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EAST-WEST CENTER WORKING PAPERS

Economics Series

No. 78, May 2005

Trade, Foreign Firms, and Economic Policy in Indonesian and Thai Manufacturing

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Trade, Foreign Firms, and Economic Policy in Indonesian and Thai Manufacturing

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May 16, 2005[1]

Abstract

This paper first examines the rapid growth and changing composition of manufactured exports in Indonesia and Thailand, highlighting the rapid growth of office and computer machinery and electric machinery, somewhat slower growth of non-electric and transportation machinery, as well as the low growth of previously large exports of textiles apparel. Second, the important contributions of foreign multinational enterprises (MNEs) to export growth in the machinery industries, particularly in electric, office, and computing machinery, are documented. Third, the paper describes trade policies in all these industries in some detail, emphasizing how low protection was a key facilitator of rapid export growth in the MNEs that dominated the electric, office, and computing machinery industry, while high protection reduced incentives to export among MNEs in the transportation machinery industry.

JEL: F13, F14, F23

[1] The authors are grateful for comments received from participants in the conference "Miracles and Mirages in East-Asian Economic Development" held on 21-22 May 2004 and sponsored by the East-West Center and University of Hawai`i. We are especially grateful for comments received from Pearl Imada-Iboshi, Sumner LeCroix, and Janis Togashi. All remaining errors are the sole responsibility of the authors.

1. Introduction[2]

The surge in exports of manufactured goods from Indonesia and Thailand that occurred in the late1980s until the mid-1990s coincided with a sharp increase in foreign direct investment (FDI) in both countries. Several previous studies have indicated that multinational enterprises (MNEs) were the source of a large portion of the surge of manufactured exports and also made important contributions to changes in export composition.[3] Trade policies both within these two countries and in countries to which they export also played an important role in the growth of manufactured exports and the change in composition of manufactured exports. Despite a slowdown in export growth that began in 1996 and continued into 1998 with the Asian financial crisis, neither country reversed its export-oriented trade liberalizing reforms. After the crisis, many MNEs expanded their operations in Indonesia despite large withdrawals of net FDI (Takii and Ramstetter 2004), and there was a boom of new FDI in Thailand in 1997-2001 (International Monetary Fund 2005).

In this chapter we explore the changes in exports and revealed comparative advantage in manufacturing industries in Thailand and Indonesia (Section 2) and document the role of MNEs in this process over the period 1987-2002 (Section 3). Then we detail the nature of trade policies in the industries studied (Section 4), focusing on how trade policy regimes have influenced MNE exporting

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[3] See, for example, James and Ramstetter (1997), Ramstetter (1997, 1998, 1999a, 1999b, 2002b), and Ramstetter and Takii (2005b).

behavior across industries.

2. Trade Performance

Thailand and Indonesia were the two countries hardest hit by the Asian financial crisis of 1997-98. Nonetheless, exports continued to grow in 1997, declined relatively little in 1998, recovered quite strongly through 2000, and stagnated somewhat in 2001-2002 (Table 1). Exports of manufactured goods were a key driver of export expansion, growing extremely rapidly between 1985-87 and 1997: 4.5-fold in Indonesia and 7.5-fold in Thailand. As a result, the share of manufactures in total exports rose from 27 to 43 percent in Indonesia and from 50 to 71 percent in Thailand. After the crisis the exports of manufactures continued to increase rapidly through 2000, when shares of manufactures peaked at 58 and 76 percent of total exports in Indonesia and Thailand, respectively. Between 2000 and 2002, the value of manufactured exports declined more in Indonesia (10 percent) than in Thailand (3 percent) but the share of manufactures in total exports fell more in Thailand (to 71 percent) than in Indonesia (to 56 percent).

Textiles and apparel manufactures have been important exports in both countries but their shares of manufactured exports declined prior to the global liberalization that began in 1995 with the phased implementation of the ten-year Agreement on Textiles and Clothing (ATC).[4] The combined share of these products in manufactured exports was one-third or more in both countries in 1985-88 but fell to 23 percent in Indonesia and 14 percent in Thailand by 1997 (Table 1). After the crisis this

[4] The ATC features a four-stage process of quota liberalization (growth) and integration (elimination of quotas) over a ten-year period but much of the liberalization was "back-loaded" to latter stages (James, Ray and Minor 2003).

share continued to decline in Thailand (to 11 percent in 2000-2002) but did not change much in Indonesia. Apparel exports were much bigger than textiles exports in both Thailand and Indonesia through 1989-92 and in Thailand thereafter, but textile exports grew rapidly in Indonesia and were of similar magnitude from 1997. Indices of revealed comparative advantage (RCA) were always well above unity for apparel in both countries (a minimum of 1.6) and for textiles in Indonesia from 1989-92 (a minimum of 1.4). This suggests that both countries were very competitive in world export markets for these products. However, the RCA index for Thai textiles declined to only 1.1-1.2 in 1989-2001 and below 1 in 2002, most likely reflecting a long-term trend toward reduced competitiveness in this Thai industry.

In contrast to textiles and apparel, exports of office and computing machinery and other electric machinery grew extremely rapidly in both countries during this period. Combined, these two closely related categories accounted for only 3.7 percent of Indonesia's manufactured exports in 1989-92 but this share then trebled to 12 percent during 1993-96 and doubled again to 23-25 percent in 2000-02 (Table 1). Corresponding shares were initially much larger in Thailand, but they also increased very rapidly, from 20 percent in 1985-88 to 37 percent in 1993-96 and then to between 42 and 45 percent in 1997-2002.

Exports of office and computing machinery were initially very small, less than 1 percent of manufactured exports in Indonesia through 1989-92 and 3.6 percent in Thailand in 1985-88 (Table 1). However, these shares grew rapidly to peaks of 8.3 percent in Indonesia in 2000 and 20 percent in Thailand in 1998. Subsequent shares were somewhat lower than these peaks but remained higher

than in previous years. RCA indices for office and computing machinery also increased rapidly, recording peaks in 2000 for Indonesia and 1998 for Thailand. These indices were always well below unity in Indonesia but they exceeded 1.7 in Thailand from 1989-92, reflecting Thailand's strong competitive edge in the labor-intensive assembly of many products in this category.

