

**The Boom in Vehicle Exports from Thailand:
Protection, Markets, and Multinationals**

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The Boom in Vehicle Exports from Thailand: Protection, Markets, and Multinationals

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Abstract

In recent years Thai vehicle exports have increased rapidly and Thailand appears to have developed a comparative advantage the production of small trucks and motorcycle parts. On the other hand, despite benefiting from decades of high protection that continues today, Thailand still does not have a comparative advantage in the largest segments of the industry. Simple gravity models do an acceptable job of explaining the country-wise this variation of exports for all vehicles and parts combined, and automobile and truck parts, but not for automobiles, small trucks, motorcycles, and motorcycle parts. One reason that many of the gravity models perform poorly is because almost all of these exports originated in ten foreign multinationals. These large exporters tended to be relatively large and have relatively high labor productivity and foreign ownership shares. Large exporters are also unlikely to require high levels of protection for continued operation, suggesting that Thailand could benefit by reducing protection and the implicit transfers from Thai taxpayers and consumers to these firms that result. Moreover, the future of Thai vehicle exports is very much in the hands of these firms and Thai policymakers can probably do very little to affect the pace at which they will grow or stagnate.

Keywords: Thailand, vehicles, automobiles, parts, exports, multinational corporations

JEL Categories: F14, F23, L62, O24, O53

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1. Introduction

In 1997 economic crisis hit the Thai economy, leading to a large depreciation of the baht in the latter half of the year and the first contraction in Thailand in more than four decades, followed by a much sharper contraction in 1998 when real GDP declined more than 10 percent.¹ Despite, or more correctly partially because of these circumstances, Thailand experienced an unprecedented boom in the exports of vehicles beginning in 1997. The value of vehicle exports increased from about US\$0.7 billion in 1996 to US\$3.0 billion in 2002, and US\$4.1 billion in 2003 (Table 1).² According to the Bank of Thailand (2004) the share of vehicles in Thailand's merchandise exports also increased markedly from 1.3 percent to 4.4 percent in 2002 and 5.2 percent in 2003. If these trends continue, vehicles will become a large source of export revenues in Thailand and it is thus important to evaluate prospects for these exports and this paper attempts to do this by examining some of the factors that caused the post-crisis boom in vehicle exports. To this end, Section 2 first examines the commodity composition of these exports and trends in protection. Section 3 then examines vehicle the market-wise variation of exports for major commodity groups and the some of the determinants of this variation. Section 4 then documents how a few large foreign multinational corporations (MNCs) have accounted for the vast majority of vehicle exports from Thailand and examines how these firms differ from other large firms in the industry. The concluding section then focuses on the implications

¹ According to the National Economic and Social Development Board (2004), Thailand recorded positive economic growth rates for every year in the 1955-1996 period.

² These figures refer to exports of vehicle, parts and accessories totals reported by the Bank of Thailand (2004) and are very similar to figures for exports of commodities in Section 87 in the Harmonized System of commodity classification reported by the United Nations Statistics Division (various years) .

of the patterns observed for future motor vehicle exports and related economic policies.

2. Exports, Revealed Comparative Advantage, and Protection

As indicated in the introduction, the value of vehicle exports Thailand's and their shares of total Thai exports have increased quite rapidly in recent years. According to the Bank of Thailand, vehicle exports also increased some in the early 1990s to as high as US\$796 million or 1.8 percent of total merchandise exports in 1994 before falling back lower levels in 1995-1996 (Table 1). The recent growth of vehicle exports has also been volatile, with very high growth rates observed in 1997, 1999, and 2003 (38-49 percent annually), intermediate rates registered in 1998 and 2000 (24-28 percent annually), and relatively low rates recorded in 2001-2002 (8-9 percent annually). However, vehicle exports are still quite small in Thailand as evidenced by low values of Thailand's revealed comparative advantage index (RCI) in vehicles, which is defined as the ratio of vehicles' share of Thailand's exports to the corresponding share for world exports. This index remained at 0.42 in 2001, despite a three-fold increase in the 1996-2001 period and the low RCI is strong evidence that Thailand has yet to develop a broad-based, competitive vehicle industry.³

³ RCIs larger than one are usually interpreted to indicate the presence of comparative advantage in an industry, while RCIs less than one are usually interpreted to indicate the lack of a comparative advantage. Comparative advantage is usually defined to exist in an industry when the ratio of production costs in the industry in question to production costs in all industries is lower in a given country than the corresponding ratio for the world. However, RCIs are also affected by a number of other factors that drive a wedge between prices and costs, including the extent of imperfect competition and the degree of protection. RCIs are thus an imperfect measure of comparative advantage as economists usually define it. However, the extremely low RCIs in Thailand's vehicle industry indicate a very strong likelihood that Thai production costs are relatively high compared to the world vehicle industry as a whole.

There are important differences in estimates of vehicle exports among the three sources reported in Table 1. Estimates of total vehicle exports from the Bank of Thailand (2004) and the United Nations (2004) are very similar for passenger car and parts (the sum of automobile and automobile/truck parts in the U.N. data), but differ greatly for motorcycle parts, with Bank of Thailand estimates greatly exceeding corresponding U.N. estimates. The U.N. data also suggest that small trucks (under 5 tons) was the largest export category, accounting for roughly one-half of all vehicle exports in 1997-2001 (47-48 percent in 1997-1998, 54-56 percent in 1999-2000, and 44 percent in 2001). These exports appear to be included in the others category in the Bank of Thailand data. Other estimates compiled by the The Brooker Group (2002) from the Ministry of Commerce indicate much higher total vehicle exports, the major source of the difference being the inclusion of numerous parts usually classified in other commodity groups in standard trade classifications.⁴ This paper relies primarily on the narrow definition in the U.N. data because it is the easiest to compare with the definitions implied by the firm-level data used below and because this source provides the greatest detail on exports by product category and market.

