effect). Finally, an exporting country may increase its market share in the imports of specific commodities in the importing countries (the market share or competitiveness effect).

Traditional market share analysis has the drawback of only evaluating the relative performance of exporters in the imports of partner countries.[3] However, the competition that matters to the partner country is not limited to the share an exporting country has in its imports. More important is the competition between foreign exporters and domestic producers in the domestic market of the importing country. Hence, it is desirable to conduct market share analysis in the context of the total market rather than simply the market for imports. In order to evaluate market share in this more meaningful manner, the estimation of the share of imports in the apparent consumption of manufactured goods in a country's domestic market is necessary. Conventionally, apparent consumption is defined as the difference between the country's output and exports plus imports of commodities. Import penetration is then

[3] Voon (1998) conducts a variant of this type of analysis comparing the performance of China and four Southeast Asian countries in US imports.

simply measured by imports divided by apparent consumption.[4] Changes in inventory are not taken into account in measuring apparent consumption, but this is not a severe problem. Rather than simply recording growth rates of exports, market share analysis of the total market provides a more comprehensive measure of economic integration and of competition between domestic producers and exporters.[5]

In the study by Lloyd and Toguchi (1996), the findings were unambiguous—in all the advanced industrial market economies of the OECD, the manufactured exports of East Asian developing economies advanced their market shares by a substantial amount over the period in question (1980-1993). The study decomposed the superior export performance of three of these East Asian economies (Korea, Indonesia and China) using the constant market share methodology. The findings reveal that the difference between the growth of manufactured exports of the East Asian economies and of apparent consumption by the OECD countries could be largely explained by the competitiveness effect.

Moreover, it was found that market shares of East Asia in the OECD markets for manufactured products increased across the board in 2-digit manufacturing industries. Lloyd and Toguchi (1996) refer to this as an indication that East Asia had achieved "comprehensive export competitiveness" in manufacturing.[6] The East Asian challenge was seen as increasingly likely to provoke a protectionist response. It also

[4] Exports of a commodity by one country to another are simply the latter country's imports. Hence, in principle, there is no difference whether one uses export data of the exporting country or import data of the importing country to measure market shares. In practice, there are some discrepancies between import and export data that arise for various reasons. Hence, it is desirable to use the data of the importing country to evaluate the market share of imports.

[5] Baldwin, Chen and Nelson (1995) provide an example of this type of analysis for four US industries between 1955 and 1990 focussing on the market share of Taiwan.

[6] The study by Baldwin, Chen and Nelson (1995) found a similar pattern in the four US industries studied. The market share of imports from Taiwan in textiles, apparel, steel and machine tools rose without exception between 1955 and 1985. However, between 1985 and 1990 the share in apparel and machine tools fell, the share in steel remained constant and only in textiles did the share continue to increase. The reasons for these changes are elaborate, however, incorporation of Taiwan into regulatory regimes restricting imports is certainly one of them. Taiwan's rising current account surplus with the USA (as is the case in Japan and Korea) is cited as an underlying factor in the changing US trade policy.

provided a basis for an aggressive proactive strategy of "opening up of East Asian markets" by the United States. In this paper, we update previous studies and examine trends in market share of imports in apparent consumption of manufactured products in the two largest OECD markets (the United States and Japan) and in two of the East Asian newly industrialized economies.

Data and Methodology

Data sources are identified in Table 1. We have chosen to compare market shares in the United States and Japan, as these production data are directly comparable. We examine the period of 1988 to 1997 in these two major OECD markets with partners including the world as a whole, each other, Korea and Taiwan. We have also made computations for the market shares in Korea (1988 to 1996) and Taiwan (1990 to 1996). We chose these partners as being most representative of East Asia and for the reason we are relatively confident in the accuracy of production data reported.

The basic problem in constant market share analysis of apparent consumption is it requires the matching of trade and production data. Conversion of OECD trade statistics from SITC (rev. 2) to industrial categories (ISIC-rev.2) is accomplished using the OECD concordance[7]. There are problems with any concordance between trade and production data. The industrial classification system (ISIC) used is highly aggregated with 28 three-digit manufacturing classifications. Although there is a four-digit classification with 81 sectors, we have used the three-digit classification for all sectors other than machinery. In the machinery category we also look at selected four-digit sectors: Manufacture of office, computing and accounting equipment (ISIC 3825), Manufacture of radio, television and communication equipment (ISIC 3832),

[7] The OECD trade concordance is located at Jon Haveman's "Empirical Investigations in International Trade" homepage (www.eiit.org/Trade.Resources/Concordances/FromSITC/sitc2.isic2.txt)

Professional and scientific equipment (ISIC 3851), Photographic and optical goods (ISIC 3852) and Watches and clocks (ISIC 3853). These sectors are increasingly important in the trade and production of the countries in this study. Another reason for the choice of three-digit ISIC classification is that we can match the market share data to the database on "Indicators of Tariff and Non-Tariff Trade Barriers" (OECD 1998b) for the years 1988, 1993 and 1996.

In the case of Taiwan, we have even fewer manufacturing categories and the additional difficulty that the classification reported by Taiwan does not allow us to break out a separate category for manufacture of office and computing equipment (ISIC 3825) or for other 4-digit sectors as well. One of the major problems is that production data in the USA and Japan are based on classification of individual manufacturing establishments. While this means it is possible to compare production data from Japan and the United States, as both are based on establishments as the basic unit reporting on production, there are still severe problems of classification (van Ark and Monnikhof 1996)[8].

Output must be assigned to one industrial category even when multiple production activities covering more than one sector occur in that establishment. Hence, a factory that produces cameras, video recorders, televisions, and sound reproducing equipment may be classified according to whichever activity is the largest in terms of output and all outputs of the establishment are assigned to that category. As there are many multi-product factories in electrical and non-electrical machinery this creates a severe problem. In order to overcome this problem, we have aggregated ISIC 382, 383

[8] In contrast, reporting units are enterprises or business groups in the UK, Germany and France and this means it is not possible to make direct comparisons between Japan and the US on the one hand, and these European markets on the other (van Ark and Monnikhof, 1996).

and 385 in each country we are studying and at the same time we present the sectors individually, with the understanding that these data must be interpreted with caution.[9]

We have compared the market shares reported in Lloyd and Toguchi (1996) for the year 1993 in the cases of Korea and Taiwan in the markets of the United States and Japan and found that their published market shares and those we report herein are basically in agreement. We could not compute market shares prior to 1988, however, precluding a further direct comparison with the 1980 results. Nonetheless, if we regard the results of Lloyd and Toguchi as being basically correct for the period 1980 to 1993, we can then contrast our results for 1988 to 1997 in the comparable cases of the markets of Japan and the United States.

Before turning to a discussion comparing our results with those of existing studies, we first elaborate upon the methodology we have adopted. First, we have calculated import shares of apparent consumption for each year for which data was available rather than for simply the earliest and latest years. This allows one to observe whether trends or changes are continuous or are reversed over the period. Secondly, we have conducted a testing procedure to determine whether changes in market shares (either positive or negative) are statistically significant.

To examine the direction and persistence of changes in import shares, we applied a statistical test for the presence of trend. One common option is to run an *OLS* regression of the original data on the time trend. Then the presence of trend and its statistical significance can be evaluated by the *t*-ratio for the parameter of the trend variable. However, the validity of this procedure relies on the assumption that regression disturbances are normally distributed. This assumption may be unlikely to hold in small samples like the ones in our study.

[9] For a discussion of data problems in comparing international trade and production, see Maskus (1991), especially pp. 40-42 for the concordance problem and pp. 26-27 for the problems of properly allocating

Alternatively, it is possible to use non-parametric tests for trend, which do not involve any strong assumptions regarding the distribution of the error terms. The most powerful non-parametric test is the Daniel's test for trend (Conover, 1980, p. 258). The test is based on the Spearman rank correlation, in which the original observations are replaced by their ranks, and the cross-product correlation coefficient is computed on the ranks.

Daniels (1950) suggested a test for the presence of a linear trend through running the Spearman rank correlation between the original data and a time trend. The null hypothesis of the test is that no trend exists in the original data. The alternative hypothesis is the presence of either an upward or downward trend, so that, with the passage of time, observations tend to be larger or smaller. It can be shown that even under ideal conditions of normality, the relative power of the Daniel's test is still about 98 per cent of its parametric counterpart (Stuart, 1956). In addition, Daniel's test is much less sensitive to outlying observations due to the replacement of original observations by their ranks.

In order to identify significant trends in import shares, we used the conventional significance level of 5 per cent. With our samples of 7 and 10 observations, the corresponding critical values for the test are 0.745 and 0.636, respectively (Conover, 1980, table A10). A rank correlation coefficient in excess of these critical values indicates the presence of a significant time trend in the data.

In addition to the tabulated critical values, we also calculated the p-values for rank correlation, using an algorithm provided by Best and Roberts (1975)[10]. Cases with a significant trend were identified by p-values that were less than 5 per cent. Further, we have decomposed the changes in overall market share of manufactured

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production of multi-product establishments.

[10] The original version of their algorithm is available at http://lib.stat.cmu.edu/apstat/89.

imports from Korea, Taiwan and the US in Japan's market and for Korea, Japan and Taiwan in the US market. The results of the decomposition are contrasted with those of other studies.

Finally, detailed information on tariff and non-tariff barriers (NTBs) to imports of manufactured products in the markets of Japan and the US is available for the years 1988, 1993 and 1996 (OECD, 1998b). The information on tariffs and NTBs by ISIC sector in Japan and the US may be used in order to ascertain whether or not changes in market shares were correlated with changes in trade policy. While it is clearly difficult to determine if trade policy measures have been effective in reducing the share of imports in these two large markets, we can offer some preliminary assessments[11].

Empirical Findings and Tests for Significance of Trends in Market Share

Import penetration ratios in Japan, the United States, Korea and Taiwan have been calculated and tests for significance of changes have been conducted in each case for the world (total imports), and the three partners. For Japan and the United States data were available for 1988 to 1997 but for Korea were available only for 1988 to 1996 and for Taiwan from 1990 to 1996. The ratio of imports in apparent consumption in manufacturing industries and the data upon which the calculations are based are included in the appendix (see tables A1-1 to A1-4 for Japan, A2-1 to A2-4 for Korea, A3-1 to A3-4 for Taiwan and A4-1 to A4-4 for the US).

In a number of cases our estimates of apparent consumption turned out negative. Other implausible cases included apparent consumption that fell short of imports, so that import shares in apparent consumption exceeded 100 per cent. Most often such odd cases occurred in relatively technology-intensive sectors, such as ISIC 3852 (in Japan), ISIC 3825 (in Korea), and ISIC 382 and 385 (in Taiwan). They can be

attributed to the previously mentioned difficulty of subdividing production of highly diversified companies into specific manufacturing sectors. We also obtained implausible estimates of apparent consumption in cases of Korean ISIC 322 (apparel) and ISIC 355 (rubber products), sectors where we encountered abrupt shifts in import shares during 1988-1989 and 1991-1995, respectively. On the whole, these unusual observations represent a small portion of our total sample of manufacturing sectors.

In this section we first report on the test results. These results are reported for each of the four markets (Japan, United States, Korea, and Taiwan) in tables 2 through 5. We have organized the results by presenting the correlation coefficient test statistic and the corresponding p-values.

For example, in the case of total manufacturing imports in Japan the test statistic was 0.770 for 10 observations from 1988-1997 (table 2). This was well in excess of the 5 per cent critical value of 0.636, thus showing a significant upward trend in import penetration in the Japanese market. Applying the Best-Roberts algorithm, we found that the corresponding p-value for 0.770 was as low as 1.2 per cent, thus again rejecting the null hypothesis of no trend at the 5 per cent level of statistical significance.

In the case of Japan, for imports from the world, in seventeen 3-digit and six 4-digit manufacturing industries there were positive and significant increases in import penetration. In only six cases (five 3-digit and one 2-digit) manufacturing sectors were there negative coefficients for import penetration, none were of statistical significance (table 2). Hence, it is clear that Japan's manufacturing industries have experienced increased competition from imports and domestic producers' market shares have declined during the period of 1988 to 1997.

[11] Our database for this study is available from the authors upon request.

In the case of import penetration in Japan's manufacturing industries from Korea has actually declined although the change is not significant (table 2). The import penetration ratio decline was statistically significant in 9 sectors, mainly in light or labor-intensive manufacturing sectors such as textiles, apparel, footwear, and furniture. In contrast, in ISIC 351, 352, 381, 382 (less 3825), and 385 there were positive and significant increases in the market share of imports from Korea. In particular, in ISIC 3832, 3851 and 3852 there were positive and statistically significant changes. These sectors all involve either high technology or capital intensive production. Hence, it is apparent that changes in comparative advantage may have taken place in Korea during this period. For machinery as a whole, there is a positive and significant increase in Korea's market share in Japan. These changes in the sectoral composition of imports from Korea are highlighted in Table 2, however, the actual market share of imports from Korea across industries is quite small. The overall share in professional goods (about 3 per cent in 1997, up from about 0.9 per cent in 1988) is indicative of Korea's competitiveness in this technologically demanding sector.

In the case of total manufactured imports from Taiwan, the coefficient of the import penetration ratio is positive but not statistically significant. In eight 3-digit sectors there is a positive and significant change as there is in three 4-digit "high technology" sectors. There are negative and significant changes in eight 3-digit sectors of which 6 are in the same industries as was the case for imports from Korea. Hence, the picture of changing comparative advantage is similar in manufacturing in Taiwan as in Korea. That is, export competitiveness is declining in light and labor-intensive industries and is rising in capital and technology-intensive sectors. One difference to note is that Taiwan has a significant gain in market share in ISIC 3825

(office, computing and accounting machinery) from 0.4 per cent in 1988 to 2.3 per cent in 1997 (appendix table A1-3).

Imports of manufactured goods from the United States show a positive and significant gain in market share in Japan during the period. Indeed imports from the US gained market share in a surprisingly high number of industries including tobacco, textiles, apparel and leather as well as in all machinery sectors. In only three sectors was there a negative and significant decline in US market share (paper, petroleum refineries and non-ferrous metals). The strong performance of US exports in the Japanese market for manufactured goods compared with Korea and Taiwan will be examined further in the decomposition analysis below. It is important to keep the gains in market share in perspective—total manufacturing imports from the US in 1997 supplied 2.5 per cent of apparent consumption in Japan, up from 1.6 per cent in 1988 (appendix table A1-4).