Other electrical machinery consists primarily of radios, televisions, recording equipment, telecommunications apparatus, and a large number of parts used in electric machinery and other industries. This category was also relatively small in Indonesia as late as 1989-92 when it accounted for 3.3 percent of manufactured exports, but its share rose rapidly to 10-12 percent in 1993-99, and then 17-18 percent in 2000-02 (Table 1). Corresponding RCA indices also increased rapidly and steadily in this category, but again remained below unity. Thus, although Indonesia's exports of office and computing machinery and other electric machinery have grown extremely rapidly, Indonesia has yet to develop a relatively large competitive edge in world export markets for these products. On the other hand, in Thailand other electrical machinery already accounted for 17 percent of manufactured exports and had an RCA index that slightly exceeded unity in 1985-88. The share of manufactured exports subsequently increased to 26 percent in 1999 and 2001-02, with a peak of 28 percent in 2000. Corresponding RCA indices were also well above unity from 1989-92, but did not reach the high levels seen in office and computing machinery.

Unlike the four categories examined above, non-electric machinery and transportation machinery are two categories in which both Indonesia and Thai RCA indices remained far below unity throughout the period studied. Indonesian exports in both categories were very small.

Non-electric machinery never accounted for more than 3.3 percent of manufactured exports (in 2002) while the share of transportation machinery peaked at 3.2 percent (in 1998, Table 1). However, the share of non-electric machinery increased rather steadily while the share of transportation machinery fluctuated rather erratically after 1993-96 and RCA indices were extremely small (a maximum of 0.2) in both categories. In Thailand, exports of non-electric machinery were larger and increased to over 7.1 percent of manufactured exports in 1997, but fluctuated some without a strong trend thereafter. In contrast, there was a more continuous upward trend in the share of transportation machinery, which reached 4.1 percent in 1997 and then peaked at 5.6 percent in 2001. The upward trend in the share of motor vehicles in Thailand's exports (2.7 percent in 1997 and 5.5 percent in 2001, Statistics Canada 2004) is even more pronounced and has attracted a lot of attention in recent years.[5] However, despite the attention this increase has attracted, RCA indices remained very low in this category (a maximum of 0.4) as well as in non-electric machinery.

The performance of manufactured exports can be further evaluated by examining trends in Indonesian and Thai market shares in Japan and the United States, two major trading partners for these countries.[6] This analysis suggests that manufactured exports from both Indonesia and Thailand have gained market share in these two large markets. In Japan, Indonesia's share of manufactured imports rose from 1.5 percent in 1985-88 to 2.5 percent in 1993-96. After tailing off slightly during

[5] Most of the increase was the result of rapidly growing exports of automobiles, small trucks, and related parts (Umemoto and Ramstetter 2004, p. 23).

[6] The data cited in this and the following paragraph come from Statistics Canada (2004); see James and Ramstetter (2005, Appendix Tables 1-2).

1997-99, this market share recovered to 2.6 percent in 2000-01 and 2.5 percent in 2002. Indonesia's corresponding market share in the United States rose from 0.40 percent in 1985-88 to 0.74 percent in 1993-96 and fell sharply in 1997-99 before recovering to 0.75-0.76 percent in 2000-01 and 0.68 percent in 2002. Thailand's corresponding market share rose quickly in Japan, from 0.9 percent in 1985-88 to 3.0 percent in 1993-96. After declining in 1997-98, this share recovered to pre-crisis levels in 1999 and increased further to 3.5 percent by 2002. Thai manufactures also performed well in the U.S. market, with shares rising from 0.5 percent in 1985-88 to 1.3 percent in 1993-96 and 1997-2000 and then to 1.4 percent in 2002.

In Japan, Indonesia's largest market shares were in textiles. These shares increased rapidly to a peak of 6.9 percent in 1999 and remained at 5.8 percent or larger thereafter. Market shares also exceeded 2 percent in non-electric machinery in 2000 and other electric machinery in 2000-2002. Meanwhile, market shares grew extremely rapidly in these two categories as well as in office and computing machinery. In the U.S. market, Indonesia's shares were largest in apparel (2.6-4.5 percent) but these shares show no strong trend while increases in market shares were extremely rapid in office and computing machinery and other electric machinery. Thai shares of the U.S. market were also the largest in apparel but displayed no strong trend after 1997 when this share peaked at 3.9 percent. Although the initial increase was very rapid, shares in other electrical machinery fluctuated after 1989-92 in the 2.0-2.4 percent range. On the other hand, market shares grew more steadily in office and computing machinery to a peak of 3.3 percent in 1998 before fluctuating in the 2.4-3.1 percent range thereafter. In Japan, the highest shares and most rapid growth was in other electrical

machinery, where shares rose to 5.7 percent in 2002. Shares also grew rapidly through 1993-96 to reach 4.8 percent in non-electric machinery and 4.3 percent in office and computing machinery, but subsequently declined somewhat. In short, for both Indonesia and Thailand, the strongest gains in export market shares were in non-electric machinery, office and computing machinery, and other electric machinery, while market shares remained substantial in textiles and/or apparel.

3. Foreign Multinationals and Export Dynamism in Indonesian and Thai Manufacturing

The patterns documented in section two are closely related to the activities of MNEs in Indonesia and Thailand. The most obvious indicator of this connection is dominance of MNEs in the electric, office, and computing machinery complex, which has become Thailand's leading export industry and a rapidly growing export industry in Indonesia as indicated in the preceding section. Moreover, MNEs e.g., Fujitsu, Matsushita, Samsung, and Sony, produce products belonging to both the office and computing machinery and the electric machinery categories.[7]

However, in Indonesia's industrial statistics, very few plants are classified in office and computing machinery, suggesting that almost all of Indonesia's exports of office and computing machinery originated from plants classified in other industries.[8] In contrast, MNEs producing electric machinery have grown very rapidly and become quite large. For example, employment in

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[7] One might also include precision machinery in this complex as many of the same firms usually classified in precision machinery—Canon, Seiko, and Epson—also produce electric machinery and/or office and computing machinery.

[8] Indonesian data in Table 3 cover plants with 20 or more workers and come from compilations by Takii and Ramstetter (2004), which do not combine office and computing machinery with electric machinery. In 2001, only 9 plants were classified in office and computing machinery and their output was just US$2.6 million (Indonesia BPS 2003; International Monetary Fund 2005) or only 0.1 percent of Indonesia's office and computing machinery exports reported in Table 1.