Increases in exports of small trucks, the largest category, were particularly large in 1997 and 1999, when they amounted to 100 percent and 73 percent, respectively, of the increase in total vehicle exports (Table 1, UN estimates). Small trucks also accounted for slightly under half of the increase in vehicle exports in 1998 and 2000, but these exports declined in 2001. In 1997-2000, automobile and truck parts was the second largest category of vehicle exports and these exports increased rapidly in

⁴ For example, tires are usually classified with rubber products, batteries with electrical and electronic products, and vehicle safety glass with glass products, not vehicle exports.

1999 and 2000. Increases in this category were much smaller in 1997 and 1998, and negative in 2001.

There was also a very large increase in exports of automobiles in 2001, as exports from this category became roughly equal to exports of automobile and truck parts.

As stressed above, the RCI for all vehicles remained far below 1 in the period studied. Reasonable intuition suggests this is largely because Thai costs remain relatively high compared to average world costs in this commodity group. In other words, Thailand does not have a comparative advantage in the broad vehicles category and this does not appear likely to change in the near future. RCIs were also very low for automobile and truck parts (0.31 in 2001) and even lower in automobiles (0.18) despite relatively large exports in recent years. In contrast, RCIs exceeded the critical value of one, often by a large margin, in small trucks since 1997 and motorcycle parts since 1996. Thailand appears to have exported motorcycles at relatively low prices in 1996-1999 (RCIs>1) but this appears to have been reversed since 2000. This indicates that Thailand has been able to sell these products relatively cheaply for several years, and has thus succeeded in carving out important niches in related export markets.

The Thai government has provided Thai-based producers of vehicles with very high levels of protection from imports over the years as evidenced by very high nominal rates of protection (NRP) and effective rates of protection (ERP). Averages of NRPs for all manufacturing industries were relatively high in the 1980-1990 period, averaging 35-42 percent depending on the year and estimate used, but fell markedly to 22-23 percent in 1995 and 17 percent in 1997, reflecting broad-based tariff reductions initiated in the early 1990s. Estimated NRPs have consistently been higher than the

manufacturing average in motor vehicles as well as motorcycles and bicycles, the two industries most relevant for this study. According to input-output based calculations, trends in motor vehicle tariffs were similar to trends in all manufacturing, with NRPs falling from an average of 73-90 percent in 1980-1990 (according to all but one estimate for 1985, 46 percent) to 46-49 percent in 1995 and 1997. Input-output estimates indicate a much less pronounced decline of NRPs for motorcycles and bicycles. MFN tariffs were somewhat lower than the input-output based calculations suggest in both of these industries. Although estimates of effective rates of protection (ERPs) vary in an extremely wide range depending on the estimate, ERPs were generally much higher than NRPs in manufacturing overall and in motor vehicles for all years, as well as for motorcycles and bicycles from 1984 forward. ERPs for motor vehicles as well as motorcycles and bicycles remained quite high in 1995 and 1997, 78-119 percent, even though the average ERP in for manufacturing industries fell to quite low levels 20-29 percent.⁵ Correspondingly, the gap between ERPs in vehicle industries and ERPs in other manufacturing industries widened markedly. In short, Thailand still provides its vehicle industries with extraordinarily high levels of protection and the margin of preference relative to other manufacturers has increased, not decreased, with the recent trade liberalization.

This high level of protection could be an important factor behind the recent increase in exports as Thai vehicle producers use resources transferred to them from Thai consumers and taxpayers to subsidize their exports. However, the fact that high protection coincided with low exports in previous years suggests that high protection may not be an important a determinant of export performance.

⁵ The average ERP was estimated by Balassa method and Corden method. The difference between these two methods is that the Balassa method accounts for the effect of value added in non-traded inputs while the Corden method does not. See Balassa (1971) and Corden (1971) for more details.

Unfortunately, it is very difficult to be more precise about the importance of protection in promoting exports given the very rough nature of the data and analytical tools available to examine the issue. Moreover, the existence of protection is certainly not the only reason for the increase in exports and the paper now turns to two other important factors that are involved.

3. Market-wise Variation in Vehicle Exports

Another possible reason for the increase in Thai vehicle exports may be that Thailand became better able to compete in specific markets and this section thus investigates the market-wise variation in vehicle exports and the determinants of that variation, both for all vehicle exports and for the five major categories of vehicle exports identified above. Table 3 first shows exports of all motor vehicles and the five major vehicle categories to the top fifteen markets for each commodity category in the 1996-2001 period, when vehicle exports began to grow very rapidly.