Import penetration in Korean manufacturing actually declined between 1988 and 1996, although the change was not statistically significant. Despite this overall change, positive and significant increases in import penetration (Table 3) took place in one 2-digit and nine 3-digit manufacturing sectors. The increases took place in light industries such as ISIC 313, 314, 321 and 331 but also in chemical industries (ISIC 351 and 352) and petroleum and coal products. Positive and significant increases also occurred in ISIC 383 and 385 ("high-technology" sectors). Negative and significant changes in import penetration occurred in ISIC 342, 361, 362 and for the combined machinery sectors. The latter change is particularly significant, as machinery is by far the largest manufacturing sector in Korea.

The decline in import penetration of Japanese manufacturers in Korea is shown to be statistically significant (Table 3), although the magnitude is less than one per cent

(from 5 per cent in 1988 to 4.3 per cent in 1996). Six 3-digit sectors recorded negative and significant changes in the case of imports from Japan (ISIC 311, 321, 341,342, 356, and 361). These are mainly light industries. The only statistically significant positive increases were in ISIC 313 (beverages), 352 (chemicals) and 354 (coal and petroleum products).

Taiwan manufacturers were able to increase import penetration in Korea between 1990 and 1996 but the change was not statistically significant. Positive and significant increases at the 3-digit level took place in ISIC 351 and 352 (chemical industries) and were matched by negative and significant declines in ISIC 356 and 361 (plastics and ceramics). However, imports from Taiwan in ISIC 3825 (radio, television, and communication equipment) and in the combined machinery sector gained market share and these changes are statistically significant.

US manufacturers had a negative and significant reduction in market share in Korea, from 9.2 per cent in 1988 to 5.7 per cent in 1996. In eight 3-digit industries and in machinery there were negative and significant changes in the share of imports from the US. It is noteworthy that import penetration in ISIC 371 (iron and steel) was among these. In that sector US market share was nearly cut in two from 12.9 per cent to 6.7 per cent. In six 3-digit sectors there were positive and significant changes: ISIC 313, 314, 352, 354, 369 and 385.

Imports of manufactured goods increased sharply in Taiwan and covered 40.6 per cent of apparent consumption in 1996, up from 27.0 per cent in 1988 (table 4). The classification scheme of manufacturing industries in Taiwan differs slightly from the other countries. However, there were fourteen 2-digit or 3-digit industries with positive and significant increases. Indeed, the import penetration in the combined machinery sector was very large and significant (imports share of apparent

consumption rose from 48 per cent to over 70 per cent). In Taiwan import penetration of Korean, Japanese and US manufactures all increased in a significant manner. In the case of Korea, positive and significant changes occurred in six 3-digit industries as well as in ISIC 39 (other manufactures) and the combined machinery sector. There were no cases of negative and significant changes for imports from Korea.

In the case of Japan, there were seven 3-digit sectors with positive and significant increases in import penetration in Taiwan. In addition positive and significant increases occurred in ISIC 39 and in the combined machinery sector where imports from Japan account for nearly 28 per cent of apparent consumption. Negative and significant changes took place only in ISIC 311, 323, and 331. Overall Japan supplied 12.9 per cent of manufactured goods consumed in Taiwan in 1996, up from 10.5 per cent in 1988. Surprisingly, imports of textiles and apparel from Japan had positive and significant increases in market share.

Import penetration by US manufactures was positive and significant in nine 3-digit industries as well as in ISIC 39 and machinery as a whole. Again, there was a positive and significant increase in Taiwan in textiles and apparel import penetration from the US. Only in ISIC 314 (tobacco) and 36 (non-metallic minerals) were significant negative changes found. Overall, import penetration from the US rose from 5.3 per cent in 1988 to 7.6 per cent in 1996, and the US share of machinery consumption rose from 10.6 to 13.9 per cent over that period in Taiwan.

In the US market, import penetration in manufacturing increased from 14.2 per cent in 1988 to 17.0 per cent in 1997, an increase that was statistically significant (table 5). For the world as a whole, there were no cases of negative and significant changes. In fifteen 3-digit sectors as well as in ISIC 39 and in machinery there were positive and significant increases in import penetration.

Korean manufactures suffered a significant and negative decline in US market share and this decline was broadly dispersed across industries. In fourteen 3-digit sectors as well as in ISIC 39 the loss in market share was statistically significant. Highly significant declines in Korean products market share occurred in light industries such as textiles, apparel, leather and footwear. Positive and significant changes occurred only in ISIC 351 and 353. However, import penetration by Korean products was positive (but insignificant) in machinery as a whole, but was positive and significant in ISIC 3825 (office and computing machinery).

In contrast to Korea, Japanese manufactured goods had no significant overall decline in market share in the US market. However, in fifteen 3-digit sectors loss of market share was statistically significant. Offsetting theses losses, were positive gains in ISIC 351, 352, 362 and 385. For machinery as a whole, there was a decline in market share but this was not statistically significant.

Manufactured imports from Taiwan lost market share overall, and the change was significant. Significant declines in market share occurred in fourteen 3-digit sectors and in ISIC 39. Positive and significant changes took place in only three 3-digit industries. However, imports of machinery from Taiwan gained market share and the change was statistically significant. In particular, import penetration in ISIC 3825 (computers) was positive and significant. In 1997, Taiwan manufacturers supplied 6.5 per cent of US consumption up from a market share of 3.5 per cent in 1988.

The analysis of import penetration in these four markets has shown that, in general, positive and significant inroads into domestic markets have been made in light industries in each of the four. However, the rising import penetration in these sectors was not from Japan or the East Asian NIEs. As a matter of fact, Korea and Taiwan are clearly making room for other emerging exporters in the traditional light

manufacturing industries. Instead, they have shifted their production and exports increasingly into the electrical and non-electrical machinery sectors, with particular emphasis on office and computing machinery (ISIC 3825) and radio, TV, and communication equipment (ISIC 3832) sub-sectors. Korea, Taiwan and the US all made significant in-roads into apparent consumption in Japan in these sectors. In the US market, a different picture emerges. Despite positive and significant import penetration in the machinery sectors, Japan, Korea and Taiwan did not have much success in gaining market share. Korea and Taiwan did, however, make in-roads into office and computing machinery in the US, although losses in other sectors were not offset by this success. These results may be contrasted with those of earlier studies (Lloyd and Toguchi 1996) and certainly call into question the view that these countries have achieved "comprehensive export competitiveness." Our results demonstrate that the leading East Asian economies have made room for the emergence of new exporters in the traditional manufacturing sectors and they themselves have increasingly opened their own markets to these exports. This is consistent with the view that the comparative advantage of Korea and Taiwan has changed as it had in Japan and that the shift out of traditional manufacturing into sectors requiring higher levels of technology, skills and capital has taken place.

Constant Market Share Decomposition Analysis

The fixed market share decomposition method usually applied to a country's share of total imports (or exports) in partner countries or the world. Herein, the decomposition is applied using apparent consumption to represent the market rather than just total imports. Moreover, we apply the method to the individual country markets of Japan and the United States rather than to all OECD countries. Because of

this, the "country composition" term in the decomposition equation is dropped and we have:

$$(1) \qquad (X^1 - X^0)/X^0 - r = \sum_i (r_i - r)X_i^1 + \sum_{ij} (r_{ij}^k - r_{ij})X_{ij}^1$$

We are interested in the growth in manufactured exports from a country (Japan, Korea, Taiwan or USA) in a particular OECD market (Japan or the US). We compute the percentage growth in exports between an initial year (1988) and the most recent year (1997), which is the first term on the left-hand side of equation (1). We compare that growth rate with the growth of apparent consumption of manufactured products in that market (denoted by r) and derive the difference to be explained. The first term on the right-hand side of equation (1) is the commodity composition effect. This effect is calculated by summing up the growth rate in apparent consumption in each industry r_i compared with the average for manufacturing as a whole weighted by the share of exports going to each sector in the final period X_i^1. The second term on the right-hand side (the residual) is the competitiveness or market share effect $(r_{ij}^k - r_{ij})X_{ij}^k$. That is, it is the difference between the growth of exports from country *k* in each of the manufacturing sectors *i* of importing country *j* compared with growth in apparent consumption in each sector, again weighted by exports in the final year X_{ij}^1.

We wish to convert nominal exports and apparent consumption into constant 1988 prices so growth rates are computed for real variables. In the case of Japan, this required us to first convert exports into nominal yen values. We multiplied the nominal dollar exports by the yen-dollar exchange rate. The exchange rate is the annual average for each year in question (IMF, *International Financial Statistics Yearbook 1999*). Because our results may be sensitive to exchange rate changes, we have done the decomposition in Japan's market for two sub-periods (1988-1993 and

1993-1997) as well as for the period as a whole (table 6). We did not do this in the case of the US as there is no exchange rate issue (table 7).

Our results for Japan for 1988-1997 are that each partner (Korea, Taiwan and the US) had a positive market share effect that was somewhat larger than the commodity composition effect, both of which were positive. The US has by far the largest market share or competitiveness effect and Korea has the smallest. However, when we look at the two sub-periods we find some interesting differences. In the first sub-period, all three partners have negative commodity composition effects and Korea has a negative market share effect. The market share effect is negligible for Taiwan but is quite large for the US. In the second sub-period both commodity composition and market share effects become positive and are again largest in the case of the US. Thus, we see that these countries have all made in-roads into Japanese consumption of manufactured products, but it is the US that has gained the most.

In the US market we find quite a different picture. All three partners lost market share in US apparent consumption and there is a negative difference in export growth to the US to be explained. Korea actually has negative real export growth to the US market over the period we are studying. This is a drastically different outcome than of previous studies of market share in the US.[12] Despite this, each country partner has a favorable commodity composition effect, with Korea having the largest. This reflects the shift of exports to sectors with more rapid than average growth in US apparent consumption. However, the market share effect is negative in all three cases in the US market. Thus the negative market share effect swamps the positive commodity composition effect.

[12] One reason for this difference may be the choice of beginning and end years. However, we have also converted our data into real values, something previous studies have neglected to do. Thus, our decomposition results may not be directly comparable with that of Lloyd and Toguchi (1996).

It may be possible that the increased competitiveness of Korea and Taiwan in Japan's market is explained by lagged effects of an appreciating yen (both have pegged their currencies to the US dollar). Given the sharp appreciation of the yen between 1990 and 1996, this seems to have some possible explanatory power. However, the exchange rate story cannot explain the loss of market share in the US market, except possibly in the case of Japan. Hence, alternative explanations are necessary.

Korea, in particular, had domestic problems of rapidly rising labor costs and falling profits. The owner-managers of the large Korean chaebols were focussing more on domestic expansion rather than export markets. Rising costs of production may explain the loss of US market share by Korean manufacturers. In Taiwan, export growth was positive but the loss of market share in traditional sectors outweighed the gains in new export sectors such as computers and office machinery. The contrast in performance between Taiwan and Korea in the US market (table 7) in exports of manufactures may also be related to the rapid international integration of Taiwan's economy compared with that of Korea (compare appendix tables A2-1 to A2-4 and A3-1 to A3-4).

A further possible explanation of the differing performance of Korea and Taiwan in Japan compared with the US may be found in trade policies. Specifically, in Japan trade barriers have been brought down in recent years as tariff reductions in manufacturing have been implemented in the aftermath of the Uruguay Round. In the US, however, tariff reductions have been offset somewhat by the use of antidumping, "voluntary" restraint agreements (VRAs), countervailing duties and use of restrictive rules of origin. In the following section, we make a preliminary analysis of the trade barriers explanation to the different outcomes in Japan and the US.

Import Penetration and Trade Barriers

Information on tariff and non-tariff barriers to trade by industry has been compiled for OECD member countries in 1988, 1993 and 1996. The data on tariff and non-tariff protection by 3-digit industry for Japan and the US are in appendix table A5. Among the tariff measures reported by the OECD, we have selected production-weighted tariffs. These production-weighted tariffs are a better indicator of nominal protection given to industry than the alternative simple arithmetic average or the import-weighted average.[13]

In some industries, tariff rates have actually increased over the period 1988 to 1996 (see appendix table A5). In cases such as ISIC 311 and 313 in Japan and ISIC 324 and 356 in the US it appears tariffs have been increased as partial compensation for the removal of non-tariff barriers. In others such as ISIC 314 in the US it and ISIC 324 in Japan, it appears tariffs have increased for other reasons. However, of the 28 ISIC 3-digit manufacturing sectors, in Japan tariffs were reduced in 21 sectors between 1988 and 1993, 26 sectors between 1993 and 1996, and in 25 sectors for the period 1988 to 1996. In contrast, in the US tariffs were increased in 19 sectors between 1988 and 1993. Between 1993 and 1996 tariffs were reduced in 24 sectors in the US and were lower in 1996 than in 1988 in 23 sectors. Hence, although the US raised tariff barriers weighted by production in the sub-period of 1988-1993, for the period as a whole the US, like Japan, broadly liberalized trade.

Non-tariff barriers are much more difficult to measure and it is extremely difficult to estimate their ad valorem tariff equivalents. It is also important to recognize that many "core" NTBs are implemented at a much narrower range of

products than 3-digit industries.[14] For these reasons we have not included NTBs in our analysis of the impact of changes in trade barriers on import penetration. In fact, in order to carry out an analysis of NTBs on import penetration, it would be more sensible to carry out industry specific studies of sectors such as textiles, apparel, footwear and iron & steel, where NTBs are a problem. Detailed information on production, trade and implementation of NTBs (i.e., antidumping or safeguard measures) would be necessary.

Herein, we use the Spearman rank correlation between changes in tariff rates and import penetration over 1988-1996 and for two sub-periods, 1988-1993 and 1993-1996, in Japan and the US. One would expect, all other things constant, a change in tariff rates to have the opposite sign to changes in import penetration. That is, a reduction in tariffs (production-weighted) would allow greater market access to imports and allow a rise in the share of apparent consumption supplied by imports. Conversely, a rise in tariff rates would restrict access and lead to lower import penetration. Naturally, there are timing problems in making such evaluations. For example, a surge in import penetration in a particular sector could lead to an increase in tariff rates in the following period. Hence, it would appear that the rise in import penetration was correlated with a rise in tariff rates. Furthermore, while a reduction in tariff rates would be expected to allow global import share to rise, this may not be the case for specific partner countries.

For the period as a whole (1988-1996) in seven of the eight cases we find the expected negative correlation. The only positive correlation is found in the case of changes in Japan's import share in the US and US tariff rate changes (Table 8, top

[13] Note that the tariffs themselves are the MFN applied tariff rates. The issues surrounding the selection of appropriate tariff rates, given the existence of preferential tariff rates and other problems such as specific tariffs rather than ad valorem tariffs, are discussed in OECD (1996).

panel). In Japan, all cases show a negative correlation. However, none of the correlation coefficients is found to be significant as none of the p-values are below the critical level. Nevertheless, the inverse relationship between changes in import market shares and changes in tariff levels is consistent with our argument.