MNEs producing electric machinery increased from only 9,090 in 1985-88 and 19,910 in 1989-92 to over 100,000 in 1997 and more than 140,000 in 1999-2001 (Table 2). Employment of MNEs in this industry exceeded employment of MNEs in textiles and apparel in 1997 and the industry accounted for 15-16 percent of total MNE employment in 1998-2001. MNEs also accounted for more than half of total employment in the electric machinery industry as early as 1993-96 and this share rose to about two-thirds in 1998 and 2000-01. Trends in value added of foreign MNEs were similar and foreign MNEs' accounted for as much as 70-71 percent value added in the Indonesian electric machinery industry in 1998 and 2001 and 81-82 percent in 1999-2000.

Industrial census data for 1996 suggest that office and computing machinery was a relatively large industry in Thailand. This industry is combined with electric machinery in compilations of Thai data (Table 3) because many of the MNEs involved are multi-product firms heavily involved in both industries.[9] MNEs in the electric, office, and computing machinery industry employed 183,590 workers or about one-quarter of all the workers employed by this sample of MNEs in Thai manufacturing and about two-thirds of the workers in all sample plants in this industry in 1996.[10] Gross output by these MNEs amounted to a little over one-fifth of the gross output of all

[9] Compilations by Ramstetter (2002b, 2003) include 32 plants in office and computing machinery with output of US$4.0 billion, or about 56 percent of the office and computing machinery exports reported for this year (Statistics Canada 2004). 18 of these plants (all MNEs) had export propensities of 100 percent and another 9 had export propensities of 50-99 percent, suggesting that a very large portion of overall industry output was exported.

[10] The Thai data are also taken from samples of plants with 20 or more employees compiled by Ramstetter (2003). Readers are referred to that source for details on how estimates were calculated. This source also presents compilations from surveys for 1998, 1999, and 2000, but they are excluded here because the coverage of these surveys is very poor and do not compare well to the large firm samples discussed in the text.

manufacturing MNEs and over 90 percent of the gross output of electric, office, and computing machinery plants in this sample. In short, by 1996 this industry was a much larger portion of manufacturing, and MNEs had become even more dominant in Thailand than in Indonesia. Less comprehensive, firm-level samples of large foreign MNEs also indicate that MNE employment also grew very rapidly in the late 1990s, reaching 221,690 in 1999, or more than one-half the total for large MNEs and over 90 percent of the total for all large firms in the industry.[11] In contrast, the value ($US) of sales fell markedly in 1997 and did not exceed 1996 levels until 2000, when MNEs in this industry accounted for roughly 40 percent of the manufacturing MNE total and 86 percent of the industry total for this sample of large firms. These developments reflect the large effects of the financial crisis and the baht depreciation, and the strong recovery in 2000.[12]

In Indonesia, foreign MNEs also employed more than 100,000 workers each in textiles in 1999-2000 and in apparel in 1999-2001 but MNE shares of total Indonesian employment were much lower than in electric machinery, only 16-17 percent in textiles and 25-26 percent in apparel during these periods. Corresponding shares of value added were larger, however, at 28-39 percent (Table 2). In Thailand, MNE employment in both textiles and apparel industries combined was 110,050 or 27 percent of the industry total in 1996 (Table 3). Here again the share of production, measured as gross output in the Thai case, was much larger at 54 percent. Thus, MNEs made significant contributions

[11] The large-firm sample appears to suffer from a much larger downward bias for employment estimates in 1996 and 1997 than in other years. Hence the data in Table 3 probably overstate growth in large MNE employment during 1998 and 1999 but the estimates nonetheless reveal that growth was rapid over this period.

[12] In contrast to the employment samples, the coverage of the sales sample appears to have been highest in 1996 and these figures may thus underestimate sales growth in the late 1990s.

to both employment and production in the major export industries examined in this chapter: the textiles, apparel, electric, office, and computing machinery industries.

MNE activity was not restricted to exporting industries, however, as illustrated by the large and rapidly growing MNE presence in the transportation machinery industry. For example, in Indonesia, MNE shares grew rapidly to exceed one-third of industry employment and almost three-fourths of industry value added by 2001 (Table 2). In Thailand, foreign MNEs accounted for even larger shares, 39 percent of industry employment and 87 percent of industry gross output in 1996 (Table 3). Trends in foreign MNE shares of large firms, which dominate this industry, suggest that foreign shares remained high after the crisis. On the other hand, the value ($US) of production declined sharply in both countries and by 1998 the value added of foreign MNEs in Indonesia and sales by large foreign MNEs in Thailand were both under 30 percent of their pre-crisis levels. Partially as a result of takeovers by foreign MNEs, production recovered strongly after 1999, when it exceeded pre-crisis levels in Indonesia. In Thailand, there was also a strong recovery, but sales of large foreign MNEs in this sample remained below pre-crisis levels in 2000.[13]

MNEs also accounted for relatively large shares of the non-electric machinery industry in both countries. Here again MNE shares were still relatively low in Indonesia through the early 1990s, but they increased rapidly to reach about one-third or more of employment and one-half or more of

[13] Alternative estimates in Umemoto and Ramstetter (2004) suggest that sales of 22 major automobile, motorcycle, and parts producers amounted to US$6.0 billion in 1997, which is 32 percent larger than the estimate for transportation machinery in Table 3, and US$7.2 billion in 2001, which is only slightly larger than the corresponding estimate for 2000 in Table 3. If one accepts that there was a large decline in 1997, which seems highly likely, then the two compilations are consistent in suggesting that revenues of foreign MNEs remained lower in 2000-2001 than before the crisis.

value added by 1998-2001 (Table 2). In Thailand, corresponding MNE shares were again quite a bit larger as early as 1996, 55 percent of employment and 76 percent of output. However, the scale of MNE output in this industry was smaller than in the other machinery industries in Thailand and both MNE employment and valued added in this industry was relatively small in Indonesia, reflecting the limited scope of this industry in these countries.