The first and perhaps most important pattern observed is that Thailand's exports of vehicles were quite evenly diversified across a large number of markets during this period. For example, Australia was the only market to with a two-digit share (12 percent) of the US\$10.4 billion in vehicle exports during this period. Japan was next with a share of 7 percent, followed by Vietnam and Belgium with 6 percent each and Laos with 5 percent. Ten other economies in Europe, North America, and Southeast Asian followed with shares of 2-4 percent each. Australia was a very small market in 1996 but became a major market in 1997-1998 and then the top market in 1999-2000. Exports to Belgium were

first recorded in 1999 and this country became a major market in 2000 and the largest market in 2001.⁶ Exports to Japan increased more steadily and it was an important market from 1997 forward, while exports to Vietnam remained relatively unchanged throughout the period and exports to Cambodia fell off markedly after 1996. Exports were also relatively large (more than US\$100 million) to Laos 1998-1999, Italy in 2000, Malaysia in 2001.

Among the five major commodity groups, small trucks (trucks under 5 tons) were by far the largest export group, amounting to about half of the vehicle exports (Table 3). Australia was the largest market for these exports from 1997, accounting for a little over one-fifth of these exports. Exports of small trucks also accounted for the vast majority (more than four-fifths) of all vehicle exports to this important market. Seven members of the European Union (EU), Portugal, Germany, Italy, Spain, the United Kingdom, Greece, and France followed with shares of 3-7 percent or a combined share of 38 percent. Israel and New Zealand also had shares of 3 percent each for this period. The increased ability of Thai small truck manufacturers to market their goods in Australia and Europe was thus a major factor behind the increased growth of Thai exports during this period.

Automobiles and parts for automobiles and trucks were next largest commodity groups with exports totaling US\$1.9 billion each in 1996-2001. Automobiles was by far the most rapidly growing of the five major categories as exports increased ten-fold in only three years, from US\$0.1 billion in 1998 to US\$1.0 billion in 2001. Automobile exports were heavily concentrated in Belgium in the two most recent years (US\$0.8 billion of the US\$1.8 billion total for the period). After receiving no

⁶ In United Nations (various years), trade with Belgium and Luxembourg were reported jointly through 1998.

exports through 2000, Japan became the second largest market for automobiles in 2001, receiving US\$0.2 billion in this single year. Japan was also the largest market for exports of automobile and truck parts since 1997 and these exports amounted to another US\$0.5 billion in the 1996-2001 period. Automobile exports to Australia increased to high levels in 1999-2001 and totaled US\$0.3 billion for the entire 1996-2001 period and relatively steady exports of parts to the United States were of similar magnitude. Thus, in the case of automobiles, Europe (especially Belgium) and Australia were again among the most rapidly growing markets, while Japan and the United States were large and more steadily growing markets for parts. Surrounding Southeast Asian economies, Indonesia, Malaysia, and the Philippines, also combined be a substantial market (about US\$0.3 billion) for parts.

Exports of motorcycles and motorcycle parts are much smaller than the other three categories examined here and highly concentrated in two neighboring economies. Vietnam is the largest market taking 40 percent of motorcycle exports and 32 percent of motorcycle parts exports in the 1996-2001 period. Laos follows with shares of 25 percent and 29 percent, respectively. A third neighboring economy, Cambodia, is the third largest market for these commodities with shares of 10 percent each. Exports of motorcycles fell for most of the years examined, while exports of motorcycle parts rose markedly from 1996 to 1998 but then stagnated through 2000 and fell in 2001.

When explaining the country-wise variation in exports from a country it is common for economists to use a gravity model that explains this variation as a function of gross domestic product (GDP) in the partner economy, GDP per capita of the partner, and distance from Thailand as follows:

$$(1) \quad TX_j = a_0 + a_1(GDP_j) + a_2(GDPP_j) + a_3 (DIST_j)$$

where:

TX_j = Thai exports of a given commodity group to country j (measured in US\$ millions),

GDP_j = GDP of country j measured at purchasing power parity (measured in billions of current international dollars),

$GDPP_j$ = GDP of country j measured at purchasing power parity (measured in current international dollars),

$DIST_j$ = distance of country j from Thailand.

The sign of the coefficient on the GDP variable (a_1) is expected to be positive because large countries are expected to import more *ceteris paribus*. Conversely, greater distance is expected to be correlated with higher transactions costs and the coefficient on this variable (a_3) is thus expected to be negative. These transactions costs include transportation costs and a variety of other costs thought to be correlated with distance, such as those related to cultural differences and communication. Recently there is a growing literature that focuses on refining measures of distance and developing more explicit measures of transactions costs⁷, but for our purposes here, the basic specification above suffices. The sign of the coefficient on GDP per capita (a_2) is indeterminate but a positive coefficient would generally be expected when the income elasticity of demand is high as is probably the case with Thailand's vehicle exports. However, there are also supply-side effects that influence the

⁷ For instance, Hummels (2001) provides a detailed accounting of the time-series pattern of shipping costs for both air and ocean transport. Limao and Venables (1999) used shipping company quotes to figure out the transportation costs from the United States to 64 destinations.

coefficient on GDP per capita. For instance, high GDP per capita could be correlated with a strong comparative advantage in capital-intensive products and thus import demand for these products could be low. If this influence is dominant, coefficients on GDP per capita could be negative even if the income elasticity of demand is high.