For the sub-period 1988-1993, a negative correlation between changes in tariff rates and import penetration was found in Japan for the world as well as for the partner countries in this study (table 8). Over the same period in the US, three of the four exhibit this negative correlation, the only exception being Japan. However, none of the p-values are below the critical value, so none of these correlations is statistically significant.

For the sub-period 1993-96, negative correlations are found for both Japan and the US for tariff level changes and global import penetration. However, in the case of Japan for the three partners in the study, the correlation between tariff changes and import penetration has a positive sign and in the US positive signs are found in the cases of Japan and Taiwan, although not for Korea. Again none of the p-values are below the critical level to establish statistical significance.

Conclusion

The issues addressed in this study include an attempt to quantify the extent to which international economic integration has affected trade, production and apparent consumption of manufactured products in the two largest OECD markets and in two of the most important Asian NIEs. We find that although international economic integration has advanced in three of the four cases studied (using import penetration as the measure), the numbers are hardly of earth-shaking magnitude. In other words, "globalization" has been taking place but at less rapid and invasive rate than many

[14] Antidumping measures, for example, are implemented on a discriminatory basis against selected exporters from specific countries. They are also aimed at specific Harmonized System (HS) tariff line

would suppose.[15] Second, we find that significant changes, both positive and negative, have taken place at the sectoral level in manufacturing in these markets. The shift of the NIEs from traditional manufacturing exports to those involving substantial technological capabilities along with a high degree of human skill is consistent with changing comparative advantage. Korea and Taiwan appear to have experienced changes similar to those that occurred earlier in Japan. Third, declining "comprehensive export competitiveness" in Korea and Taiwan and their greater specialization in machinery sectors is making room for new exporters to emerge and supply traditional labor-intensive products. This contradicts the new export pessimists or those who argue the "East Asian Model" cannot be widely adopted by developing countries. Fourth, a decomposition analysis based on real growth of exports and apparent consumption in the US and Japan reveals that it is the United States that has the highest market share effect. The significant loss of market share by the Korea and Taiwan in the US market contrasts with the continued advance in their shares of the Japanese market. Trade policy changes, along with numerous other factors (i.e., changes in real exchange rates, competitive conditions facing domestic producers, etc.) are possible explanations for the divergent performances.

We are aware of the shortcomings in our analysis. Difficulty in correctly matching trade and production data (with odd results such as negative estimates of apparent consumption in a few manufacturing sectors) make it necessary to view our results with caution. As improved data become available, we hope some of these problems can be overcome. Studies of individual industries with better data could be useful in this context.

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items that are much more narrowly defined than products of ISIC 3- or 4-digit industries.

[15] Rodrik (2000) provides a useful overview of the issue of international economic integration.

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Table 1. Data sources.

	Output	Total trade	*Bilateral trade*
Japan	3-digit sectors: UNIDO (1999a), 4-digit sectors: Ministry of International Trade and Industry (1993) and Ministry of International Trade and Industry (1998).	OECD (1998a)	OECD (1998a)
US	3-digit sectors: UNIDO (1999a), 4-digit sectors: UNIDO (1999b).	OECD (1998a)	OECD (1998a)
Korea	3-digit sectors: UNIDO (1999a), 4-digit sectors: UNIDO (1999b).	1988-1995: Australian National University (1997); 1996: OECD (1998a) .	Exports of trade partners from OECD (1998a).
Taiwan	Taiwan Economic Data Center (1999).	1988-1989: Australian National University (1997); 1990-1996: OECD (1998a).	1988-1989: exports of trade partners from OECD (1998a). 1990-1996: OECD (1998a).

Table 2. Spearman rank correlation coefficient (ρ) with time trend for import penetration ratios in Japan.

ISIC, rev.2		*World imports*		*Imports from Korea*		*Imports from Taiwan*		*Imports from USA*	
		ρ	p-value	ρ	p-value	ρ	p-value	ρ	p-value
3	Total manufacturing	0.770*	0.012	-0.091	0.785	0.394	0.247	0.721*	0.021
311	Food products	0.745*	0.016	-0.539	0.104	0.212	0.537	0.333	0.331
313	Beverages	-0.273	0.427	0.430	0.204	-0.794**	0.008	-0.406	0.232
314	Tobacco	0.903**	0.000	-0.794**	0.008	-0.964**	0.000	0.903**	0.000
321	Textiles	0.745*	0.016	-0.830**	0.004	-0.370	0.279	0.770*	0.012
322	Wearing apparel	0.952**	0.000	-0.988**	0.000	-0.927**	0.000	0.952**	0.000
323	Leather products	0.988**	0.000	-0.600	0.066	-0.321	0.349	0.915**	0.000
324	Footwear	0.806**	0.007	-0.988**	0.000	-0.976**	0.000	0.527	0.113
331	Wood products	0.867**	0.002	-0.976**	0.000	-1.000**	0.000	-0.139	0.682
332	Furniture & fixtures	0.988**	0.000	-0.988**	0.000	-0.430	0.204	0.552	0.096
341	Paper, paper products	-0.297	0.387	0.624	0.054	-0.455	0.178	-0.782**	0.010
342	Printing & publishing	0.661*	0.039	-0.018	0.946	-0.248	0.470	0.685*	0.031
351	Industrial chemicals, fertilizers, fibers	0.648*	0.044	0.891**	0.001	0.770*	0.012	0.648*	0.044
352	Chemical products	0.503	0.133	0.648*	0.044	0.818**	0.006	-0.261	0.448
353	Petroleum refineries	-0.479	0.154	0.491	0.143	-0.236	0.492	-0.685*	0.031
354	Coal and petroleum products	-0.309	0.368	0.224	0.514	-0.297	0.387	-0.358	0.296
355	Rubber products	0.758*	0.014	-0.285	0.407	0.673*	0.035	0.782**	0.010
356	Plastic products	0.988**	0.000	-0.721*	0.021	-0.794**	0.008	0.770*	0.012
361	Pottery, china, etc.	0.685*	0.031	-0.539	0.104	-0.127	0.707	-0.455	0.178
362	Glass products	0.830**	0.004	0.079	0.811	0.709*	0.024	0.879**	0.001
369	Non-metallic mineral products, nec.	0.273	0.427	-0.964**	0.000	-0.794**	0.008	0.661*	0.039
371	Iron & steel	0.055	0.865	0.358	0.296	0.879**	0.001	-0.261	0.448
372	Non-ferrous metals	-0.564	0.088	-0.103	0.759	0.588	0.073	-0.745*	0.016
381	Metal products	0.794**	0.008	0.648*	0.044	0.770*	0.012	0.648*	0.044
3825	Office & computing machinery	0.964**	0.000	0.479	0.154	0.758*	0.014	0.382	0.263
382-3825	Other non-electrical machinery	0.648*	0.044	0.648*	0.044	0.539	0.104	0.952**	0.000
3832	Radio, TV & communication equipment	1.000**	0.000	0.879**	0.001	0.648*	0.044	0.988**	0.000
383-3832	Other electrical machinery	0.952**	0.000	0.576	0.080	0.600	0.066	0.770*	0.012
384	Transportation equipment	0.758*	0.014	0.200	0.560	0.939**	0.000	0.830**	0.004
385	Professional goods	0.939**	0.000	0.830**	0.004	0.818**	0.006	0.891**	0.001
3851	Professional and scientific equipment	0.915**	0.000	0.685*	0.031	0.867**	0.002	0.915**	0.000
3852	Photographic and optical goods[a]								
3853	Watches and clocks	0.830**	0.004	-0.406	0.232	0.418	0.218	0.758*	0.014
39	Other manufacturing	-0.382	0.263	-0.721*	0.021	-0.842**	0.004	0.055	0.865
382+383+385	Machinery and Instruments	0.988**	0.000	0.842**	0.004	0.855**	0.003	0.903**	0.000

Sources: see appendix table 1A.

Notes: * - significant at 5% level; ** - significant at 1% level.

[a] – calculated apparent consumption is negative.

Table 3. Spearman rank correlation coefficient (ρ) with time trend for import penetration ratios in Korea.

ISIC, rev.2		*World imports*		*Imports from Japan*		*Imports from Taiwan*		*Imports from USA*	
		ρ	p-value	ρ	p-value	ρ	p-value	ρ	p-value
3	Total manufacturing	-0.233	0.522	-0.783*	0.016	0.500	0.229	-0.833**	0.008
311	Food products	-0.217	0.551	-0.883**	0.003	-0.143	0.721	-0.067	0.844
313	Beverages	1.000**	0.000	0.783*	0.016	0.536	0.194	0.817**	0.010
314	Tobacco	0.883**	0.003	0.583	0.096	0.107	0.781	0.950**	0.000
321	Textiles	0.950**	0.000	-0.917**	0.001	0.643	0.110	-0.767*	0.019
322	Wearing apparel[a]								
323	Leather products	0.800*	0.013	-0.450	0.211	-0.214	0.604	-1.000**	0.000
324	Footwear	0.483	0.177	-0.267	0.465	0.250	0.548	-0.783*	0.016
331	Wood products	0.883**	0.003	0.617	0.076	-0.643	0.110	0.483	0.177
332	Furniture & fixtures	-0.183	0.613	-0.233	0.522	0.714	0.069	-0.833**	0.008
341	Paper, paper products	-0.267	0.465	-0.833**	0.008	-0.750	0.053	-0.433	0.229
342	Printing & publishing	-0.850**	0.006	-0.833**	0.008	0.571	0.163	-0.950**	0.000
351	Industrial chemicals, fertilizers, fibers	0.717*	0.032	-0.583	0.096	0.857*	0.019	0.133	0.709
352	Chemical products	0.933**	0.000	0.850**	0.006	0.786	0.039	0.917**	0.001
353	Petroleum refineries	0.417	0.249	-0.083	0.810	0.107	0.781	0.217	0.551
354	Coal and petroleum products	0.983**	0.000	0.817**	0.010	0.500	0.229	0.933**	0.000
355	Rubber products	0.467	0.193	0.500	0.161	0.500	0.229	0.500	0.161
356	Plastic products	-0.983**	0.000	-0.900**	0.002	-0.893*	0.012	-0.983**	0.000
361	Pottery, china, etc.	-0.750*	0.023	-0.883**	0.003	-0.964**	0.002	-0.867**	0.004
362	Glass products	-0.267	0.465	-0.600	0.085	0.714	0.069	-0.233	0.522
369	Non-metallic mineral products, nec.	-0.217	0.551	-0.150	0.676	-0.536	0.194	0.683*	0.044
371	Iron & steel	-0.317	0.385	-0.583	0.096	0.071	0.843	-0.733*	0.027
372	Non-ferrous metals	0.283	0.437	-0.633	0.067	-0.679	0.089	-0.317	0.385
381	Metal products	-0.583	0.096	-0.033	0.913	0.214	0.604	-0.617	0.076
3825	Office & computing machinery[a]								
382-3825	Other non-electrical machinery	-0.667	0.051	-0.417	0.249	0.393	0.349	-0.950**	0.000
3832	Radio, TV & communication equipment	-0.417	0.249	0.467	0.193	0.821*	0.028	-0.950**	0.000
383-3832	Other electrical machinery	0.700*	0.038	0.633	0.067	-0.321	0.444	-0.333	0.360
384	Transportation equipment	-0.667	0.051	-0.600	0.085	-0.714	0.069	-0.967**	0.000
385	Professional goods	0.917**	0.001	0.583	0.096	-0.750	0.053	0.717*	0.032
3851	Professional and scientific equipment[a]								
3852	Photographic and optical goods[a]								
3853	Watches and clocks[a]								
39	Other manufacturing	0.833**	0.008	0.583	0.096	0.107	0.781	0.550	0.119
382+383+385	Machinery and Instruments	-0.850**	0.006	-0.617	0.076	0.786	0.039	-0.917**	0.001

Sources: see appendix table 2A.

Notes: * - significant at 5% level; ** - significant at 1% level.

[a] – calculated apparent consumption is negative.

Table 4. Spearman rank correlation coefficient (ρ) with time trend for import penetration ratios in Taiwan.

ISIC, rev.2		*World imports*		*Imports from Japan*		*Imports from Korea*		*Imports from USA*	
		ρ	p-value	ρ	p-value	ρ	p-value	ρ	p-value
3	Total manufacturing	1.000**	0.000	0.917**	0.001	1.000**	0.000	0.983**	0.000
311	Food products	0.700*	0.038	-1.000**	0.000	0.143	0.721	0.883**	0.003
314	Tobacco	0.883**	0.003	0.167	0.644	0.536	0.194	-0.983**	0.000
321	Textiles	0.983**	0.000	0.950**	0.000	1.000**	0.000	0.917**	0.001
322	Wearing apparel	0.917**	0.001	0.833**	0.008	0.714	0.069	0.717*	0.032
323	Leather products	0.983**	0.000	-0.733*	0.027	0.679	0.089	0.783*	0.016
331	Wood products	0.967**	0.000	-0.900**	0.002	-0.679	0.089	-0.183	0.613
332	Furniture & fixtures	0.800*	0.013	0.933**	0.000	0.679	0.089	0.683*	0.044
341	Paper, paper products	0.950**	0.000	0.450	0.211	1.000**	0.000	0.867**	0.004
342	Printing & publishing	-0.250	0.493	0.217	0.551	0.607	0.135	0.533	0.132
351	Industrial chemicals, fertilizers, fibers	0.500	0.161	0.700*	0.038	0.536	0.194	0.250	0.493
352	Chemical products	0.983**	0.000	0.750*	0.023	0.571	0.163	1.000**	0.000
354	Coal and petroleum products	0.500	0.161	0.317	0.385	0.250	0.548	0.433	0.229
355	Rubber products	-0.083	0.810	0.867**	0.004	0.857*	0.019	0.783*	0.016
356	Plastic products	-0.050	0.878	0.900**	0.002	0.893**	0.012	0.983**	0.000
36	Non-metallic mineral products	0.800*	0.013	0.033	0.913	0.643	0.110	-0.733*	0.027
37	Ferrous and non-ferrous metals	0.900**	0.002	-0.667	0.051	0.321	0.444	0.267	0.465
381	Metal products	0.350	0.336	0.617	0.076	0.893*	0.012	0.117	0.742
382	Non-electrical machinery[a]								
383	Electrical machinery	0.933**	0.000	0.117	0.742	0.893*	0.012	0.550	0.119
384	Transportation equipment	0.700*	0.038	0.233	0.522	0.321	0.444	0.233	0.522
385	Professional goods[a]								
39	Other manufacturing	1.000**	0.000	1.000**	0.000	0.964**	0.002	0.950**	0.000
382+383+385	Machinery and Instruments	0.983**	0.000	0.800*	0.013	0.964**	0.002	0.717*	0.032

Sources: see appendix table 3A.