The observation of relatively high MNE shares in the three machinery industry categories stems from the relatively large shares of MNE in industries where costs related to firm-specific—often intangible—assets related to production technology, e.g. research and development, and marketing tend to be relatively high because the costs of sharing such assets among affiliates in various locations are generally quite low. This explains why MNEs tend to be important in the chemicals and the machinery industries, and particularly high in the electric, office, and computing machinery industries, but less important in industries with large plant-level scale economies such as steel or in industries where technologies are more standardized such as textiles and apparel.[14] Patterns of MNE activity were generally consistent with these observations for several decades in Thailand (Plummer and Ramstetter 1991; Ramstetter 2003) but were less consistent in Indonesia until the late 1990s when rapid growth of MNEs in electric machinery and transportation machinery industries made the pattern of MNE activity in Indonesia more similar to patterns found elsewhere (Takii and Ramstetter 2004). Similar patterns are also observed in home country data on Japanese and U.S. MNEs in Indonesia and Thailand (James and Ramstetter 2005, Appendix Table 3)

[14] Markusen (1991) provides a theoretical explanation of this point.

Another important point is that foreign MNE shares of economic activity vary greatly depending on the activity being measured. For example, the data in Tables 2 and 3 suggest that MNEs tended to account for larger shares of production (value added or output) than employment.[15] In other words, MNEs have generally had relatively high labor productivity in both Indonesia and Thailand. These and other differences in technology are often statistically significant in Indonesia after accounting for other relevant determinants of labor productivity such as industry affiliation, size, vintage, and factor intensity (Takii 2004; Takii and Ramstetter 2004), but are often statistically insignificant in Thailand (Ramstetter 2002a, 2004). The literature also suggests a positive correlation between productivity measures and foreign ownership shares (e.g, Moran 2001) but existing evidence suggests that this correlation is not very strong in Indonesia and Thailand.

More importantly, MNEs generally account for even larger shares of exports than of production. Correspondingly, export propensities (ratios of exports to output or sales) have generally been much higher in MNEs than in local firms or plants in both Indonesia and Thailand (Table 4). Existing evidence also suggests that export propensities are strongly correlated with foreign ownership shares. There is also substantial evidence that these differences remain statistically significant after accounting for other factors thought to affect export propensities such as industry

[15] Note that the samples of manufacturing plants cited above (Tables 2 and 3) are thought to cover MNEs relatively comprehensively, but to cover non-MNEs far less comprehensively. However, even if one calculates shares from MNE survey estimates and from more comprehensive estimates of total manufacturing activity in labor force surveys and national accounts (see Tables 2 and 3; Ramstetter 2004), MNE shares of production (11-29 percent of value added in Indonesia in 1985-2001 and 32 percent of value added or 46 percent of output in Thailand in 1996) were much larger than corresponding shares of employment (3-8 percent in Indonesia and 17 percent in Thailand in 1996).

affiliation, size, vintage, and factor intensity (Ramstetter 1998, 1999a, 1999b, 2002b) with much greater frequency than differences in labor productivity or other productivity measures.[16]

In Indonesian manufacturing plants in 1990-2000, mean export-output ratios averaged 9 percent for local plants, 27 percent in minority-foreign plants (10-49 percent foreign ownership), 28 percent in majority-foreign-owned plants (50-89 percent ownership shares), and 51 percent in supramajority-foreign-owned plants (foreign ownership shares of 90 percent or more, Table 4).[17] These export propensities tended to be lower than the manufacturing average in transportation machinery, roughly equivalent in textiles, but higher in electric machinery and apparel. Export propensities were by far the lowest in local plants in all industries. They were also by far the highest in supramajority-foreign plants in all industries except apparel.

There was a similar pattern in Thai manufacturing plants covered in the census for 1996. Almost three-fourths of local plants (72 percent) had no exports, but this share was much lower in foreign plants and declined as foreign ownership shares rose, from 31 percent in minority-foreign plants (1-49 percent foreign ownership) to 13 percent in majority-foreign plants (50-99 percent foreign ownership) and 8 percent in wholly-foreign plants (Table 4). Conversely, the percentage of plants with export propensities of 50 percent or more was the highest for wholly-foreign plants (81 percent), followed by majority-foreign plants (70 percent), minority-foreign plants (40 percent), and

[16] Contrary to theoretical expectations (e.g., Moran 2001), similar correlations between productivity measures and ownership shares appear to be much weaker in the manufacturing sectors of Indonesia (Takii 2004, Takii and Ramstetter 2004) and Thailand (Ramstetter 2004), regardless of whether other controls are accounted for or not.

[17] Because these samples include plants reporting export-output ratios and positive output, they are generally somewhat smaller than the samples in Table 3, which include plants reporting positive employment and value added.

then local plants (15 percent). In the Thai case, the apparel industry is exceptional with zero export propensities being relatively rare and high export propensities being relatively common for all ownership groups. Zero export propensities tended to be more common than the manufacturing average for local plants in most other industries (textiles was an exception) and high export propensities were less common in all other industries. The exact reverse was true in all five industries for supramajority-foreign-owned plants and in textiles, apparel, and electric, computing, and precision machinery for majority-foreign-owned plants. Thus, although export propensities were strongly correlated with foreign ownership shares in most industries, the ranking of industries by export propensity differed among ownership groups.

4. Policy Regimes and Their Impacts

In both Thailand and Indonesia trade policy regimes have undergone very significant change away from import substitution and towards export promotion in manufacturing. Thailand began to reduce manufacturing protection in the early 1970s and Indonesia followed suit in the latter half of the 1980s. Quantitative restrictions on imports were relaxed and tariffs replaced quantitative restrictions. Tariffs were then gradually reduced over time, largely on a unilateral basis by both countries so that nominal protection in manufacturing fell from 37 percent in Thailand in 1990 to 18 percent in 1997 and from about 20 percent in Indonesia in 1992 to just 10 percent in 1998 and further to 8 percent in 2002 (Table 5; Iqbal and Rashid 2002). During and after the crisis, protectionist sentiments arose in both countries. Interests purporting to represent farmers, in particular, were vocal in Indonesia and sought successfully to impose specific tariffs on rice and sugar and to restrict

imports through licensing schemes.[18] Manufacturing interests in textiles and electronics in Indonesia also complained about rampant smuggling but recognized that high tariffs and taxes such as the luxury tax on certain electronic items were encouraging tax evasion and smuggling. An increase in nationalist and protectionist rhetoric also accompanied the rise of Prime Minister Thaksin Siniwatra to power in Thailand in 2001. However, in both countries, it was widely recognized that attempts to protect the domestic market for manufactures by raising border barriers were likely to be counterproductive.