In order to see if the country-wise variation of Thailand's vehicle exports conform to common expectations, equation (1) is estimated for all vehicles and all five major commodity groups of vehicles in cross sections of Thailand's trading partners for each year from 1996 to 2001 by ordinary least squares (OLS). Table 4 summarizes these regression results including all estimated coefficients and significance levels for two-tailed t-tests of the hypothesis that the each coefficient is zero, the adjusted R-squared measuring goodness of fit, the F-statistic testing the hypothesis that all slope coefficients are zero and its significance level, the White test for heteroscedasticity and its significance level, and the number of observations. If the White heteroscedasticity test is significant at the 5 percent level or less, White's robust standard errors are used for calculating t-tests instead of OLS residuals.

In equations for all vehicle exports, most of coefficients on explanatory variables are statistically significant at the standard 5 percent level. Moreover, the statistically significant coefficients on GDP and GDP per capita are positive while those on distance are negative as expected. This result is consistent with the fact that several high-income (Australia, Japan, several European economies) and neighboring (Southeast Asian) economies are the major destinations of Thailand's vehicle exports. The explanatory power of these equations was also in the normal range for cross sections like these in

1997-1998 (adjusted-R² of 0.24-0.27), but somewhat lower in other years (adjusted-R² of 0.15-0.17).

Among the commodity groups, the explanatory power of the gravity model is by far the highest in equations for automobile and truck parts in 1996-1999 when the adjusted-R² was 0.38 or higher. The explanatory power of the model was also in the normal range in 2000-2001 (adjusted-R² of 0.25-0.26). However, in these equations market size or GDP was the only explanatory variable that was significantly correlated with Thai exports. As expected the sign of this variable was positive, which is consistent with the fact that Japan and the United States are the major destinations for Thai exports of automobile and truck parts. If a one-tailed test is used, the coefficient on distance was also significant with the expected negative sign in 2001 and almost significant in 2000, but this correlation is relatively weak given the large sample size and distance is clearly not strongly correlated with Thai exports in earlier years.⁸

The gravity model also does an acceptable job of explaining the country-wise variation of small truck exports in 1997 and 1998 (adjusted-R² of 0.20-0.22) when these exports were rather evenly spread among a large number of partners. However, the model's explanatory power was much lower (adjusted-R² of 0.09-0.13) in 1996 when exports were very small and in 1999-2001 when exports became much more concentrated in the Australian market. In all years, per capita GDP was strongly and positively correlated with small truck exports, but coefficients on GDP and distance were not statistically significant.

In the other large commodity group, automobiles, the gravity model performs so poorly in 1996

⁸ Use of a one-tailed test could be justified if one thinks the theoretical foundations of the gravity model are sound but these foundations have been questioned in the literature such as Deardorff (1998), so we prefer to rely primarily on two-tailed tests here.

and 2001 (adjusted- R^2 of 0.02-0.03) that the null hypothesis that all slope coefficients are zero cannot be rejected at standard levels of significance. The model's explanatory power is also quite poor in interim years (adjusted- R^2 of 0.04-0.08) but per capita GDP is significantly and positively correlated with automobile exports for three of these years (1998-2000), while the correlation with distance significant and negative one year (1998) using a two-tailed test and one more (1997) if one-tail is used. The sign on GDP is unexpectedly negative throughout and almost significant in the 1998 regression.

Regressions for motorcycles in most years (1996-2000) and motorcycle parts in all years also have very low explanatory power (adjusted- R^2 of 0.05-0.09). In these regressions the only significant explanatory variable is distance reflecting the proximity of the major markets (Vietnam, Laos, and Cambodia). This variable is significant in 1996-1997 and 1999-2001 in the regressions for parts but only in 1999-2000 for motorcycles. Coefficients on GDP per capita are consistently negative but they are not statistically significant. The equation for motorcycles in 2001 differs from other years in that its explanatory power is relatively high (adjusted- R^2 of 0.34), the coefficient on GDP is significantly positive, and the coefficient on distance is insignificant.

To summarize, although the gravity model does an acceptable job of explaining the country-wise variation of all vehicle exports combined and exports of automobile and truck parts, it does a much poorer job of explaining exports of other commodity groups for most years. The failure of the gravity model to adequately explain the market-wise variation in Thailand's automobile exports stems from several factors. One of the most important factors is probably the inability to include price variation across markets in the model, including variation in prices resulting from protection. Another factor is

probably the failure of the distance variable to adequately capture transactions costs related to trade in these products. However, perhaps the most important reason for the failure of the gravity model is the fact that foreign MNCs account for the vast majority of these exports and a large portion of these exports are probably conducted within the MNCs involved. Correspondingly, market forces may not play a prominent role in determining the market-wise variation of these exports.⁹

4. Exports by Firm

If exports of all automobiles and trucks are combined, the commodity-based data in Tables 1 and 3 suggests that these exports increased from US\$0.7 billion in 1997 to US\$2.4 billion in 2001. In turn, data on exports of completely built-up units (CBUs) by firm suggest that ten firms accounted for the vast majority of these exports, US\$0.6 billion in 1997 and US\$2.4 billion in 2001 (Table 5).¹⁰ In 1997-1998, one firm, the Mitsubishi affiliate MMC Sittipol accounted for almost all of these exports, and it remained the largest exporter in subsequent years. In 1997-1998, three other Japanese firms, Toyota Motor Thailand, Honda Automobile, and Isuzu Motor Thailand, followed with exports of US\$28-US\$84 million each, annually. By 2000, exports of these firms increased rapidly to as much as

⁹ Another potential approach to illuminating the role of foreign MNCs is to add a variable representing the presence of foreign MNCs in various markets worldwide to the gravity models estimated above. If this variable is a reasonable proxy for the existence of MNC networks related to Thai exports, the coefficient on the variable should be positive. In this respect, we attempted to proxy the degree of MNC presence with the number of employees of U.S. and/or Japanese MNC affiliates in transportation machinery industries of various countries and added the variable(s) to the gravity equation for all vehicle exports. Unfortunately, the results of that effort were not very illuminating and are not discussed here, but they are provided in Appendix Table 4 for reference.