Notes: * - significant at 5% level; ** - significant at 1% level.

[a] – calculated apparent consumption is negative.

Table 5. Spearman rank correlation coefficient (ρ) with time trend for import penetration ratios in USA.

ISIC, rev.2		*World imports*		*Imports from Japan*		*Imports from Korea*		*Imports from Taiwan*	
		ρ	p-value	ρ	p-value	ρ	p-value	ρ	p-value
3	Total manufacturing	0.915**	0.000	-0.212	0.537	-0.697*	0.028	-0.806**	0.007
311	Food products	-0.103	0.759	-0.952**	0.000	-0.988**	0.000	-0.600	0.066
313	Beverages	0.588	0.073	-0.891**	0.001	0.830**	0.004	0.842**	0.004
314	Tobacco	0.491	0.143	0.212	0.537	-0.382	0.263	-0.709*	0.024
321	Textiles	0.988**	0.000	-0.964**	0.000	-0.939**	0.000	-0.879**	0.001
322	Wearing apparel[a]	1.000**	0.000	-0.964**	0.000	-0.988**	0.000	-0.988**	0.000
323	Leather products	0.988**	0.000	-1.000**	0.000	-1.000**	0.000	-0.939**	0.000
324	Footwear	0.988**	0.000	-0.867**	0.002	-0.988**	0.000	-1.000**	0.000
331	Wood products	0.867**	0.002	-0.988**	0.000	-0.879**	0.001	-1.000**	0.000
332	Furniture & fixtures	0.794**	0.008	-0.867**	0.002	-0.770*	0.012	-0.964**	0.000
341	Paper, paper products	-0.345	0.313	0.115	0.733	-0.115	0.733	-0.988**	0.000
342	Printing & publishing	0.927**	0.000	-1.000**	0.000	0.624	0.054	-0.697*	0.028
351	Industrial chemicals, fertilizers, fibers	0.964**	0.000	0.952**	0.000	1.000**	0.000	-0.055	0.865
352	Chemical products	0.927**	0.000	0.903**	0.000	-0.636*	0.049	0.394	0.247
353	Petroleum refineries	-0.273	0.427	0.236	0.492	0.648*	0.044	-0.115	0.733
354	Coal and petroleum products	0.261	0.448	-0.588	0.073	0.418	0.218	-0.067	0.838
355	Rubber products	0.867**	0.002	-0.115	0.733	-0.879**	0.001	-0.176	0.608
356	Plastic products	0.891**	0.001	-0.879**	0.001	-1.000**	0.000	-1.000**	0.000
361	Pottery, china, etc.	0.067	0.838	-0.976**	0.000	-1.000**	0.000	-0.988**	0.000
362	Glass products	0.891**	0.001	0.903**	0.000	-0.964**	0.000	-0.745*	0.016
369	Non-metallic mineral products, nec.	0.612	0.060	-0.830**	0.004	-0.479	0.154	-0.661*	0.039
371	Iron & steel	0.576	0.080	-0.976**	0.000	-0.527	0.113	0.042	0.892
372	Non-ferrous metals	0.564	0.088	-0.733*	0.018	0.236	0.492	0.733**	0.018
381	Metal products	0.927**	0.000	0.018	0.946	-0.964**	0.000	0.006	0.973
3825	Office & computing machinery[a]	0.806**	0.007	-0.406	0.232	0.830**	0.004	0.915**	0.000
382-3825	Other non-electrical machinery	-0.030	0.919	-0.273	0.427	-0.200	0.560	-0.564	0.088
3832	Radio, TV & communication equipment	0.333	0.331	-0.976**	0.000	0.067	0.838	-0.212	0.537
383-3832	Other electrical machinery	0.467	0.166	-0.018	0.946	-0.588	0.073	-0.891**	0.001
384	Transportation equipment	0.903**	0.000	-0.830**	0.004	-0.127	0.707	-0.879**	0.001
385	Professional goods	0.988**	0.000	0.830**	0.004	-0.612	0.060	-0.733*	0.018
3851	Professional and scientific equipment[a]	0.964**	0.000	0.830**	0.004	-0.867**	0.002	-0.467	0.166
3852	Photographic and optical goods[a]	1.000**	0.000	1.000**	0.000	0.552	0.096	-0.006	0.973
3853	Watches and clocks[a]	0.964**	0.000	0.842**	0.004	-0.770*	0.012	-0.042	0.892
39	Other manufacturing	0.891**	0.001	-0.624	0.054	-1.000**	0.000	-0.855**	0.003
382+383+385	Machinery and Instruments	0.782**	0.010	-0.103	0.759	0.527	0.113	0.782**	0.010

Sources: see appendix table 4A.

Notes: * - significant at 5% level; ** - significant at 1% level.

[a] – calculated apparent consumption is negative.

Table 6. "Fixed market share" decomposition of import growth in Japan

a) 1988-1997

		Imports from		
		Korea	Taiwan	US
1	Exports to Japan, 1997 (bln. yen)	1,859	1,505	8,277
2	Exports to Japan, 1988 (bln. yen)	1,389	1,002	4,040
3=[(1/2)-1]*100	Growth in exports (%)	33.8	50.2	104.9
4	Growth in Japanese apparent consumption (%)	23.6	23.6	23.6
5=4-1	Difference to be explained	10.3	26.7	81.3
Components due to:				
6	Commodity composition effect	0.3	6.8	8.0
7=5-6	Market share effect	9.9	19.9	73.4
Normalized components due to:				
(6/5)*100	Commodity composition effect	3.3	25.5	9.8
(7/5)*100	Market share effect	96.7	74.5	90.2

b) 1988-1993

		Imports from		
		Korea	Taiwan	US
1	Exports to Japan, 1993 (bln. yen)	1,406	1,077	5,410
2	Exports to Japan, 1988 (bln. yen)	1,389	1,002	4,040
3=[(1/2)-1]*100	Growth in exports (%)	1.3	7.6	33.9
4	Growth in Japanese apparent consumption (%)	10.1	10.1	10.1
5=4-1	Difference to be explained	-8.8	-2.5	23.8
Components due to:				
6	Commodity composition effect	-4.7	-2.7	-1.2
7=5-6	Market share effect	-4.1	0.2	25.1
Normalized components due to:				
(6/5)*100	Commodity composition effect	-53.8	-106.8	-5.2
(7/5)*100	Market share effect	-46.2	6.8	105.2

c) 1993-1997

		Imports from		
		Korea	Taiwan	US
1	Exports to Japan, 1997 (bln. yen)	1,860	1,506	8,285
2	Exports to Japan, 1993 (bln. yen)	1,406	1,077	5,410
3=[(1/2)-1]*100	Growth in exports (%)	32.3	39.8	53.1
4	Growth in Japanese apparent consumption (%)	12.6	12.6	12.6
5=4-1	Difference to be explained	19.7	27.2	40.6
Components due to:				
6	Commodity composition effect	8.0	10.3	11.8
7=5-6	Market share effect	11.7	16.9	28.7
Normalized components due to:				
(6/5)*100	Commodity composition effect	40.4	37.9	29.2
(7/5)*100	Market share effect	59.6	62.1	70.8

Note: Japanese import and apparent consumption are measures in 1988 constant prices

Table 7. "Fixed market share" decomposition of import growth in US (1988-1997)

		Imports from		
		Japan	Korea	Taiwan
1	Exports to Japan, 1993 (mln. USD)	104,892	20,746	28,793
2	Exports to Japan, 1988 (mln. USD)	91,814	20,977	25,825
3=[(1/2)-1]*100	Growth in exports (%)	14.2	-1.1	11.5
4	Growth in US apparent consumption (%)	30.9	30.9	30.9
5=4-1	Difference to be explained	-16.7	-32.0	-19.4
Components due to:				
6	Commodity composition effect	25.2	40.0	36.8
7=5-6	Market share effect	-41.9	-72.0	-56.2
Normalized components due to:				
(6/5)*100	Commodity composition effect	151.2	125.0	189.5
(7/5)*100	Market share effect	-251.2	-225.0	-289.5

Note: US import and apparent consumption are measures in 1988 constant prices

Table 8. Spearman rank correlation (ρ) between changes in trade barriers and import penetration ratios in Japan and U.S.

Period	*Correlated variables*	*Japan*		*U.S.*	
		ρ	p-value	ρ	p-value
	Tariff rates and imports:				
1988-1996	1) from the world	-0.147	0.456	-0.177	0.369
	2) from Japan			0.039	0.844
	3) from Korea	-0.195	0.321	-0.030	0.881
	4) from Taiwan	-0.306	0.114	-0.199	0.311
	5) from U.S.	-0.262	0.179		
	Tariff rates and imports:				
1988-1993	1) from the world	-0.068	0.731	-0.101	0.608
	2) from Japan			0.011	0.957
	3) from Korea	-0.198	0.313	-0.035	0.859
	4) from Taiwan	-0.348	0.070	-0.119	0.548
	5) from U.S.	-0.165	0.401		
	Tariff rates and imports:				
1993-1996	1) from the world	-0.037	0.851	-0.296	0.126
	2) from Japan			0.078	0.692
	3) from Korea	0.331	0.086	-0.037	0.853
	4) from Taiwan	0.121	0.541	0.149	0.450
	5) from U.S.	0.086	0.663		

Sources: tariff rates are from appendix table A5; import penetration ratios are from appendix tables A1-1, A1-2, A1-3, A1-4, A4-1, A4-2, A4-3, A4-4. P-values for the Spearman rank correlation coefficient ρ are calculated by algorithm from Best and Roberts (1975).

Table A1-1. Share of imports from the world in apparent consumption of Japan (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
300 Total manufacturing	6.03	6.78	7.12	6.53	6.40	6.31	7.16	8.06	9.36	9.62
311 Food products	7.98	8.43	8.63	8.29	8.44	7.93	9.04	9.43	10.53	10.50
313 Beverages	3.67	5.63	6.80	6.54	6.26	5.16	3.90	3.85	4.09	4.31
314 Tobacco	6.88	7.19	8.19	8.49	8.12	8.13	10.17	10.27	11.06	11.09
321 Textiles	11.71	13.37	12.60	12.19	12.11	12.08	14.90	16.44	19.45	19.42
322 Wearing apparel	16.33	22.22	22.25	20.38	22.66	24.21	28.63	32.20	37.91	37.34
323 Leather products	17.85	22.19	25.63	24.76	26.29	28.52	31.00	34.08	38.75	39.93
324 Footwear	17.68	16.94	19.05	20.31	20.60	22.43	19.47	19.75	24.63	26.89
331 Wood products	11.69	14.92	14.54	14.27	14.21	16.32	16.25	17.44	20.51	22.81
332 Furniture	4.06	4.88	5.68	5.82	5.88	6.02	6.66	7.17	8.91	8.64
341 Paper, paper products	5.43	6.35	5.41	4.64	4.49	4.20	4.52	5.48	5.32	4.99
342 Printing & publishing	0.61	0.65	0.80	0.67	0.65	0.57	0.68	0.77	0.86	0.92
351 Industrial chemicals, fertilizers, fibers	12.92	13.42	13.33	13.14	12.59	12.49	14.88	16.04	17.32	18.92
352 Chemical products	6.26	6.55	6.97	6.94	6.87	6.43	6.34	6.77	7.65	7.92
353 Petroleum refineries	17.01	18.90	19.74	15.47	13.84	11.42	10.31	11.58	15.77	16.13
354 Coal and petroleum products	11.79	16.00	14.68	10.16	8.37	6.24	8.91	9.97	10.32	12.83
355 Rubber products	3.13	3.90	3.86	3.72	3.73	3.52	4.08	4.06	4.51	5.11
356 Plastic products	1.62	1.87	2.02	2.00	2.29	2.31	2.63	3.07	3.84	4.10
361 Pottery, china, etc.	3.34	4.36	5.73	5.04	4.62	4.31	4.75	5.06	6.44	7.12
362 Glass products	3.46	4.23	4.92	4.59	4.27	4.02	5.00	6.41	8.08	9.53
369 Non-metallic mineral products, nec.	1.48	1.89	1.88	1.78	1.56	1.29	1.35	1.65	1.92	2.04
371 Iron & steel	4.13	4.36	3.86	4.20	3.13	3.28	3.52	4.48	4.10	4.31
372 Non-ferrous metals	22.34	22.65	22.35	21.12	17.32	16.75	18.85	20.83	19.18	20.92
381 Metal products	1.46	1.72	1.88	1.80	1.68	1.64	1.90	2.31	2.89	3.21
3825 Office & computing machinery	5.78	7.09	7.90	7.21	7.82	8.25	10.11	14.55	17.37	18.91
382-3825 Other non-electrical machinery	2.99	3.40	3.91	3.55	3.59	3.46	3.37	3.73	4.75	5.12
3832 Radio, TV & communication equipment	3.22	4.17	4.52	4.56	5.07	5.90	7.39	9.49	11.31	11.40
383-3832 Other electrical machinery	2.30	2.74	3.17	3.07	3.10	3.24	5.85	7.13	8.18	8.07
384 Transportation equipment	3.14	3.38	4.78	3.96	3.69	3.42	4.28	4.48	5.12	5.07
385 Professional goods	22.44	24.08	23.60	25.19	30.86	43.73	61.10	80.37	71.84	70.58
3851 Professional and scientific equipment	27.46	32.86	30.89	29.53	32.16	36.96	37.85	42.47	54.35	55.74
3852 Photographic and optical goods*	19.86	25.66	37.28	36.70	64.72	169.53	273.92	139.38	100.75	319.69
3853 Watches and clocks	13.40	16.90	19.50	18.10	17.09	16.10	22.82	26.04	31.62	32.54
390 Other manufacturing	16.35	18.39	19.92	16.79	15.12	14.55	14.61	15.81	17.74	16.10
382+383+385 Machinery and Instruments	3.88	4.68	5.20	4.95	5.27	5.70	7.19	8.93	10.88	11.24