Correspondingly, average MFN tariffs continued to fall following the crisis in both countries. For manufactures, the average Indonesian tariff was reduced from 10 percent in 1998 to 7.5 percent in 2002 (Table 5). In Thailand the average MFN tariff on manufactures was 16.5 percent in 1999 and 14.5 percent in 2003. In addition, both countries largely implemented the common effective preferential tariff (CEPT) scheme under the ASEAN Free Trade Agreement (AFTA) on schedule, reducing almost all tariffs to 0-5 percent for products originating within the ASEAN region.[19] Tariffs on products in the major export industries covered in this study have also been reduced considerably over the period in consideration (1985-2003). However, in some of the machinery sectors, particularly transport machinery, tariffs remain high for some key products (up to 80 percent).

In textiles and clothing as a whole, Indonesia has cut average MFN tariffs from 13.2 percent

[18] In addition, a ban was placed on rice imports during the months around the rice harvest.

[19] The CEPT is a reciprocal arrangement, so ASEAN members must implement their own tariff reductions to enjoy those of other members. Vietnam, Laos, Cambodia and Myanmar are doing so more slowly than the six other members (Brunei, Indonesia, Malaysia, Philippines, Singapore and Thailand).

in 1998 to 9.7 percent in 2002 (Table 5). However, at a disaggregated level, tariff escalation is evident. That is tariffs on lightly processed textiles in 2002 were 5.5 percent but were more than double that on fully processed textile items (11.4 percent) and are 13.5 percent on clothing (World Trade Organization, 2003b). Nonetheless, clothing tariffs have fallen sharply since the onset of the crisis. Thailand maintains higher average tariffs on textiles and clothing than Indonesia and also shows a pronounced escalation of tariffs in these industries by stage of processing. For textile items in the first stage of processing, tariffs were drastically reduced from 12.1 percent in 1999 to 3.9 percent in 2003. However, tariffs on fully processed textiles were raised from 25.9 percent in 1999 to 26.3 percent in 2003. Tariffs on clothing remain high at 33.6 percent in 2003 and range from 10-60 percent (James and Ramstetter 2005, Appendix Tables 5-6). The fact that textiles and apparel remain protected suggests that Indonesian and Thai consumers and tax payers may be subsidizing exports and this is partially responsible for the observation of high RCA indices in these industries. MNEs that tended to have relatively high export propensities in this industry also benefit from the implicit subsidies protection affords.

A recent study by the United States International Trade Commission (2004) predicts that Thailand will experience a decline in its share of the U.S. market upon removal of quotas in 2005, citing as evidence its current loss of market share in items that are no longer quota constrained. However, Thailand may retain important market niches in apparel items with complex sewing requirements. Thai textile and apparel products face an import-weighted average US MFN tariff of 9.0 and 13.7 percent, respectively. Indonesia is regarded having uncertain prospects in the US market

for textiles and clothing (United States International Trade Commission 2004) even though it is regarded as a competitive supplier with potential to become a first-tier supplier along with China, India, and Pakistan. Indonesia is likely to retain some share of the US market for apparel items but faces higher MFN tariffs (import-weighted) than any other supplier (9.3 percent for textiles and 17.5 percent for clothing) because of product composition (a high concentration of woven and knit wear of synthetic fiber).[20]

The textile and apparel industries in both countries face mounting competitive pressures, as suppliers in China are currently benefiting from ATC-mandated quota relaxation and elimination. In the quota-free market of Japan, for example, Chinese suppliers have increased their import market share from 61 percent in 1996 to 80 percent in 2002 in value terms and from 73 percent to 89 percent in volume terms over the same period (James 2004). Apparel products of Indonesia and Thailand are also facing the threat of loss of market share to preferential suppliers in both the US and EU markets. For example, apparel items from Mexico, Central America and the Dominican Republic had import-weighted average tariffs of 1.3 percent, 2.3 percent and 3.3 percent respectively in the US market (James and Minor 2004). The prospects for exports in textiles and apparel appear to be highly uncertain in the post-quota era, as preferential suppliers and low-cost producers like China and India are poised to gain market shares. The presence of MNE affiliates in these sectors may allow Thailand and Indonesia to maintain market niches but it is likely that clothing and textile exports will become

[20] James and Minor (2004) find that nearly 60 percent of Thai textile and clothing exports face high risk of loss of market share after quota elimination by the EU and US compared with about 40 percent of these products for Indonesia.

less important relative to other industries, particularly electric machinery.

Trade policies have facilitated the rapid development of the electrical and non-electric machinery sectors in both countries. Tariffs on non-electrical machinery including computers averaged around 2 percent in Indonesia (both 1998 and 2002) and fell within a range of 0-20 percent (Table 5; James and Ramstetter 2005, Appendix Tables 5-6). For electric machinery, average tariffs were cut from 9.3 percent in 1998 to 6.4 percent in 2002. Many electronics companies, however, have located in Batam Island and import their components duty-free. In the case of Thailand, average tariffs on non-electric machinery were higher at around 8 percent in 1999 and 2003. For electric machinery, tariffs are just under 13 percent on average. These average tariff figures are misleading as manufacturers with BOI privileges, including most MNEs, may import components and materials used in products to be exported duty-free. These duty-free imports are particularly important in electric, office, and computing machinery where a large portion of output is exported, but less important in non-electric machinery. It is also important to note that effective rates of protection in Thailand tended to be below the average for most electric machinery categories in Thailand (James and Ramstetter 2005, Appendix Table 4).

As late as 1998 (Indonesia) or 1999 (Thailand) transport machinery remained one of the most protected sectors in both countries, with average tariffs of 33 percent in Indonesia and 25 percent in Thailand (Table 5). Subsequently, Indonesia was forced to abandon its "national car" project as a result of a World Trade Organization (WTO) decision in 1998 and average tariffs fell to 15 percent in 2002, though they remained higher in motor vehicles (23 percent), the largest segment

of the industry, and motorcycles and bicycles (21 percent), another key segment. Tariff peaks also remained as high as 80 percent for motor vehicles and 60 percent for motorcycles in Indonesia in 2002 (James and Ramstetter 2005, Appendix Tables 5-6). In Thailand, nominal tariffs actually increased some after 1999 to 26 percent in 2003 and there were also tariff peaks of 80 percent. High levels of protection have encouraged transportation machinery firms to concentrate on exploiting protected local markets. This a major reason for the low exports in Indonesia's transportation machinery industry and for the low Thai exports in the early-to-mid-1990s even after decades of government promotion. The inability to realize scale economies has also contributed to inefficient production in both countries (Aswicahyono, Basri and Hill 2000; Ito 2004a, 2004b) making it difficult for firms in this industry to export.