¹⁰ The data in Table 5 suggest that the exports of these 10 firms exceeded the Thai total for 2001. Sums of firm-level exports may exceed Thai totals reported in commodity data if the definition of vehicles differs between the two sources or if the timing of the exports is reported differently.

US\$320 million for Toyota and US\$110-140 million for Honda and Isuzu, but they fell off some in 2001. In 1999, the Ford affiliate, AutoAlliance began large scale exports which amounted to US\$444-US\$580 million per year in 1999-2001 and General Motors (GM) followed in 2001 with exports of US\$656 million. These six firms thus dominated these Thai exports, accounting for 85-90 percent of the total reported in Table 1 for 1997-1998, and 93-99 percent in 1999-2001. Data for the first three quarters of the year suggest that these firms' exports continued at similar levels in 2002.

All six of these firms had large exports of automobiles and trucks, and their combined share of corresponding exports reported in Table 1 was 92-95 percent in 1997-1998 and 2000, and 98-102 percent in 1999 and 2001 (Table 5). Data for the first three quarters of 2002 suggest that MMC Sittipol, AutoAlliance, and GM continued to be the largest exporters of automobiles and trucks, followed by Toyota and Honda, but that exports of Isuzu fell off some. As noted above, MMC Sittipol was by the single largest exporter in 1997-1998, AutoAlliance began large exports and Toyota started moderate exports in 1999, and General Motors initiated large exports in 2001 after beginning exports in 2000. Patterns in corresponding data on export quantities are broadly similar but unit values were relatively high for GM (US\$13,385-US\$14,260 for 2000-2002), reflecting its large exports of more expensive passenger vehicles, and relatively low for Auto Alliance and Toyota (US\$8,500-US\$9,239), reflecting their large exports of cheaper small trucks (The Brooker Group 2002; unit values calculated from Sources of Table 5).

Toyota, Honda, and Isuzu, were already exporting moderate amounts of parts in 1997 and these exports increased markedly in 2000. MMC Sittipol and AutoAlliance began moderate exports in 1999,

which increased a lot in 2000. GM does not export parts according to these data. From 2000 forward, Toyota was the largest parts' exporter by a wide margin, followed by AutoAlliance, and more distantly by the other three firms. The combined auto parts exports of these five firms amounted to 74-87 percent of the total reported in Table 1 in 1997 and 1999 and 95-106 percent of the total in 2001-2002, but only 57 percent of the total in 1998.

Firm-level data on the value of exports of motorcycles and motorcycle parts are only available from 2000 forward and these data suggest exports of one firm, Thai Honda Manufacturing, amounted to US\$216 million in 2000 and US\$189 million in 2001 or 73 percent and 77 percent, respectively, of the totals reported in Table 1 (Table 6). If exports two other foreign MNCs, Thai Suzuki Motor and Kawasaki Motors Enterprise, are added, these shares rise to 89 percent and 115 percent, respectively. The extremely high ratio in 2001 suggests a serious mismatch between the firm-level data and the commodity-based compilations which are further underscored when data exports of motorcycles and motorcycle parts are disaggregated. The firm-level data suggest much larger exports of motorcycles than do the commodity data, while the reverse is true for motorcycle parts, leading one to suspect that some of the exports reported as motorcycles in the firm-level data are reported as parts in the commodity data. Calculations also indicate lower unit values for motorcycle exports for the dominant exporter, Thai Honda Manufacturing (US\$665 in 2000 and US\$542 in 2001, calculated from Sources of Table 6) than for average for the 4-5 firms in Table 6 (US\$692 and US\$647).

In short, only six automobile makers and three motorcycle makers had moderate-to-high exports in 2000 or 2001, and these nine firms appear to have accounted for the vast majority of automobile,

truck, and motorcycle exports, as well as related parts exports from Thailand. The decisions of these firms to initiate and/or expand exports were thus a crucial factor behind the growth of Thailand's vehicle exports. How do these exporting firms differ from other firms in the industry and why have they decided to others did or could not? Using data from 11 different firm-level databases it is possible to construct an interesting database on 51 relatively large vehicles firms, 16 in automobiles, most of which produce parts as well, 28 in automobile parts only, 4 in motorcycles and motorcycle parts, and 2 in motorcycle parts. Based on 2001 export levels, the automobile and motorcycle firms are then divided into groups large exporters and small exporters, and the automobile parts firms are divided into exporters and non-exporters (see Appendix Table 6 for firm-level details).