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A1-2. Share of imports from Korea in apparent consumption of Japan (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
300 Total manufacturing	0.54	0.59	0.51	0.48	0.44	0.42	0.47	0.53	0.55	0.53
311 Food products	0.59	0.55	0.48	0.45	0.40	0.36	0.39	0.37	0.46	0.46
313 Beverages	0.05	0.05	0.03	0.02	0.03	0.03	0.03	0.05	0.09	0.10
314 Tobacco	0.02	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00
321 Textiles	2.27	2.38	1.93	1.93	1.80	1.63	1.81	1.82	1.79	1.49
322 Wearing apparel	6.05	7.67	5.95	4.73	4.11	3.45	3.24	2.53	1.95	1.40
323 Leather products	4.34	4.88	4.74	4.99	5.17	5.05	4.21	3.91	3.32	2.35
324 Footwear	8.06	7.02	7.37	6.76	5.72	5.59	3.43	2.64	2.58	1.99
331 Wood products	0.23	0.26	0.18	0.13	0.10	0.08	0.06	0.05	0.05	0.05
332 Furniture	0.45	0.48	0.43	0.40	0.33	0.30	0.27	0.26	0.24	0.20
341 Paper, paper products	0.04	0.04	0.03	0.03	0.03	0.04	0.04	0.05	0.07	0.09
342 Printing & publishing	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
351 Industrial chemicals, fertilizers, fibers	0.42	0.51	0.57	0.55	0.53	0.55	0.74	0.75	0.88	1.08
352 Chemical products	0.20	0.21	0.20	0.18	0.18	0.19	0.22	0.23	0.27	0.26
353 Petroleum refineries	0.66	0.79	0.73	0.75	0.77	0.61	0.51	1.04	2.11	2.17
354 Coal and petroleum products	1.84	1.09	1.32	1.59	1.26	1.30	1.17	1.53	1.33	2.10
355 Rubber products	0.23	0.27	0.26	0.26	0.25	0.29	0.27	0.25	0.25	0.21
356 Plastic products	0.40	0.42	0.41	0.36	0.35	0.29	0.28	0.33	0.35	0.31
361 Pottery, china, etc.	0.32	0.27	0.22	0.16	0.14	0.12	0.15	0.15	0.18	0.15
362 Glass products	0.22	0.27	0.23	0.23	0.16	0.14	0.18	0.22	0.26	0.34
369 Non-metallic mineral products, nec.	0.64	0.78	0.65	0.58	0.46	0.35	0.29	0.25	0.22	0.19
371 Iron & steel	1.24	1.31	1.12	1.23	1.10	1.10	1.23	1.36	1.30	1.35
372 Non-ferrous metals	0.30	0.39	0.27	0.18	0.18	0.18	0.22	0.29	0.23	0.30
381 Metal products	0.21	0.23	0.22	0.22	0.18	0.21	0.27	0.30	0.31	0.31
3825 Office & computing machinery	0.23	0.26	0.26	0.20	0.15	0.15	0.25	0.47	0.45	0.45
382-3825 Other non-electrical machinery	0.09	0.11	0.15	0.12	0.11	0.10	0.12	0.14	0.17	0.19
3832 Radio, TV & communication equipment	0.56	0.72	0.63	0.64	0.72	0.89	1.25	1.72	1.42	1.31
383-3832 Other electrical machinery	0.30	0.34	0.32	0.28	0.23	0.22	0.37	0.42	0.45	0.38
384 Transportation equipment	0.04	0.03	0.04	0.04	0.04	0.03	0.05	0.04	0.04	0.04
385 Professional goods	0.89	0.79	0.69	0.69	0.87	1.08	1.39	1.93	1.81	2.99
3851 Professional and scientific equipment	0.21	0.39	0.41	0.34	0.42	0.42	0.37	0.39	0.43	0.49
3852 Photographic and optical goods*	1.22	1.81	2.61	2.12	3.70	9.27	15.82	8.61	6.67	35.43
3853 Watches and clocks	2.13	1.29	0.96	0.93	0.88	0.71	0.68	0.72	0.92	1.72
390 Other manufacturing	0.87	0.88	0.80	0.78	0.66	0.60	0.54	0.62	0.75	0.62
382+383+385 Machinery and Instruments	0.32	0.38	0.35	0.33	0.33	0.38	0.56	0.76	0.69	0.68

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A1-3. Share of imports from Taiwan in apparent consumption of Japan (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
300 Total manufacturing	0.40	0.40	0.37	0.36	0.36	0.34	0.37	0.44	0.51	0.45
311 Food products	0.85	0.85	0.91	1.01	1.01	0.97	0.96	0.95	1.03	0.45
313 Beverages	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
314 Tobacco	0.03	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00
321 Textiles	0.87	0.84	0.60	0.58	0.55	0.41	0.47	0.47	0.61	0.61
322 Wearing apparel	1.47	1.51	1.04	0.90	0.77	0.63	0.57	0.55	0.58	0.56
323 Leather products	1.29	1.39	1.21	1.24	1.30	1.12	1.15	1.24	1.23	1.26
324 Footwear	3.96	3.38	2.87	2.89	2.55	2.03	1.40	1.12	1.38	1.00
331 Wood products	0.86	0.80	0.65	0.57	0.50	0.40	0.37	0.35	0.33	0.32
332 Furniture	1.31	1.26	0.99	0.96	1.01	0.91	0.84	0.86	1.10	1.00
341 Paper, paper products	0.08	0.08	0.06	0.08	0.05	0.04	0.04	0.05	0.08	0.07
342 Printing & publishing	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.01
351 Industrial chemicals, fertilizers, fibers	0.43	0.44	0.50	0.47	0.47	0.41	0.54	0.60	0.70	0.80
352 Chemical products	0.06	0.07	0.07	0.07	0.06	0.06	0.08	0.09	0.12	0.15
353 Petroleum refineries	0.15	0.07	0.02	0.02	0.02	0.03	0.01	0.02	0.06	0.03
354 Coal and petroleum products	0.07	0.07	0.08	0.06	0.06	0.02	0.04	0.07	0.04	0.07
355 Rubber products	0.15	0.17	0.19	0.21	0.17	0.17	0.18	0.20	0.22	0.25
356 Plastic products	0.53	0.53	0.46	0.42	0.42	0.36	0.35	0.36	0.41	0.41
361 Pottery, china, etc.	0.15	0.18	0.18	0.16	0.19	0.17	0.13	0.12	0.14	0.20
362 Glass products	0.37	0.41	0.46	0.45	0.45	0.42	0.41	0.46	0.51	0.58
369 Non-metallic mineral products, nec.	0.19	0.20	0.12	0.10	0.07	0.04	0.03	0.04	0.05	0.05
371 Iron & steel	0.22	0.26	0.26	0.27	0.28	0.35	0.34	0.32	0.31	0.44
372 Non-ferrous metals	0.43	0.44	0.37	0.37	0.36	0.41	0.48	0.56	0.49	0.46
381 Metal products	0.19	0.23	0.21	0.22	0.21	0.21	0.25	0.30	0.37	0.42
3825 Office & computing machinery	0.36	0.34	0.31	0.26	0.29	0.45	0.87	2.14	2.60	2.27
382-3825 Other non-electrical machinery	0.14	0.18	0.17	0.17	0.17	0.15	0.15	0.17	0.22	0.24
3832 Radio, TV & communication equipment	0.37	0.47	0.43	0.42	0.41	0.38	0.43	0.57	0.67	0.70
383-3832 Other electrical machinery	0.36	0.37	0.36	0.36	0.35	0.32	0.49	0.53	0.60	0.54
384 Transportation equipment	0.06	0.06	0.08	0.09	0.08	0.08	0.10	0.11	0.12	0.11
385 Professional goods	0.97	0.98	0.77	0.87	1.13	1.51	2.21	3.03	2.26	2.02
3851 Professional and scientific equipment	0.23	0.28	0.24	0.23	0.26	0.35	0.34	0.47	0.58	0.60
3852 Photographic and optical goods*	3.08	3.61	4.07	4.09	7.31	17.12	28.59	14.11	7.73	20.57
3853 Watches and clocks	1.09	1.21	1.05	0.96	0.99	0.95	1.27	1.34	1.33	1.15
390 Other manufacturing	2.04	2.04	1.91	1.61	1.52	1.34	1.17	1.22	1.40	1.28
382+383+385 Machinery and Instruments	0.32	0.36	0.33	0.32	0.33	0.33	0.44	0.68	0.83	0.77

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A1-4. Share of imports from the U.S. in apparent consumption of Japan (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
300 Total manufacturing	1.59	1.81	1.94	1.79	1.72	1.71	1.89	2.04	2.40	2.50
311 Food products	2.31	2.36	2.51	2.18	2.32	2.11	2.22	2.36	2.59	2.54
313 Beverages	0.64	0.99	1.05	0.98	0.90	0.78	0.77	0.78	0.70	0.68
314 Tobacco	6.04	6.39	7.18	7.39	7.22	7.12	8.94	9.03	9.81	9.64
321 Textiles	1.12	1.29	1.51	1.36	1.23	1.31	1.47	1.74	1.86	1.68
322 Wearing apparel	0.48	0.59	0.71	0.79	0.82	1.09	1.08	1.19	1.37	1.15
323 Leather products	0.87	1.11	1.51	1.43	1.44	1.47	1.57	1.77	2.14	1.94
324 Footwear	0.64	0.79	0.93	1.19	1.07	1.03	0.98	0.81	0.98	1.69
331 Wood products	2.84	3.61	3.63	3.56	3.38	3.15	3.02	3.05	3.56	3.55
332 Furniture	0.38	0.69	1.00	1.12	1.03	0.97	0.88	0.87	1.11	1.24
341 Paper, paper products	2.25	2.76	2.45	2.18	2.08	1.88	1.72	2.04	1.93	1.89
342 Printing & publishing	0.29	0.32	0.37	0.34	0.30	0.29	0.34	0.36	0.39	0.44
351 Industrial chemicals, fertilizers, fibers	4.24	4.66	4.54	4.45	4.18	4.15	4.66	4.81	5.07	5.88
352 Chemical products	2.38	2.46	2.61	2.63	2.32	2.19	2.04	2.12	2.46	2.60
353 Petroleum refineries	1.23	1.29	1.10	0.95	0.80	0.85	0.60	0.51	0.95	0.87
354 Coal and petroleum products	1.80	2.75	1.56	1.24	0.76	0.70	0.86	0.98	1.26	1.65
355 Rubber products	1.02	1.40	1.38	1.20	1.21	1.20	1.57	1.46	1.66	1.87
356 Plastic products	0.18	0.23	0.25	0.23	0.22	0.22	0.26	0.30	0.44	0.50
361 Pottery, china, etc.	0.61	0.68	0.75	0.59	0.48	0.46	0.48	0.45	0.53	0.65
362 Glass products	0.92	1.20	1.55	1.47	1.36	1.34	1.74	2.24	3.00	4.00
369 Non-metallic mineral products, nec.	0.09	0.11	0.14	0.12	0.12	0.10	0.11	0.14	0.16	0.18
371 Iron & steel	0.12	0.29	0.23	0.31	0.11	0.10	0.11	0.21	0.19	0.17
372 Non-ferrous metals	2.86	3.61	3.89	4.23	2.95	2.45	2.09	2.39	2.43	2.13
381 Metal products	0.45	0.54	0.60	0.57	0.51	0.50	0.53	0.62	0.77	0.84
3825 Office & computing machinery	4.13	5.02	5.33	4.42	4.51	3.89	4.31	4.50	5.45	6.15
382-3825 Other non-electrical machinery	1.04	1.18	1.25	1.22	1.22	1.35	1.39	1.44	1.77	1.91
3832 Radio, TV & communication equipment	1.62	2.02	2.31	2.26	2.31	2.58	2.91	3.54	4.44	4.47
383-3832 Other electrical machinery	0.87	1.02	1.10	0.96	0.91	0.92	1.76	2.05	2.30	2.10
384 Transportation equipment	1.42	1.32	1.93	1.54	1.52	1.55	1.98	1.85	2.00	2.27
385 Professional goods	10.31	11.25	9.94	10.68	12.70	18.62	25.17	32.02	30.43	28.85
3851 Professional and scientific equipment	15.86	20.00	17.03	16.73	17.83	21.13	21.47	23.68	31.51	32.15
3852 Photographic and optical goods*	7.64	10.17	14.70	13.18	20.03	50.14	72.54	35.12	27.93	74.85
3853 Watches and clocks	0.17	0.18	0.27	0.16	0.18	0.19	0.30	0.25	0.43	0.58
390 Other manufacturing	1.98	2.68	2.83	2.32	1.93	2.02	1.94	2.17	2.74	2.48
382+383+385 Machinery and Instruments	1.83	2.21	2.35	2.17	2.21	2.34	2.82	3.15	3.92	4.01

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A2-1. Share of imports from the world in apparent consumption of Korea (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
300 Total manufacturing	24.82	23.07	22.64	23.22	22.39	21.21	22.74	23.52	22.83
311 Food products	13.64	13.78	14.20	13.64	13.34	12.01	12.82	12.92	14.24
313 Beverages	1.20	1.86	2.19	2.20	2.61	2.63	2.80	4.28	5.22
314 Tobacco	1.42	3.50	2.90	3.02	2.97	3.57	4.66	6.66	6.99
321 Textiles	16.06	16.40	17.76	19.76	20.07	19.09	24.10	24.71	26.33
322 Wearing apparel*	-2.77	-30.94	19.13	16.38	17.17	8.57	10.83	10.23	11.08
323 Leather products	22.09	19.67	19.56	20.96	20.85	24.29	28.02	29.80	36.09
324 Footwear	0.74	0.76	1.20	0.24	0.26	0.47	0.91	1.41	17.11
331 Wood products	18.76	21.06	21.62	23.30	25.25	29.90	28.48	29.27	28.89
332 Furniture	11.02	7.78	8.45	6.77	6.00	7.13	8.45	8.93	6.86
341 Paper, paper products	17.73	17.95	18.04	16.50	17.07	15.54	15.70	18.83	16.86
342 Printing & publishing	8.54	7.33	7.69	7.81	7.79	6.57	6.54	6.14	3.34
351 Industrial chemicals, fertilizers, fibers	44.27	42.49	37.11	48.48	48.66	48.01	51.19	47.57	52.17
352 Chemical products	10.90	10.27	11.45	12.63	12.88	12.54	13.50	15.24	23.61
353 Petroleum refineries	15.02	16.84	26.60	21.84	18.88	20.84	22.69	23.85	19.93
354 Coal and petroleum products	2.53	2.64	2.71	3.37	4.05	4.81	8.07	8.00	22.87
355 Rubber products*	11.20	11.21	13.75	-43.02	-121.70	276.09	133.15	80.04	11.44
356 Plastic products	21.41	17.13	17.11	10.11	9.43	8.90	8.93	8.49	2.21
361 Pottery, china, etc.	26.40	28.88	25.72	23.54	18.69	15.25	16.18	16.40	20.79
362 Glass products	25.17	23.11	18.13	17.31	15.07	16.03	19.34	22.25	18.37
369 Non-metallic mineral products, nec.	4.34	3.83	6.31	7.60	5.91	3.34	3.77	3.94	4.43
371 Iron & steel	22.13	22.17	20.96	24.14	19.72	17.48	20.27	22.54	20.12
372 Non-ferrous metals	35.20	34.68	31.79	32.50	33.19	34.97	37.52	36.50	33.79
381 Metal products	16.70	15.34	15.22	15.30	16.63	15.09	14.67	16.49	13.77
3825 Office & computing machinery*	513.08	353.29	211.30	209.61	372.60	92.07	75.16	68.73	61.50
382-3825 Other non-electrical machinery	43.60	42.35	39.76	32.86	32.97	29.79	31.74	32.73	37.46
3832 Radio, TV & communication equipment	38.86	35.47	34.24	38.20	40.61	35.56	36.90	34.66	25.12
383-3832 Other electrical machinery	13.46	11.41	11.10	13.10	11.89	13.32	15.20	15.10	31.47
384 Transportation equipment	25.56	18.35	15.28	18.47	18.05	16.21	16.48	16.41	13.90
385 Professional goods	56.94	56.73	56.56	69.04	68.45	69.05	69.92	71.95	72.47
390 Other manufacturing	17.34	15.14	20.34	22.52	27.19	25.20	25.27	25.19	32.90
382+383+385 Machinery and Instruments	40.34	37.98	36.45	36.30	36.61	33.69	35.61	35.23	35.19