The recent boom in transportation machinery exports suggests that the Thai industry may finally be breaking into export markets but one must be careful not to misinterpret this trend. First, exporting is still not very common in this Thai industry. In 2001, only 9 large MNEs in motor vehicles accounted for almost all of the exports of transportation machinery reported in Table 1: US$2.7 billion worth of autos, trucks, motorcycles, and related parts, or 45 percent of the total sales of these 9 firms.[21] On the other hand, among another 41 firms in the industry, exports amounted to only 3 percent of their combined sales, US$3.0 billion. Second and more importantly, the high level of protection afforded firms in this industry, combined with the substantial incentives granted by the

[21] Firm exports and sales are calculated from Umemoto and Ramstetter (2004) and James and Ramstetter (2005, Appendix Table 6)

BOI—which are especially large for exporting firms, suggest that Thai consumers and taxpayers have had to provide a few large MNEs with large implicit and explicit subsidies in order generate exports from these industries. It thus remains to be seen if recent increases in exports can be maintained or whether export growth will eventually stagnate.

The experience in the electric machinery industry (including office and computing machinery) provides a marked contrast to the transportation machinery case. In this industry, low protection levels were a key element of the industrial development in both Indonesia and Thailand as MNEs sourced large portions of inputs from abroad and then exported large portions of the goods produced. Low transportation costs for many products are another important reason that firms in this industry are active importers of inputs and exporters of final products. In short, not only do MNEs dominate in electric machinery and diversify production geographically more than in other industries, they also have an unusually large dependence on international trade. These two characteristics often lead electric MNEs to lobby strongly in favor of low protection in this industry; the lack of a substantial local lobby in the other direction made it easy for Indonesian and Thai policy makers to pursue relatively liberal trade policies in this industry. It is also important to recognize that the production technology used by MNEs in this industry was generally much more labor intensive than that used by transportation machinery MNEs. Since labor is relatively cheap in Indonesia and Thailand, this made it much easier for electric machinery MNEs to develop a comparative advantage and is a major reason for the high RCA indices in these industries observed in Thailand. In short, both the incentive and the capacity to produce for export were relatively large in electric machinery,

and MNEs responded to these factors.

Success in exporting and MNE strategies once a decision to invest has been taken must also take into account trade policies not only in host countries but in the broader international and regional markets. Starting in the late 1980s both Thailand and Indonesia opted for more open trade and investment policies and embarked upon unilateral trade liberalization reforms that were reinforced by regional (ASEAN) and multilateral (WTO) commitments that helped sustain reform momentum even in the face of the Asian financial crisis. Although policy reform is a general trend, in some sectors protection has fallen more slowly than in others. This is clearly the case in transportation machinery, particularly automobiles and motor cycles, compared with electrical machinery. This difference in trade policy appears to be important as the differences in export performance (section 2 and Table 1 above) and export propensities (section 3 and Table 4 above) in transportation machinery compared with electric machinery clearly demonstrate.

5. Conclusions

MNEs have played a significant role in structural changes observed in manufacturing exports from both Thailand and Indonesia. This study has documented the shift in the pattern of manufacturing trade from light industries towards electrical and non-electrical machinery and has provided evidence that MNEs have been significant players in this process. Trade policy in both countries has generally become more outward-oriented, and even the Asian financial crisis did not reverse this tendency. This suggests that MNEs will continue to play a significant role in the development of manufacturing and exports in these important Southeast Asian economies. In the

future, trade preferences arising from regional and bilateral trade agreements may influence MNE investment decisions and alter global and regional trade patterns in manufacturing.

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Table 1: Trade with the World and Revealed Comparative Advantage (period averages, annual totals)

Country, commodity group	1985-88	1989-92	1993-96	1997	1998	1999	2000	2001	2002
EXPORTS (US$ millions)									
Indonesia	19,280	30,045	43,397	54,337	50,447	51,173	65,236	60,867	61,264
Manufactures	5,217	13,353	22,839	23,538	22,808	28,296	37,967	34,995	34,128
Textiles	565	1,885	2,720	2,323	2,444	3,192	3,699	3,489	3,132
Apparel	1,373	3,298	3,538	3,041	2,800	4,165	5,091	5,030	4,355
Non-electric machinery	22	82	301	443	734	699	1,108	873	1,114
Office & computing mach.	10	49	443	923	812	1,228	3,143	2,165	2,327
Other electric machinery	74	441	2,292	2,890	2,485	2,943	6,275	6,011	6,110
Transportation machinery	24	148	483	421	719	572	602	588	720
Thailand	11,286	26,724	49,402	59,748	55,540	61,453	71,744	69,654	75,043
Manufactures	5,648	17,111	35,706	42,573	41,070	45,695	54,498	51,961	53,120
Textiles	608	1,071	1,778	2,110	1,852	1,926	2,032	1,986	1,579
Apparel	1,254	3,279	4,460	3,821	3,719	3,697	4,001	3,922	4,071
Non-electric machinery	218	766	2,271	3,041	2,820	3,231	3,880	3,989	4,005
Office & computing mach.	200	1,781	4,842	7,456	8,116	8,429	9,007	8,432	9,247
Other electric machinery	933	3,287	8,197	10,498	10,140	11,731	15,665	13,745	13,814
Transportation machinery	64	312	1,337	1,735	1,362	2,163	2,631	2,920	2,886
EXPORTS (percent of manufactues)									
Indonesia, textiles	10.82	14.12	11.91	9.87	10.71	11.28	9.74	9.97	9.18
Apparel	26.32	24.70	15.49	12.92	12.28	14.72	13.41	14.37	12.76
Non-electric machinery	0.42	0.61	1.32	1.88	3.22	2.47	2.92	2.49	3.26
Office & computing mach.	0.19	0.37	1.94	3.92	3.56	4.34	8.28	6.19	6.82
Other electric machinery	1.41	3.30	10.04	12.28	10.89	10.40	16.53	17.18	17.90
Transportation machinery	0.46	1.11	2.11	1.79	3.15	2.02	1.59	1.68	2.11
Thailand, textiles	10.76	6.26	4.98	4.96	4.51	4.21	3.73	3.82	2.97
Apparel	22.21	19.16	12.49	8.97	9.05	8.09	7.34	7.55	7.66
Non-electric machinery	3.86	4.48	6.36	7.14	6.87	7.07	7.12	7.68	7.54
Office & computing mach.	3.55	10.41	13.56	17.51	19.76	18.45	16.53	16.23	17.41
Other electric machinery	16.52	19.21	22.96	24.66	24.69	25.67	28.75	26.45	26.01
Transportation machinery	1.14	1.82	3.75	4.07	3.32	4.73	4.83	5.62	5.43
REVEALED COMPARATIVE ADVANTAGE INDICES									
Indonesia, manufactures	0.388	0.600	0.689	0.565	0.569	0.700	0.756	0.746	0.721
Textiles	0.912	1.884	1.946	1.385	1.602	2.220	2.149	2.200	1.989
Apparel	2.448	3.250	2.419	1.628	1.559	2.356	2.406	2.485	2.141
Non-electric machinery	0.011	0.026	0.067	0.080	0.139	0.136	0.180	0.148	0.191
Office & computing mach.	0.015	0.043	0.221	0.319	0.293	0.414	0.815	0.634	0.708
Other electric machinery	0.048	0.161	0.452	0.429	0.386	0.422	0.646	0.728	0.747
Transportation machinery	0.010	0.039	0.096	0.068	0.113	0.091	0.082	0.082	0.096
Thailand, manufactures	0.717	0.864	0.946	0.929	0.931	0.941	0.987	0.968	0.916
Textiles	1.676	1.204	1.117	1.144	1.103	1.115	1.073	1.094	0.818
Apparel	3.820	3.633	2.679	1.860	1.881	1.741	1.720	1.693	1.634
Non-electric machinery	0.192	0.271	0.444	0.501	0.484	0.524	0.573	0.593	0.562
Office & computing mach.	0.536	1.732	2.123	2.341	2.661	2.369	2.125	2.157	2.296
Other electric machinery	1.040	1.352	1.421	1.416	1.430	1.400	1.467	1.454	1.379
Transportation machinery	0.046	0.093	0.233	0.255	0.194	0.285	0.327	0.357	0.314