Table 7 then compares mean values of 10 indicators of firm performance that might be related to exporting decisions between large exporters or exporters on the one hand with corresponding values for small exporters or non-exporters. Simple t-tests are also use to see if observed differences in the mean values between the two groups are in some sense statistically significant, that is accompanied by relatively small variances. The indicators compared are export values, export propensities (export-sales ratios), firm size (sales), a crude measure of labor productivity (sales per employee), two crude measures of capital intensity (assets per employee and fixed assets per employee), foreign ownership shares, profit rates (as a ratio to sales), equity-asset ratios, and firm age export propensity

As would be expected given the fact that the data were sorted by export values in 2001, large exporters had significantly higher exports for this year in automobiles, trucks and parts, and in automobile parts but surprisingly not in motorcycles. Differences in exports propensities were

significant for all groups in 2001 but differences in both exports and export propensities were not significant in 1997, reflecting the large changes in firm-level exports in this period. In automobiles, trucks, and parts, and automobile parts large exporters or exporters also higher labor productivity in 2001 and foreign ownership shares in both 1997 and 2001. Large exporters in automobiles, trucks and parts were also significantly larger than small exporters in 2001 but exporters were significantly smaller than non-exporters in automobile parts. Positive correlations between export propensities on the one hand and firm size and foreign ownership shares, on the other, have also been observed in more rigorous econometric studies that examine these and other correlations after controlling for their interaction (e.g., Ramstetter 2002). In motorcycles, large exporters in 2001 had significantly higher equity-asset ratios in 1997, suggesting that financial soundness before the crisis helped export performance after the crisis, but the small sample size and firm heterogeneity make it difficult to attach much meaning to this correlation.

5. Conclusions and Issues Facing Thai Policy Makers

This paper has examined the recent boom in vehicle exports from Thailand with the aim of evaluating the prospects for future exports. The largest commodity category, which accounted for about half of all exports in recent years, was small trucks. Calculation of RCI indices indicated that Thailand had indeed carved out significant niches in markets for small trucks by exporting them at relatively low prices in 1997-2001. Thai producers had also exported much smaller amounts of

motorcycle parts at relatively low prices in this period and the same was true for motorcycle exports through 1999. Exports of automobiles and automobile parts grew rapidly and became much larger than exports of motorcycles or motorcycle parts but RCIs indicated relatively high prices in these product lines and in the vehicles overall. The high level of protection in Thailand's vehicle industries was then examined because the transfer of resources from Thai taxpayers and consumers afforded by this protection could be an important reason that Thai producers were able to export at relatively low prices.

The paper then examined the market-wise distribution of Thai vehicle exports, highlighting how richer developed economies (Australia, several European economies, Japan, the United States) and neighboring Southeast Asian economies were the major markets for most of these exports. Correspondingly, a gravity model was estimated to see if these economic factors could explain the market-wise variation in these exports. In most commodity groups the explanatory power of these models was rather poor, however. One reason for the poor explanatory power of these models is that a very few foreign MNCs, seven automobile firms and three motorcycle producers, accounted for the vast majority of vehicle exports from Thailand during this period. In general, exporting firms tended to be much larger and had relatively high foreign ownership shares than non-exporters.

The finding that a very few foreign MNCs dominate Thai vehicle exports, and indeed the Thai vehicle industry, raises at least two important sets of issues for Thai policy makers to consider. First, the continued high level of protection from imports in the industry implies that Thai taxpayers and consumers are transferring large amounts of economic resources to these foreign MNCs. These large

foreign MNCs almost certainly do not require these large transfers to continue their operations in Thailand and even if they did, the cost of this very high level of protection almost certainly far outweighs any benefits their presence affords the Thai economy. There thus seems to be a strong argument for dismantling the remaining protection. Second, the dominance of foreign MNCs in the exporting process also implies that the Thai government has very little influence on the future of vehicle exports from Thailand. Certainly there are important measures that are warranted and would help vehicle exporters such as the strengthening of education and training infrastructure, especially in the hard sciences and at the secondary and tertiary levels. However, the more important point is that these measures need not (and probably should not) be targeted at the vehicle industry. In short, Thai policy makers would be far better off to rid themselves of their heretofore strong tendency to protect and subsidize the vehicle industry and force it to compete for scarce Thai resources in the same way that other Thai industries must compete.