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A2-2. Share of imports from Japan in apparent consumption of Korea (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
300 Total manufacturing	5.00	5.13	4.80	4.79	4.44	4.12	4.28	4.55	4.33
311 Food products	5.62	5.30	5.68	4.99	4.94	4.03	4.23	4.43	3.71
313 Beverages	0.05	0.11	0.22	0.20	0.12	0.29	0.17	0.67	0.46
314 Tobacco	2.11	3.20	3.05	2.85	2.90	2.69	3.10	3.88	3.45
321 Textiles	4.21	3.53	4.17	3.07	3.09	2.64	2.99	2.94	2.30
322 Wearing apparel*	-0.22	-1.76	0.63	0.34	0.33	0.17	0.22	0.31	0.37
323 Leather products	3.03	2.18	3.39	2.50	2.04	2.26	2.11	2.13	2.40
324 Footwear	1.55	1.31	2.22	0.46	0.52	0.68	0.61	0.93	1.49
331 Wood products	2.18	2.61	2.42	1.96	3.04	3.00	3.23	2.71	2.87
332 Furniture	1.17	0.69	0.35	0.33	0.22	0.18	0.40	0.49	0.54
341 Paper, paper products	7.52	7.62	6.59	5.77	6.49	4.81	5.57	6.03	4.81
342 Printing & publishing	3.56	2.39	2.03	1.84	1.49	1.03	1.23	1.70	1.10
351 Industrial chemicals, fertilizers, fibers	10.84	10.83	9.47	10.74	10.24	10.53	10.59	10.15	9.51
352 Chemical products	2.38	2.39	2.72	2.87	2.92	2.85	2.84	3.68	4.33
353 Petroleum refineries	1.41	1.08	3.70	3.26	3.16	2.55	1.91	1.65	1.10
354 Coal and petroleum products	0.18	3.35	3.71	2.57	3.22	4.40	7.08	9.41	6.49
355 Rubber products*	1.74	0.97	0.89	-3.83	-5.27	15.69	5.87	4.10	1.88
356 Plastic products	1.75	0.85	1.16	0.56	0.59	0.48	0.33	0.33	0.47
361 Pottery, china, etc.	4.92	6.24	5.26	4.32	3.99	4.53	3.52	3.67	2.41
362 Glass products	3.72	3.30	2.71	2.87	2.52	2.64	2.21	2.48	2.88
369 Non-metallic mineral products, nec.	0.38	0.32	0.26	0.25	0.32	0.28	0.26	0.29	0.33
371 Iron & steel	0.46	2.09	0.95	1.75	0.45	0.27	0.25	0.89	0.41
372 Non-ferrous metals	3.77	3.42	3.03	3.27	2.20	1.88	2.33	3.20	2.31
381 Metal products	2.92	2.51	1.80	2.05	2.21	2.09	1.74	2.51	2.59
3825 Office & computing machinery*	179.05	138.33	73.75	65.48	107.46	26.40	21.88	19.85	18.94
382-3825 Other non-electrical machinery	7.80	9.68	8.37	7.32	6.90	5.98	6.70	8.20	7.35
3832 Radio, TV & communication equipment	6.53	5.70	6.00	5.97	6.36	6.63	8.08	6.59	6.17
383-3832 Other electrical machinery	3.83	4.06	3.86	5.39	3.84	4.22	4.63	4.57	4.93
384 Transportation equipment	7.19	7.65	5.26	7.22	6.16	5.74	5.20	5.57	5.53
385 Professional goods	10.21	10.82	12.41	14.47	14.15	13.76	13.07	12.35	15.27
390 Other manufacturing	2.87	3.78	6.24	7.98	10.42	10.37	9.19	8.58	6.96
382+383+385 Machinery and Instruments	7.97	8.40	7.95	7.82	7.34	7.04	7.92	7.88	7.60

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A2-3. Share of imports from Taiwan in apparent consumption of Korea (in %).

ISIC, rev.2	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
300 Total manufacturing	0.48	0.46	0.41	0.42	0.48	0.55	0.53
311 Food products	0.09	0.25	0.16	0.07	0.08	0.09	0.10
313 Beverages	0.01	0.02	0.06	0.02	0.03	0.05	0.03
314 Tobacco	0.00	0.00	0.00	0.00	0.00	0.00	0.00
321 Textiles	0.86	0.82	0.71	0.74	1.17	1.23	1.21
322 Wearing apparel*	0.11	0.12	0.12	0.07	0.09	0.07	0.09
323 Leather products	1.98	1.34	0.80	1.31	1.09	1.11	1.49
324 Footwear	1.58	0.30	0.34	0.42	0.44	0.50	0.81
331 Wood products	0.65	0.46	0.25	0.08	0.11	0.13	0.18
332 Furniture	0.08	0.09	0.05	0.07	0.11	0.19	0.32
341 Paper, paper products	0.53	0.39	0.20	0.11	0.10	0.11	0.11
342 Printing & publishing	0.02	0.02	0.01	0.01	0.02	0.03	0.04
351 Industrial chemicals, fertilizers, fibers	1.07	1.16	1.51	1.78	2.59	2.48	2.09
352 Chemical products	0.13	0.16	0.13	0.13	0.15	0.19	0.28
353 Petroleum refineries	0.07	0.08	0.07	0.09	0.08	0.12	0.04
354 Coal and petroleum products	0.00	0.00	0.56	0.92	0.04	0.90	0.25
355 Rubber products*	0.05	-0.28	-0.60	1.26	0.62	0.44	0.28
356 Plastic products	0.30	0.20	0.19	0.19	0.16	0.16	0.18
361 Pottery, china, etc.	0.91	0.96	0.67	0.26	0.18	0.17	0.16
362 Glass products	0.52	0.32	0.26	0.54	0.87	0.57	0.54
369 Non-metallic mineral products, nec.	0.06	0.06	0.06	0.03	0.04	0.04	0.05
371 Iron & steel	0.31	0.12	0.22	0.12	0.14	0.37	0.21
372 Non-ferrous metals	1.01	0.61	0.41	0.44	0.48	0.44	0.38
381 Metal products	0.30	0.37	0.28	0.34	0.32	0.35	0.33
3825 Office & computing machinery*	8.39	11.53	18.94	4.43	4.05	4.52	4.57
382-3825 Other non-electrical machinery	0.39	0.37	0.30	0.37	0.36	0.40	0.42
3832 Radio, TV & communication equipment	0.95	0.94	0.93	1.11	1.19	1.41	1.29
383-3832 Other electrical machinery	0.79	0.95	0.63	0.61	0.75	0.72	0.77
384 Transportation equipment	0.08	0.10	0.08	0.07	0.07	0.05	0.07
385 Professional goods	0.60	0.98	0.83	0.60	0.52	0.53	0.44
390 Other manufacturing	1.48	2.30	2.60	1.69	1.63	1.86	1.91
382+383+385 Machinery and Instruments	0.80	0.84	0.73	0.81	0.86	1.00	0.99

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A2-4. Share of imports from U.S. in apparent consumption of Korea (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
300 Total manufacturing	9.18	7.69	6.98	7.16	6.23	6.14	6.60	6.61	5.74
311 Food products	0.18	0.17	0.13	0.18	0.20	0.17	0.19	0.17	0.16
313 Beverages	0.03	0.03	0.03	0.04	0.11	0.06	0.11	0.11	0.07
314 Tobacco	0.03	0.13	0.27	0.47	0.62	0.99	1.99	2.92	1.38
321 Textiles	3.31	3.07	3.42	3.36	3.28	2.63	2.69	2.65	2.47
322 Wearing apparel*	-0.17	-2.43	1.50	1.20	1.02	0.43	0.34	0.30	0.32
323 Leather products	5.21	3.98	3.07	2.53	2.06	1.79	1.60	1.23	1.03
324 Footwear	1.14	0.85	1.12	0.32	0.26	0.34	0.26	0.26	0.26
331 Wood products	0.46	0.32	0.20	0.27	0.20	0.27	0.49	0.46	0.67
332 Furniture	1.06	0.71	1.60	1.10	0.45	0.37	0.41	0.26	0.36
341 Paper, paper products	1.38	1.26	1.79	1.97	1.32	1.34	1.32	1.36	1.15
342 Printing & publishing	0.74	0.57	0.55	0.62	0.52	0.47	0.40	0.35	0.27
351 Industrial chemicals, fertilizers, fibers	16.50	15.99	14.85	18.46	18.89	17.51	18.39	17.48	15.21
352 Chemical products	5.68	4.92	5.26	5.91	6.26	6.06	6.55	7.28	7.04
353 Petroleum refineries	1.03	2.17	4.04	2.56	1.90	2.60	3.29	3.65	1.57
354 Coal and petroleum products	2.65	2.45	2.72	2.78	3.58	4.62	6.37	7.89	5.98
355 Rubber products*	2.73	2.47	2.36	-11.04	-19.30	58.82	18.98	11.23	3.69
356 Plastic products	1.44	1.32	1.24	0.66	0.49	0.44	0.42	0.37	0.38
361 Pottery, china, etc.	49.78	27.31	37.87	28.37	21.27	16.62	15.79	18.67	16.52
362 Glass products	13.13	9.34	7.22	6.67	5.64	6.36	7.77	8.92	7.78
369 Non-metallic mineral products, nec.	1.29	1.07	1.04	1.15	1.63	1.24	1.60	1.37	1.67
371 Iron & steel	12.91	9.81	7.95	7.82	6.31	5.55	6.88	7.39	6.73
372 Non-ferrous metals	6.27	5.25	4.64	5.39	5.97	6.43	5.86	5.06	3.93
381 Metal products	6.54	5.65	4.94	5.27	5.23	4.75	5.21	5.49	4.35
3825 Office & computing machinery*	189.43	106.26	62.35	62.71	104.86	22.78	17.46	14.61	10.29
382-3825 Other non-electrical machinery	25.88	21.66	19.52	17.22	14.57	14.51	15.55	14.45	13.25
3832 Radio, TV & communication equipment	15.46	12.35	10.42	11.33	10.63	10.40	10.06	9.19	7.41
383-3832 Other electrical machinery	20.67	17.95	14.79	17.90	14.89	17.82	19.30	17.82	15.08
384 Transportation equipment	5.73	3.20	2.64	2.81	2.30	2.20	2.29	2.11	1.76
385 Professional goods	26.12	26.42	21.38	27.24	25.60	28.33	29.18	33.17	27.59
390 Other manufacturing	6.01	6.32	7.77	8.14	8.50	8.80	9.02	8.22	6.60
382+383+385 Machinery and Instruments	21.80	18.56	16.05	16.60	14.54	14.65	15.14	14.22	12.00

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A3-1. Share of imports from the world in apparent consumption of Taiwan (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
300 Total manufacturing	27.03	27.39	28.57	30.68	31.98	35.40	36.93	40.18	40.61
311 Food products	9.75	10.25	9.36	10.56	9.74	10.14	10.90	11.52	11.21
313 Beverages	12.74	11.75	11.59	11.86	13.46	14.39	14.66	19.48	20.43
321 Textiles	14.60	15.16	21.50	26.06	25.18	36.03	41.81	49.73	68.29
322 Wearing apparel	5.41	7.10	4.86	5.41	7.40	12.17	19.41	21.01	21.02
323 Leather products	13.92	14.23	16.42	16.13	20.60	23.41	31.47	44.82	48.84
331 Wood products	28.65	28.34	33.72	35.17	44.47	55.42	65.63	71.94	70.38
332 Furniture	6.72	8.64	5.46	5.58	7.18	10.82	14.39	18.32	18.00
341 Paper, paper products	15.79	16.59	19.59	21.68	22.95	25.96	27.58	27.80	26.98
342 Printing & publishing	22.04	18.44	10.29	11.76	9.90	10.16	12.57	13.66	12.25
351 Industrial chemicals, fertilizers, fibers	37.76	37.17	43.40	47.53	47.08	49.90	45.94	44.59	46.40
352 Chemical products	21.14	22.27	29.87	31.85	30.76	32.95	34.75	37.07	39.11
354 Coal and petroleum products	0.79	0.70	2.48	1.47	1.65	1.79	1.91	1.71	1.75
355 Rubber products	23.23	21.23	10.01	11.02	13.22	16.57	17.80	19.46	18.14
356 Plastic products	5.90	7.55	2.85	3.00	3.67	4.63	4.69	5.42	5.71
36 Non-metallic mineral products	11.56	12.51	11.89	11.90	12.11	13.22	13.52	13.88	13.22
37 Ferrous and non-ferrous metals	32.78	34.35	30.88	35.25	34.44	36.92	35.63	40.86	37.50
381 Metal products	21.23	20.76	16.99	16.50	16.69	18.77	19.95	24.66	27.88
382 Non-electrical machinery*	190.58	160.86	186.75	226.26	245.79	378.08	505.56	-1,062.57	-375.85
383 Electrical machinery	28.81	28.75	32.08	32.22	34.24	37.58	40.01	42.56	39.30
384 Transportation equipment	29.56	31.00	30.83	30.18	35.20	39.31	38.07	36.80	33.07
385 Professional goods*	82.82	79.61	82.58	93.89	95.54	104.00	106.09	112.62	114.04
390 Other manufacturing	8.44	10.48	19.39	30.11	43.19	53.70	78.74	87.32	90.27
382+383+385 Machinery and Instruments	48.42	47.35	50.80	52.79	55.23	59.78	62.96	69.25	70.73