Source: Statistics Canada (2004).

Table 2: Employment and Value Added of All Foreign MNEs in Indonesian Manufacturing

Variable, industry	1985-88	1989-92	1993-96	1997	1998	1999	2000	2001
EMPLOYMENT IN INDONESIA								
(thousands, percent of employment in sample plants)								
Indonesia, manufacturing	5,804	7,807	10,131	11,215	9,934	11,516	11,642	12,086
Sample plants, manufacturing	1,785	2,807	3,944	4,042	4,124	4,235	4,367	4,386
MNCs, manufacturing	169	324	682	807	834	880	932	941
Textiles	40.18	52.43	81.83	91.98	92.75	106.33	105.18	87.23
Apparel	3.67	27.33	79.06	93.95	96.74	110.83	123.69	122.82
Non-electric machinery	2.69	4.21	8.49	14.86	15.90	16.82	13.39	15.60
Electric machinery	9.09	19.91	74.67	108.49	122.22	140.44	156.57	142.28
Transportation machinery	7.13	15.83	25.78	26.25	30.26	39.56	46.14	43.59
MNC shares, manufacturing	9%	12%	17%	20%	20%	21%	21%	21%
Textiles	12%	11%	13%	15%	15%	17%	16%	14%
Apparel	5%	11%	21%	24%	24%	25%	26%	25%
Non-electric machinery	16%	14%	21%	29%	36%	38%	32%	34%
Electric machinery	22%	29%	51%	61%	66%	63%	67%	66%
Transportation machinery	11%	18%	22%	23%	30%	36%	39%	37%
VALUE ADDED IN INDONESIA (US$ millions)								
Indonesia, manufacturing	15,214	24,687	45,892	57,805	23,857	36,393	37,393	35,283
Sample plants, manufacturing	7,449	15,045	31,072	27,671	15,444	24,365	28,125	26,278
MNCs, manufacturing	1,660	3,481	8,860	9,683	5,676	8,790	10,707	8,869
Textiles	217	331	677	917	641	930	787	414
Apparel	3	80	371	379	216	413	413	251
Non-electric machinery	29	62	163	349	175	95	144	286
Electric machinery	89	226	821	1,306	702	1,431	2,335	1,726
Transportation machinery	104	421	1,131	649	382	840	1,884	1,753
MNC shares, manufacturing	22%	23%	29%	35%	37%	36%	38%	34%
Textiles	28%	22%	20%	26%	34%	34%	29%	25%
Apparel	2%	17%	28%	31%	35%	39%	39%	28%
Non-electric machinery	41%	30%	40%	50%	71%	64%	50%	57%
Electric machinery	40%	42%	49%	64%	71%	81%	82%	70%
Transportation machinery	24%	38%	35%	51%	32%	41%	56%	73%

Sources: Appendix Tables 2a-2e, 3a-3e in Takii and Ramstetter (2004);
Asian Development Bank (various years); Indonesia, BPS (various years).

Table 3: Employment and Gross Output or Sales of All Foreign MNEs in Thai Manufacturing

	NSO	Ramstetter's sample of large firms					
Variable, industry	1996	1990-91	1996	1997	1998	1999	2000
EMPLOYMENT IN THAILAND (thousands)							
Thailand, manufacturing	4,651	3,395	4,651	4,644	4,264	4,274	4,650
Samples, manufacturing	1,848	682.09	695.51	720.03	764.82	794.98	-
MNCs, manufacturing	779.79	386.83	301.77	353.64	357.03	430.03	-
Textiles & apparel	110.05	72.60	45.65	38.57	25.72	30.23	-
Non-electric machinery	61.98	16.11	5.09	4.95	3.44	4.32	-
Electric, office, & computing	183.59	107.19	108.00	149.02	178.54	221.69	-
Transportation machinery	50.85	20.22	20.04	18.29	19.20	25.71	-
MNE shares, manufacturing	42%	57%	43%	49%	47%	54%	-
Textiles & apparel	27%	56%	39%	50%	29%	28%	-
Non-electric machinery	55%	87%	58%	61%	57%	71%	-
Electric, office, & computing	66%	94%	77%	82%	84%	92%	-
Transportation machinery	39%	70%	56%	58%	70%	68%	-
SALES OR GROSS OUTPUT IN THAILAND (US$ millions)							
Thailand, manufacturing	143,419	131,525	143,419	122,085	93,410	103,865	-
Samples, manufacturing	115,517	96,777	108,889	74,476	67,822	74,863	89,590
MNCs, manufacturing	65,603	26,297	56,243	36,225	36,119	42,368	54,659
Textiles & apparel	4,464	1,948	2,739	1,443	1,642	1,687	2,057
Non-electric machinery	4,183	1,184	1,064	692	382	454	736
Electric, office, & computing	14,228	5,485	18,085	11,400	13,214	16,675	21,677
Transportation machinery	15,203	3,880	9,305	4,529	2,528	4,784	7,035
MNCs, manufacturing	57%	54%	57%	53%	50%	50%	52%
Textiles & apparel	54%	56%	56%	55%	41%	43%	43%
Non-electric machinery	76%	84%	85%	84%	72%	65%	64%
Electric, office, & computing	91%	93%	92%	93%	86%	86%	86%
Transportation machinery	87%	80%	79%	80%	70%	71%	76%