References

- Ajanant, Juanjai, Supote Chunanuntatham, and Sorrayuth Meenaphant, 1986. *Trade and Industrialization of Thailand*. Bangkok: Social Science Association of Thailand.
- Advanced Research Group Co. Ltd., various years. *Thailand Company Information*, 1997-1998, 1998-1999, 1999-2000, 2000-2001, 2001-2002 issues. Bangkok: Advanced Research Group Co., Ltd.
- Balassa, Bela, 1971. *The Structure of Protection in Developing Countries*. Baltimore: The Johns Hopkins Press.
- Bank of Thailand, 2004. Data downloaded from the economic data bank section of the BOT home page in September 2004. Bangkok: Bank of Thailand (<http://www.bot.or.th/>).
- Board of Investment, 2001. Database on promoted projects as of November 1999. Bangkok: Board of Investment.
- Comm Bangkok Co., Ltd., various years. *Factory Directory in Thailand*, Vol. 2 (May 1998), Vol. 3 (November 1999), Vol. 4 (May 2001), Vol. 5 (November 2002).
- Cosmic Publications, Co., Ltd., various years. *Thailand Investment: A Directory of Companies Promoted by the Board of Investment*, 1997 and 1998-1999 issues. Bangkok: Cosmic Publications, Co., Ltd.
- Corden, W. M., 1971. *The Theory of Protection*. London: Oxford University Press.
- Deardroff A., 1998. "Determinants of Bilateral Trade: Does Gravity Work in a Neo-classical World?" in J. A. Frankel ed., *The Rationalization of the World Economy*, Chicago: The University of Chicago Press.
- Dun & Bradstreet, 1999. *Dun & Bradstreet Business Information Report: Thailand 1999*, Dun & Bradstreet.
- Hummels, David, 2001. "Have International Transportation Costs Declined?", *Journal of International Economics*, Vol. 54, No. 1: pp. 75-96.
- International Centre for the Study of East Asian Development 2004. "Recent Trends and Prospects for Major Asian Economies", *East Asian Economic Perspectives*, Vol. 15, No. 1, Special Issue (February).
- International Monetary Fund, 2004. *International Financial Statistics*, January CD-ROM. Washington, D.C.: International Monetary Fund.
- Japan, Ministry of Economy, Trade and Industry, 2001. Dai 29 Kai Wagakuni Kikyō no Kaigai Jigyō Katsudō: Hesei 8 Nen Kaigai Jigyō Katsudō Kihon Chōsa (Dai 7 kai) [The 29th Survey of Overseas Business Activities of Japanese Companies: The 1999 Basic Survey of Overseas Business Activities (No. 7)], 1999 survey of 1998 data. Tokyo: Ministry of Finance Printing Bureau (in Japanese).
- Japan, Ministry of Economy, Trade and Industry, various years. *Dai __ Kai Wagakuni Kigyō no Gaikai Jigyō Katsudō [The __ Survey of Overseas Business Activities of Japanese Companies]*, Surveys Number 18 & 19 (1987 and 1988), 21 (1990), 22 (1991), 24 (1993), 25 (1994), No. 27 (1996), No. 28 (1997), No. 30 (1999), No. 31 (2000). Tokyo: Ministry of Finance Printing Bureau (in Japanese; through Survey No. 28, the author was known as Japan, Ministry of International

- Trade and Industry).
- Japan, Ministry of International Trade and Industry, 1998. *Dai 26 Kai Wagakuni Kikyō no Kaigai Jigyō Katsudō: Hesei 8 Nen Kaigai Jigyō Katsudō Kihon Chōsa (Dai 6 kai) [The 26th Survey of Overseas Business Activities of Japanese Companies: The 1996 Basic Survey of Overseas Business Activities (No. 6)]*. Tokyo: Ministry of Finance Printing Bureau (in Japanese).
- Kompass, various years. *Thailand Company Information*, 1998, 1999, and 2002/2003 issues. Bangkok: Kompass.
- Limao, N. and Venables, A. J., 1999. "Infrastructure, Geographical Disadvantage and Transport Costs", Policy Research Working Paper 2257, World Bank.
- Media Overseas, Co., Ltd., 2003. *Thailand Automotive Industry Directory 2003-2004*. Bangkok: Media Overseas Co., Ltd.
- Meerod, Wachavin, 1996. "Changing Structure of Industrial Protection in Thailand", M.A. thesis, Chulalongkorn University (in Thai).
- Monkolsmai, Dow, Somsak Tambunlertchai, and Supote Chunanuntatham, 1984. *Study on Fiscal Implication of Investment Incentives and Promotion Efficiency*. Bangkok: IMG Consultants Pty. Ltd.
- National Economic and Social Development Board, 2004. Data downloaded from the NESDB home page. Bangkok: National Economic and Social Development Board (<http://www.nesdb.go.th/>).
- Ramstetter, Eric D., 2002. "Trade Propensities and Foreign Ownership Shares in Thai Manufacturing, 1996", Working Paper 2002-03, Kitakyushu: International Centre for the Study of East Asian Development.
- Tambunlertchai, Somsak, 2002. "Tracking Manufacturing Performance", UNIDO Integrated Programme for Thailand-Component 6 (summary paper, October), mimeo.
- The Brooker Group, 1997. *Profiles of BOI-Promoted Companies and Sectors - 1997*. Bangkok: Board of Investment Welfare (including accompanying diskette).
- The Brooker Group, 2002. *Thailand's Automotive Industry*. Bangkok: The Brooker Group.
- The Nation, various years. *Top 1000 Companies*, 1997-1998 issues; *Top 1000*, 1999 issue; *1000 Top Companies*, 2000 issue; *Top 1000 Thai Companies*, 2001-2002 issues. Bangkok: The Nation.
- Toyo Keizai, various years. *Kaigai Shinshutsu Kigyō Soran (A Comprehensive Survey of Firms Overseas)*, CD-ROMs with data from 1990-2002 issues (data for 1988-2000). Tokyo: Toyo Keizai (in Japanese).
- United Nations Statistics Division, various years. Comtrade Database, 1996-2000 and 1997-2001 CD-ROMs and online data. New York: United Nations Statistics Division (<http://www.un.org/stats/>).
- U.S. Bureau of Economic Analysis, various years. *U.S. Direct Investment Abroad: Operations of U.S. Parent Companies and Their Foreign Affiliates*, Revised Estimates 1996-1999 issues, Preliminary Estimates 2000 issue. Washington, D.C.: U.S. Bureau of Economic Analysis (electronic files downloaded from www.bea.gov/bea/ai/iidguide.htm).