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A3-2. Share of imports from Japan in apparent consumption of Taiwan (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
300 Total manufacturing	10.51	9.76	10.18	11.03	11.51	12.34	12.31	13.34	12.88
311 Food products	1.55	1.36	1.02	0.92	0.57	0.56	0.45	0.42	0.40
313 Beverages	0.58	0.21	0.09	0.01	0.04	0.04	0.02	3.82	3.55
321 Textiles	3.67	4.13	4.72	4.99	5.60	7.66	7.14	7.44	9.28
322 Wearing apparel	0.60	0.73	0.70	0.97	1.44	2.44	2.91	2.34	1.85
323 Leather products	2.06	1.95	1.40	1.25	1.05	1.17	1.49	1.17	0.82
331 Wood products	1.33	1.65	1.46	1.39	1.15	0.87	0.78	0.77	0.66
332 Furniture	0.49	0.72	0.82	1.06	1.02	1.43	1.54	1.75	1.52
341 Paper, paper products	2.60	2.46	3.61	4.25	4.60	5.65	5.20	4.03	3.60
342 Printing & publishing	1.46	1.24	1.25	1.29	1.28	1.40	1.60	1.42	1.28
351 Industrial chemicals, fertilizers, fibers	11.00	11.18	13.23	13.69	14.75	15.33	13.67	13.90	14.01
352 Chemical products	10.94	10.43	10.08	10.47	10.36	11.64	11.97	12.80	13.28
354 Coal and petroleum products	0.64	0.58	0.77	0.75	0.77	0.86	0.80	0.70	0.67
355 Rubber products	4.86	6.03	4.58	5.50	6.42	8.17	9.33	10.53	9.10
356 Plastic products	0.53	0.59	1.15	1.25	1.38	1.73	1.73	1.82	1.73
36 Non-metallic mineral products	7.95	6.85	5.58	5.71	6.34	7.26	6.88	7.03	6.48
37 Ferrous and non-ferrous metals	13.03	11.59	9.90	10.62	10.16	10.27	9.50	10.46	9.64
381 Metal products	8.73	7.28	7.10	7.47	7.31	8.25	8.72	10.50	11.07
382 Non-electrical machinery*	99.19	81.06	87.50	107.87	119.27	172.08	229.41	-467.54	-153.11
383 Electrical machinery	16.21	15.51	14.84	15.29	15.42	16.40	16.32	16.88	13.77
384 Transportation equipment	11.68	9.36	12.41	13.22	13.65	14.66	13.11	12.99	10.52
385 Professional goods*	40.66	31.48	34.39	44.95	42.39	50.90	56.23	61.45	62.26
390 Other manufacturing	6.34	7.88	9.80	14.58	18.07	20.26	25.20	26.46	28.44
382+383+385 Machinery and Instruments	26.10	24.23	23.41	25.11	25.55	26.78	27.46	29.47	27.91

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A3-3. Share of imports from Korea in apparent consumption of Taiwan (in %).

ISIC, rev.2	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
300 Total manufacturing	0.81	0.96	1.15	1.33	1.49	1.85	1.85
311 Food products	0.06	0.12	0.04	0.05	0.05	0.07	0.07
313 Beverages	0.00	0.00	0.00	0.01	0.00	0.00	0.00
321 Textiles	1.56	1.68	2.04	4.07	4.43	4.58	5.63
322 Wearing apparel	0.42	0.42	0.68	1.19	2.26	1.73	1.16
323 Leather products	0.79	0.84	1.79	1.22	1.99	1.99	1.59
331 Wood products	0.88	0.56	0.38	0.05	0.06	0.08	0.07
332 Furniture	0.14	0.07	0.07	0.08	0.15	0.17	0.15
341 Paper, paper products	0.06	0.09	0.12	0.21	0.39	0.65	0.87
342 Printing & publishing	0.09	0.05	0.05	0.07	0.06	0.09	0.11
351 Industrial chemicals, fertilizers, fibers	1.36	2.13	3.34	3.06	2.36	2.72	3.33
352 Chemical products	0.67	0.68	0.67	0.63	0.67	0.69	0.90
354 Coal and petroleum products	0.02	0.05	0.04	0.07	0.04	0.04	0.05
355 Rubber products	0.34	0.34	0.29	0.40	0.41	0.54	0.67
356 Plastic products	0.08	0.10	0.14	0.23	0.27	0.25	0.25
36 Non-metallic mineral products	0.33	0.32	0.32	0.53	0.60	0.57	0.50
37 Ferrous and non-ferrous metals	1.00	1.21	1.70	1.86	1.66	1.50	1.29
381 Metal products	0.43	0.49	0.52	0.79	0.81	0.77	0.82
382 Non-electrical machinery*	1.55	2.29	2.86	4.68	8.33	-16.02	-5.52
383 Electrical machinery	1.26	1.50	1.56	2.02	2.68	3.60	2.64
384 Transportation equipment	0.60	0.55	0.59	0.48	0.29	0.74	1.69
385 Professional goods*	0.79	0.90	0.88	0.90	1.19	2.61	4.86
390 Other manufacturing	0.78	1.00	1.35	1.82	2.58	2.93	2.85
382+383+385 Machinery and Instruments	1.27	1.54	1.63	2.10	2.80	3.93	3.32

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A3-4. Share of imports from the U.S. in apparent consumption of Taiwan (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
300 Total manufacturing	5.32	5.85	6.21	6.51	6.44	6.99	7.10	7.37	7.55
311 Food products	1.91	1.80	1.86	1.97	1.93	1.95	2.45	2.78	2.58
313 Beverages	14.28	10.30	8.32	7.83	8.06	7.22	5.33	4.72	4.53
321 Textiles	1.91	1.80	2.67	2.34	2.36	2.84	3.71	5.19	5.04
322 Wearing apparel	0.15	0.14	0.09	0.11	0.11	0.26	0.43	0.48	0.49
323 Leather products	2.52	2.72	4.47	3.88	2.86	3.36	3.94	4.84	6.52
331 Wood products	6.21	4.68	6.67	6.52	6.70	5.56	5.44	6.01	6.06
332 Furniture	0.68	0.30	0.33	0.30	0.36	0.99	1.04	1.11	0.90
341 Paper, paper products	5.27	5.14	6.68	6.89	6.92	6.43	7.37	8.19	7.38
342 Printing & publishing	4.99	4.13	5.30	6.15	4.70	4.30	5.73	7.10	5.90
351 Industrial chemicals, fertilizers, fibers	9.89	11.07	12.95	14.69	13.18	13.98	13.01	11.98	11.57
352 Chemical products	4.39	4.63	6.12	6.42	7.07	7.48	7.93	8.20	8.25
354 Coal and petroleum products	0.05	0.51	0.23	0.21	0.24	0.25	0.37	0.25	0.26
355 Rubber products	1.50	1.39	1.37	1.37	1.58	1.81	1.86	2.01	1.82
356 Plastic products	0.44	0.30	0.57	0.58	0.74	0.85	0.94	1.00	1.12
36 Non-metallic mineral products	1.40	1.50	1.53	1.46	1.31	1.06	0.96	1.09	1.22
37 Ferrous and non-ferrous metals	0.95	2.13	2.53	3.71	2.21	2.06	1.75	2.85	2.35
381 Metal products	5.38	4.38	3.67	3.09	3.36	3.37	3.41	5.23	7.25
382 Non-electrical machinery*	38.40	45.47	34.31	40.36	38.43	56.04	76.37	-179.82	-74.12
383 Electrical machinery	6.63	6.42	7.96	7.10	7.20	7.88	8.45	7.78	7.67
384 Transportation equipment	7.56	8.56	7.69	8.35	11.10	14.36	11.37	8.86	7.13
385 Professional goods*	19.64	19.46	21.92	22.03	22.97	24.18	21.83	23.76	23.38
390 Other manufacturing	1.11	1.63	2.48	4.24	6.88	11.31	19.67	20.77	12.97
382+383+385 Machinery and Instruments	10.61	11.81	11.44	10.86	10.65	11.40	12.04	12.57	13.94

Sources: see table 1.
Note: * indicates odd estimates for which no tests for trend was made.

Table A4-1. Share of imports from the world in apparent consumption of the U.S. (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
300 Total manufacturing	14.19	14.32	14.48	14.80	15.18	15.88	17.04	17.74	17.56	17.01
311 Food products	4.14	3.95	4.10	4.01	3.97	3.75	3.91	3.92	4.16	4.04
313 Beverages	8.36	8.31	8.45	7.68	8.27	7.98	8.43	8.59	9.37	9.28
314 Tobacco	1.75	1.68	1.76	2.52	3.10	4.84	2.32	1.68	3.32	3.80
321 Textiles	12.82	13.75	14.19	15.09	15.53	15.46	16.44	17.95	19.07	20.44
322 Wearing apparel	27.19	29.71	30.92	31.01	33.39	35.02	35.92	36.94	38.27	40.02
323 Leather products	43.02	43.39	44.44	45.78	45.22	46.20	51.96	55.62	58.33	61.27
324 Footwear	62.63	62.53	66.14	68.53	69.65	70.87	72.61	74.72	77.21	79.57
331 Wood products	10.72	10.68	10.39	10.46	11.44	12.74	13.32	13.23	14.24	14.03
332 Furniture	14.45	12.28	12.38	12.74	12.65	13.22	14.85	14.86	15.94	15.84
341 Paper, paper products	9.16	9.22	9.17	8.45	8.18	8.45	8.54	9.98	8.69	7.84
342 Printing & publishing	1.26	1.27	1.26	1.28	1.33	1.39	1.49	1.66	1.71	1.63
351 Industrial chemicals, fertilizers, fibers	11.35	12.29	12.95	14.09	15.00	15.71	17.24	18.55	18.62	18.48
352 Chemical products	7.19	6.36	6.70	7.09	7.67	7.96	8.31	8.96	9.74	10.02
353 Petroleum refineries	10.81	10.58	10.73	9.53	9.19	9.48	9.23	7.97	10.98	9.89
354 Coal and petroleum products	2.91	6.10	5.13	4.12	4.38	4.03	5.69	5.75	5.32	4.88
355 Rubber products	13.44	14.87	14.66	14.42	15.53	16.10	17.66	17.88	17.68	17.51
356 Plastic products	9.72	9.45	9.81	10.35	10.33	10.45	10.26	10.58	10.93	10.83
361 Pottery, china, etc.	40.29	40.72	40.37	41.40	42.39	42.47	41.88	43.28	40.30	39.25
362 Glass products	11.09	10.21	10.47	10.81	11.17	11.51	13.20	14.45	15.12	14.28
369 Non-metallic mineral products, nec.	5.20	5.02	5.24	4.97	4.66	4.93	5.44	5.74	6.03	5.92
371 Iron & steel	13.59	12.88	12.61	13.23	12.63	12.80	15.71	14.87	15.09	13.95
372 Non-ferrous metals	17.34	18.09	17.99	17.65	16.92	17.29	18.75	19.75	18.15	18.19
381 Metal products	8.51	8.06	8.06	8.25	8.66	9.01	9.61	10.12	10.29	10.38
3825 Office & computing machinery	32.18	35.55	38.38	45.24	45.44	48.54	49.75	52.17	48.51	47.17
382-3825 Other non-electrical machinery	15.88	15.65	15.58	15.33	15.41	15.99	17.32	18.13	15.59	14.53
3832 Radio, TV & communication equipment	30.05	31.24	31.14	31.58	30.88	32.20	35.29	35.52	34.04	27.28
383-3832 Other electrical machinery	19.94	19.49	20.83	22.37	23.87	25.35	27.36	29.09	24.22	19.75
384 Transportation equipment	21.94	21.98	22.71	23.30	22.68	23.10	23.56	23.71	23.90	23.57
385 Professional goods	10.99	11.55	12.18	13.22	13.88	14.94	16.84	18.53	18.53	19.04
3851 Professional and scientific equipment	6.64	7.22	7.48	8.06	8.64	9.48	11.26	12.35	11.87	12.32
3852 Photographic and optical goods	17.37	20.37	20.71	21.60	22.73	23.74	25.42	29.26	34.45	36.97
3853 Watches and clocks	62.47	41.38	60.20	66.13	79.09	81.14	82.24	83.26	83.82	84.94
390 Other manufacturing	34.49	37.50	36.60	36.64	38.22	39.15	39.79	39.93	40.33	39.64
382+383+385 Machinery and Instruments	20.47	21.00	21.53	22.79	23.50	24.93	27.13	28.76	26.09	23.42

Sources: see table 1.

Table A4-2. Share of imports from Japan in apparent consumption of the U.S. (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
300 Total manufacturing	3.25	3.28	3.08	3.22	3.16	3.33	3.44	3.31	2.89	2.68
311 Food products	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.05	0.06
313 Beverages	0.08	0.07	0.07	0.07	0.07	0.07	0.06	0.05	0.05	0.05
314 Tobacco	0.05	0.02	0.02	0.02	0.02	0.02	0.03	0.04	0.04	0.04
321 Textiles	0.79	0.66	0.64	0.67	0.63	0.57	0.54	0.44	0.42	0.39
322 Wearing apparel	0.41	0.30	0.19	0.16	0.13	0.11	0.09	0.07	0.07	0.08
323 Leather products	0.59	0.36	0.28	0.24	0.19	0.19	0.16	0.12	0.11	0.09
324 Footwear	0.03	0.06	0.04	0.05	0.03	0.03	0.03	0.02	0.01	0.01
331 Wood products	0.04	0.03	0.02	0.03	0.02	0.02	0.01	0.01	0.01	0.01
332 Furniture	0.53	0.38	0.44	0.53	0.44	0.38	0.38	0.30	0.20	0.16
341 Paper, paper products	0.17	0.15	0.19	0.16	0.15	0.16	0.17	0.16	0.15	0.20
342 Printing & publishing	0.18	0.16	0.15	0.13	0.11	0.11	0.10	0.09	0.08	0.06
351 Industrial chemicals, fertilizers, fibers	1.35	1.51	1.48	1.67	1.89	2.06	2.24	2.40	2.41	2.29
352 Chemical products	1.70	1.67	1.65	1.74	1.72	1.79	1.90	1.99	2.01	1.98
353 Petroleum refineries	0.02	0.03	0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.06
354 Coal and petroleum products	0.78	0.89	0.05	0.02	0.05	0.08	0.19	0.11	0.00	0.00
355 Rubber products	3.84	4.37	4.22	3.85	3.81	3.98	4.39	4.23	3.85	3.52
356 Plastic products	0.60	0.40	0.38	0.39	0.36	0.38	0.36	0.36	0.32	0.27
361 Pottery, china, etc.	9.83	9.56	9.11	8.82	7.23	6.55	5.90	5.93	4.54	4.92
362 Glass products	1.20	1.03	0.93	1.14	1.31	1.51	1.91	2.10	2.40	2.14
369 Non-metallic mineral products, nec.	0.55	0.54	0.52	0.39	0.40	0.37	0.39	0.37	0.34	0.39
371 Iron & steel	3.26	3.03	2.75	2.92	2.65	1.78	2.13	1.73	1.51	1.47
372 Non-ferrous metals	0.68	0.62	0.77	0.67	0.52	0.53	0.47	0.51	0.46	0.57
381 Metal products	1.49	1.41	1.44	1.46	1.50	1.58	1.57	1.59	1.42	1.30
3825 Office & computing machinery	13.92	14.27	14.47	16.34	15.94	16.39	15.81	13.83	11.15	10.17
382-3825 Other non-electrical machinery	4.50	4.95	4.48	4.60	4.20	4.76	4.85	5.05	4.02	3.70
3832 Radio, TV & communication equipment	11.93	12.02	11.09	10.94	10.08	10.31	10.08	9.35	7.71	5.64
383-3832 Other electrical machinery	5.11	4.79	5.07	5.44	5.72	6.30	6.38	6.47	4.62	3.47
384 Transportation equipment	8.02	8.07	7.72	8.29	7.63	7.62	7.77	7.03	6.27	5.85
385 Professional goods	4.30	4.82	4.68	5.11	5.17	5.62	6.04	6.39	5.75	5.60
3851 Professional and scientific equipment	1.69	1.86	1.79	1.95	1.85	2.13	2.38	2.65	2.33	2.25
3852 Photographic and optical goods	10.11	11.80	11.90	12.69	13.11	13.61	13.89	15.03	15.63	16.11
3853 Watches and clocks	18.15	12.24	14.54	17.01	21.88	23.48	25.15	23.72	24.11	23.80
390 Other manufacturing	5.26	6.18	6.82	5.53	5.82	6.58	4.24	3.60	3.66	4.77
382+383+385 Machinery and Instruments	7.19	7.42	7.10	7.50	7.36	7.86	7.92	7.74	6.18	5.22

Sources: see table 1.