Source: Ramstetter (2003); Asian Development Bank (various years).

Table 4: Export Propensities in Indonesian and Thai Manufacturing by Ownership Share

Host country, industry	Local	Minority-Foreign	Majority-Foreign	Heavily- or Wholly-Foreign
INDONESIA 1990-2000, EXPORT PROPENSITIES (percent) FOR SAMPLE PLANTS REPORTING EXPORT PROPENSITIES AND POSITIVE OUTPUT (annual average, range)				
Manufacturing	9, 6-11	27, 14-34	28, 13-37	51, 20-68
Textiles	6, 4-7	25, 8-38	26, 13-36	45, 25-69
Apparel	14, 8-18	58, 14-82	53, 17-75	59, 29-76
Non-electric machinery	2, 1-4	6, 0-14	13, 5-25	41, 4-100
Electric machinery	7, 2-12	27, 13-40	24, 7-37	62, 12-92
Transportation machinery	2, 1-5	12, 4-24	16, 3-24	32, 0-67
THAILAND 1996, PERCENTAGE OF SAMPLE PLANTS WITH EXPORT PROPENSITIES=0%				
Manufacturing	72	31	13	8
Textiles	72	38	5	0
Apparel	47	7	0	0
Non-electric machinery	77	28	17	0
Electric, office, & computing	72	23	4	7
Motor vehicles	86	41	11	0
THAILAND 1996, PERCENTAGE OF SAMPLE PLANTS WITH EXPORT PROPENSITIES>=50%				
Manufacturing	15	40	70	81
Textiles	13	27	79	100
Apparel	42	80	100	100
Non-electric machinery	6	30	67	95
Electric, office, & computing	9	44	82	86
Motor vehicles	5	11	42	67

Notes: For Indonesian plants minoirty-foreign plants are defined to have foreign ownership shares of 10-49 percent, majority-foreign plants to have foreign shares of 50-89 percent, and supramajority-foreign-owned plants have foreign shares of 90 percent or more; for Thai plants minority-foreign plants are defined to have foreign ownership shares of 1-49 percent, majority-foreign plants to have foreign shares of 50-99 percent, and wholly-foreign plants have foreign shares of 100 percent.
Source: Ramstetter and Takii (2005); Ramstetter (2002b).

Table 5: Nominal Rates of Protection in Indonesia and Thailand (percent)

	Thailand					Indonesia		
	Input-Output		ISIC Revision 2			ISIC Revision 2		
Industry	1990	1997	Industry	1999	2003	Industry	1998	2002
Manufacturing average	36.9	17.6	Manufacturing average	16.5	14.5	Manufacturing average	10.0	7.5
Textiles average	44.5	12.5	Textiles			Textiles average	13.2	9.7
Spinning	19.3	6.8	- 1st stage of processing	12.1	3.9	Spinning, weaving	11.4	8.4
Weaving	71.9	21.1	- semi-processed	17.0	16.4	Textile goods	16.4	11.2
Textile bleaching and finishing	0.0	0.0	- fully processed	25.9	26.3	Knitting mills	17.4	12.6
Made-up textile goods	31.3	14.9				Carpets & rugs	19.6	14.6
Knitting	100.0	20.0				Cordage, rope, twine	6.3	5.0
						Textiles, n.e.s.	9.5	6.7
Apparel	100.0	39.8	Apparel, fully processed	46.5	33.6	Apparel	19.1	13.5
Non-electric machinery average	32.4	10.1	Non-electrical machinery			Non-electric machinery average	2.4	2.4
Engines and turbines	30.0	17.8	- fully processed	8.4	7.9	Engines and turbines	1.0	1.0
Agricultural machinery	30.2	5.0				Agricultural machinery	4.7	3.8
Wood and metal working	30.0	5.0				Wood & metal working	0.3	0.3
Special industrial machinery	30.2	5.0				Special industrial machinery	1.3	1.3
Office and household mach.	41.7	17.8				Office & computing machinery	2.7	2.1
						Non-electric machinery n.e.s.	4.1	4.2
Electric machinery average	39.3	15.2	Electrical machinery			Electric machinery average	9.3	6.4
Electrical industrial machinery	34.5	16.8	- fully processed	12.7	12.8	Electrical industrial machinery	7.7	5.9
Radio, television, communication	38.9	4.8				Radio, television, communication	7.5	4.6
Household electrical appliances	32.2	21.6				Household electrical appliances	15.0	11.1
Insulated wire and cable	40.0	12.7				Other electrical apparatus	11.6	8.5
Electric accumulators and batteries	51.2	20.0						
Other electrical apparatus	38.7	15.1						
Transportation machinery avg.	33.1	15.6	Transportation machinery			Transportation machinery avg.	33.1	15.2
Ship building repairing	32.9	5.4	- fully processed	25.2	26.4	Shipbuilding & repair	1.3	1.3
Railroad equipment	5.0	2.0				Railroad equipment	0.3	0.3
Motor vehicles	76.1	46.1				Motor vehicles	56.5	23.0
Motorcycles & bicycles	79.6	37.8				Motorcycles & bicycles	42.7	20.8
Repair of vehicles	0.0	0.0				Aircraft	0.0	0.0
Aircraft	5.0	2.3				Transportation machinery n.e.s.	10.0	9.0

Sources: Tambunlertchai (2002), World Trade Organization (2003a, 2003b).