Table A4-3. Share of imports from Korea in apparent consumption of the U.S. (in %).

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
300 Total manufacturing	0.74	0.70	0.64	0.60	0.55	0.54	0.58	0.65	0.57	0.51
311 Food products	0.07	0.06	0.05	0.05	0.04	0.04	0.03	0.03	0.03	0.03
313 Beverages	0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.02
314 Tobacco	0.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
321 Textiles	1.34	1.59	1.42	1.33	1.12	1.13	1.06	1.00	0.95	0.99
322 Wearing apparel	4.12	4.28	4.00	3.40	3.00	2.65	2.18	1.73	1.45	1.38
323 Leather products	6.88	6.82	6.74	5.82	4.27	3.48	3.26	3.06	2.52	2.22
324 Footwear	20.40	18.39	20.35	16.82	11.59	6.75	4.56	3.24	2.04	1.45
331 Wood products	0.04	0.03	0.03	0.02	0.01	0.01	0.01	0.02	0.01	0.01
332 Furniture	0.27	0.14	0.14	0.11	0.06	0.05	0.06	0.05	0.06	0.05
341 Paper, paper products	0.06	0.05	0.05	0.05	0.04	0.05	0.05	0.05	0.04	0.05
342 Printing & publishing	0.03	0.03	0.03	0.03	0.03	0.03	0.04	0.04	0.04	0.03
351 Industrial chemicals, fertilizers, fibers	0.14	0.15	0.20	0.21	0.23	0.27	0.31	0.34	0.34	0.35
352 Chemical products	0.18	0.22	0.22	0.25	0.22	0.21	0.18	0.19	0.18	0.16
353 Petroleum refineries	0.01	0.01	0.00	0.02	0.08	0.07	0.11	0.10	0.05	0.07
354 Coal and petroleum products	0.06	0.06	0.08	0.13	0.07	0.07	0.11	0.11	0.08	0.08
355 Rubber products	0.92	0.90	1.02	0.89	0.90	0.78	0.85	0.84	0.72	0.65
356 Plastic products	0.90	0.77	0.67	0.56	0.51	0.46	0.29	0.27	0.20	0.15
361 Pottery, china, etc.	2.07	1.94	1.69	1.28	0.88	0.54	0.43	0.30	0.15	0.09
362 Glass products	0.23	0.28	0.20	0.21	0.19	0.15	0.12	0.10	0.09	0.10
369 Non-metallic mineral products, nec.	0.09	0.07	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.05
371 Iron & steel	0.75	0.61	0.76	0.87	0.86	0.53	0.64	0.62	0.58	0.55
372 Non-ferrous metals	0.05	0.02	0.01	0.01	0.03	0.01	0.03	0.02	0.02	0.07
381 Metal products	0.61	0.47	0.41	0.38	0.37	0.37	0.37	0.36	0.35	0.34
3825 Office & computing machinery	1.79	2.12	2.06	2.08	1.91	2.69	2.57	3.42	3.02	2.77
382-3825 Other non-electrical machinery	0.25	0.26	0.25	0.21	0.24	0.21	0.23	0.25	0.27	0.23
3832 Radio, TV & communication equipment	2.99	3.25	2.78	2.69	2.62	2.72	3.27	3.96	3.28	2.45
383-3832 Other electrical machinery	1.13	0.86	0.78	0.72	0.74	0.74	0.81	0.87	0.63	0.47
384 Transportation equipment	0.71	0.49	0.36	0.36	0.25	0.23	0.36	0.38	0.40	0.38
385 Professional goods	0.27	0.23	0.21	0.21	0.20	0.20	0.22	0.23	0.20	0.20
3851 Professional and scientific equipment	0.10	0.09	0.08	0.08	0.08	0.07	0.07	0.08	0.06	0.06
3852 Photographic and optical goods	0.54	0.50	0.50	0.47	0.45	0.48	0.52	0.59	0.60	0.65
3853 Watches and clocks	2.04	1.56	1.00	1.12	1.02	1.17	1.13	0.88	0.71	0.81
390 Other manufacturing	2.26	2.19	2.00	1.93	1.71	1.33	1.20	1.15	1.06	0.81
382+383+385 Machinery and Instruments	1.14	1.18	1.06	1.05	1.06	1.18	1.34	1.73	1.40	1.16

Sources: see table 1.

Table A4-4. Share of imports from Taiwan in apparent consumption of the U.S. (in %)

ISIC, rev.2	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*	*1997*
300 Total manufacturing	0.92	0.85	0.78	0.81	0.81	0.78	0.78	0.78	0.76	0.72
311 Food products	0.12	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06
313 Beverages	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
314 Tobacco	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
321 Textiles	1.42	1.42	1.21	1.40	1.11	1.12	1.06	1.06	1.07	1.07
322 Wearing apparel	3.39	3.21	3.02	3.09	2.75	2.39	2.22	2.03	1.99	1.87
323 Leather products	7.19	7.08	6.29	5.93	4.91	3.45	3.41	3.55	3.41	2.59
324 Footwear	11.12	9.94	8.01	7.15	5.12	3.29	2.46	1.96	1.28	0.87
331 Wood products	1.02	0.75	0.58	0.52	0.41	0.32	0.26	0.23	0.19	0.17
332 Furniture	3.40	2.74	2.38	2.70	2.59	2.37	2.08	1.66	1.47	1.17
341 Paper, paper products	0.04	0.03	0.03	0.03	0.02	0.02	0.02	0.02	0.02	0.01
342 Printing & publishing	0.04	0.04	0.04	0.04	0.05	0.04	0.04	0.03	0.03	0.03
351 Industrial chemicals, fertilizers, fibers	0.20	0.25	0.25	0.28	0.28	0.30	0.28	0.25	0.25	0.23
352 Chemical products	0.06	0.07	0.07	0.09	0.11	0.13	0.11	0.09	0.07	0.08
353 Petroleum refineries	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
354 Coal and petroleum products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
355 Rubber products	1.02	0.77	0.76	0.82	0.87	0.81	0.87	0.83	0.77	0.77
356 Plastic products	3.24	2.89	2.23	1.93	1.52	1.16	0.93	0.76	0.69	0.59
361 Pottery, china, etc.	10.20	8.56	7.20	6.74	6.76	5.40	4.49	2.95	2.01	1.23
362 Glass products	1.07	0.55	0.53	0.52	0.56	0.54	0.50	0.54	0.44	0.43
369 Non-metallic mineral products, nec.	0.09	0.08	0.09	0.10	0.10	0.09	0.08	0.07	0.07	0.07
371 Iron & steel	0.19	0.17	0.21	0.18	0.12	0.13	0.20	0.17	0.17	0.21
372 Non-ferrous metals	0.05	0.05	0.05	0.05	0.06	0.10	0.07	0.07	0.07	0.08
381 Metal products	1.56	1.38	1.33	1.44	1.57	1.56	1.58	1.52	1.41	1.34
3825 Office & computing machinery	3.49	4.04	4.84	6.18	6.25	6.49	6.28	6.56	6.41	6.53
382-3825 Other non-electrical machinery	0.61	0.48	0.47	0.50	0.54	0.50	0.49	0.49	0.45	0.41
3832 Radio, TV & communication equipment	2.53	2.30	1.91	1.69	1.73	1.87	2.01	2.15	2.22	1.89
383-3832 Other electrical machinery	2.12	1.91	1.75	1.84	1.85	1.74	1.77	1.64	1.38	1.06
384 Transportation equipment	0.24	0.26	0.27	0.26	0.23	0.23	0.21	0.22	0.20	0.18
385 Professional goods	0.54	0.53	0.48	0.51	0.50	0.49	0.52	0.49	0.46	0.48
3851 Professional and scientific equipment	0.26	0.26	0.22	0.24	0.24	0.24	0.27	0.23	0.21	0.22
3852 Photographic and optical goods	1.18	1.18	1.14	1.11	1.05	0.99	1.00	1.06	1.18	1.33
3853 Watches and clocks	2.04	1.10	1.57	2.02	2.63	2.68	2.43	1.99	1.64	1.45
390 Other manufacturing	3.91	4.28	3.72	3.91	3.95	3.15	2.89	2.72	2.44	1.74
382+383+385 Machinery and Instruments	1.56	1.49	1.45	1.56	1.66	1.72	1.78	1.88	1.81	1.69

Sources: see table 1.

Table A5. Production-weighted tariff rates and frequency of non-tariff barriers (NTB) in Japanese and US imports.

	Japan						*U.S.*					
	Tariffs			*NTB*			*Tariffs*			*NTB*		
ISIC	1988	1993	1996	1988	1993	1996	1988	1993	1996	1988	1993	1996
311 Food products	13.91	16.19	16.20	25.12	19.74	9.87	6.11	6.81	7.30	21.81	20.34	2.22
313 Beverages	25.02	25.75	40.43	16.97	0.00	0.00	7.71	7.81	5.54	12.36	0.00	0.00
314 Tobacco	8.38	8.38	7.92	0.00	0.00	0.00	16.94	16.75	68.55	0.00	0.00	0.00
321 Textiles	7.68	7.81	7.39	45.38	45.34	45.22	10.36	10.23	9.75	84.92	75.97	71.39
322 Wearing apparel	13.06	13.01	11.99	0.00	0.00	0.00	13.00	13.61	13.04	87.76	65.42	69.00
323 Leather products	13.90	13.90	12.47	0.00	0.00	0.00	8.04	7.82	7.31	20.61	37.73	36.18
324 Footwear	35.59	68.97	40.01	0.00	0.00	0.00	16.19	16.09	17.88	100.00	100.00	37.50
331 Wood products	5.92	5.37	5.36	0.00	0.00	0.00	3.88	3.91	3.70	2.26	0.00	0.00
332 Furniture	3.74	1.17	0.97	0.00	0.00	0.00	4.43	4.48	3.20	6.67	1.79	1.67
341 Paper, paper products	3.26	3.08	2.32	0.00	0.00	0.00	2.62	2.63	2.36	1.85	1.86	1.72
342 Printing & publishing	1.37	0.92	0.74	0.00	0.00	0.00	1.71	1.71	1.46	1.25	1.25	1.25
351 Industrial chemicals, fertilizers, fibers	4.47	4.58	3.68	0.23	0.16	0.16	6.21	6.16	4.64	7.10	4.34	3.31
352 Chemical products	4.25	3.44	1.73	2.11	2.11	2.09	4.40	4.42	2.22	3.25	0.87	0.74
353 Petroleum refineries	2.57	2.47	2.39	0.00	0.00	0.00	1.96	1.94	2.34	0.00	0.00	0.00
354 Coal and petroleum products	2.11	1.69	1.34	0.00	0.00	0.00	2.22	2.25	2.00	0.00	0.00	0.00
355 Rubber products	3.32	2.26	1.46	6.83	6.83	7.21	3.39	3.60	3.24	19.53	13.28	12.50
356 Plastic products	6.45	6.35	6.03	0.00	0.00	0.00	10.52	11.46	11.09	35.07	35.77	8.09
361 Pottery, china, etc.	2.76	1.06	0.94	0.00	0.00	0.00	8.93	9.39	8.57	2.78	2.63	0.00
362 Glass products	3.85	1.82	1.62	0.00	0.00	0.00	7.68	8.15	7.19	9.09	1.46	0.69
369 Non-metallic mineral products, nec.	2.63	1.69	1.56	0.00	0.00	0.00	3.25	3.29	2.92	11.75	10.68	8.81
371 Iron & steel	4.23	3.76	3.00	0.00	0.29	0.29	4.56	4.89	4.20	80.47	87.16	45.35
372 Non-ferrous metals	3.59	3.56	2.80	13.45	14.98	12.39	3.24	3.28	2.81	5.74	6.82	4.29
381 Metal products	3.12	1.19	1.08	0.00	0.00	0.00	4.48	4.74	4.29	20.12	18.99	6.09
382 Non-electrical machinery	2.09	0.26	0.22	0.00	0.00	0.00	2.71	3.15	2.30	8.55	11.43	5.73
383 Electrical machinery	1.12	0.21	0.14	0.00	0.00	0.00	3.74	4.42	3.66	10.86	21.61	12.33
384 Transportation equipment	0.66	0.00	0.00	0.00	0.00	0.00	3.22	2.82	2.70	22.65	24.96	4.03
385 Professional goods	1.82	0.19	0.18	0.00	0.00	0.00	4.45	5.61	3.99	4.47	22.27	2.22
390 Other manufacturing	3.83	2.91	2.56	0.00	0.00	0.00	6.04	5.91	4.83	4.12	0.99	1.60

Source: OECD (1998b), table 6 (tariffs) and table 7 (NTB).