Table 1: Thailand's Vehicle Exports (total exports in US\$ billions; vehicle exports in US\$ millions) and Revealed Comparative Advantage Indices (RCIs) by Commodity Category

Source, commodity category	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
BANK OF THAILAND ESTIMATES											
Total exports (US\$ billions)	37.13	45.43	56.73	55.98	58.43	54.46	58.50	69.78	65.24	68.16	80.24
Vehicles, parts and accessories	525	796	659	747	1,064	1,323	1,977	2,535	2,775	3,005	4,137
Passenger cars and parts	212	396	154	133	190	298	461	729	1,164	1,156	1,740
Motor cycle parts	175	254	369	370	324	300	325	339	316	355	456
Bicycle parts	31	37	28	19	18	14	12	10	9	14	16
Others	107	109	109	225	532	711	1,179	1,457	1,286	1,480	1,925
U.N. ESTIMATES (HS SECTION 87)											
Total exports (US\$ billions)	37.17	45.24	56.44	55.68	58.09	53.58	58.42	68.79	65.11	-	-
Vehicles, excl. rail & trams	530	798	658	746	1,086	1,312	1,981	2,502	2,767	-	-
Automobiles	30	15	16	11	33	71	125	219	674	-	-
Trucks under 5 tons	72	70	79	183	523	621	1,111	1,354	1,213	-	-
Motorcycles	104	126	149	166	152	113	132	114	99	-	-
Automobile & truck parts	183	383	140	124	164	234	344	508	501	-	-
Motorcycle parts	53	33	40	39	85	160	160	183	146	-	-
Miscellaneous vehicles	88	171	234	223	129	113	109	124	134	-	-
Tractors, buses, specialized	7	13	6	9	15	48	27	21	21	-	-
Trucks 5 tons or larger	6	4	3	4	6	14	28	47	22	-	-
Bicycles	31	37	26	18	17	13	12	9	8	-	-
Bicycle parts	17	95	177	163	86	25	33	36	68	-	-
Other vehicles & parts	27	23	22	29	6	13	10	11	15	-	-
RCIs, Vehicles, excluding rail & automobiles	0.16	0.19	0.13	0.14	0.19	0.24	0.33	0.38	0.42	-	-
Trucks under 5 tons	0.32	0.26	0.26	0.51	1.24	1.67	2.86	3.05	2.76	-	-
Motorcycles	1.63	1.74	1.82	1.89	1.69	1.24	1.35	0.96	0.86	-	-
Automobile & truck parts	0.22	0.38	0.11	0.09	0.12	0.17	0.23	0.30	0.31	-	-
Motorcycle parts	3.12	1.47	1.31	1.69	3.46	7.90	6.69	6.42	4.83	-	-
Miscellaneous vehicles	0.24	0.34	0.36	0.33	0.19	0.17	0.16	0.18	0.20	-	-
Tractors, buses, specialized	0.05	0.06	0.02	0.03	0.04	0.14	0.08	0.06	0.06	-	-
Trucks 5 tons or larger	0.06	0.03	0.02	0.02	0.04	0.08	0.17	0.25	0.12	-	-
Bicycles	1.03	1.09	0.74	0.95	0.89	0.71	0.54	0.37	0.34	-	-
Bicycle parts	0.53	2.70	4.31	4.96	2.53	0.84	1.08	1.05	2.32	-	-
Other vehicles & parts	0.46	0.30	0.22	0.23	0.05	0.11	0.08	0.09	0.12	-	-
MINISTRY OF COMMERCE ESTIMATES CITED BY THE BROOKER GROUP,											
Autos, parts, motorcycles	-	-	-	1,304	1,810	2,023	2,798	3,463	3,655	-	-
Autos	-	-	-	193	587	697	1,238	1,556	1,765	-	-
Passenger cars (CBU)	-	-	-	11	70	71	125	219	673	-	-
Pick-ups and vans (CBU)	-	-	-	183	517	626	1,113	1,337	1,092	-	-
Auto & Motorcycle Parts	-	-	-	945	1,074	1,213	1,429	1,796	1,794	-	-
Wire harnesses	-	-	-	300	291	251	263	212	184	-	-
Engines	-	-	-	114	143	120	189	323	286	-	-
Electrical Ignitions	-	-	-	29	22	35	50	60	55	-	-
Tyres	-	-	-	249	280	323	317	345	380	-	-
Batteries & battery parts	-	-	-	65	72	69	66	71	72	-	-
Vehicle safety glass	-	-	-	18	17	17	29	40	36	-	-
Other auto parts	-	-	-	131	166	239	354	557	631	-	-
Other motorcycle parts	-	-	-	39	82	160	162	187	149	-	-
Motorcycles (CKD)	-	-	-	166	150	112	132	111	97	-	-

Note: - = not available or not applicable.

Sources: Bank of Thailand (2004); The Brooker Group (2002); United Nations Statistics Division (various years).

Table 2: Input-Output-Based Estimates of Nominal and Effective Protection in Manufacturing and Motor Vehicles (rates in percent)

Indicator, Year-Original Source(-Rate/Method)	All manufacturing		Motor vehicles	Motor- cycles & bicycles
	Number	Average		
NOMINAL RATES OF PROTECTION: ISIC BASED (number=# of tariff lines)				
1995-WTO (various years)-M.F.N. Applied	5,882	22.6	38.4	33.6
1999-WTO (various years)-M.F.N. Applied	-	-	38.5	30.6
1999-WTO (various years)-AFTA	-	18.5	31.2	33.2
2004-WTO (various years)-Uruguay Round Final	-	29.1	50.9	45.9
NOMINAL RATES OF PROTECTION: INPUT-OUTPUT BASED (number=# of industries)				
1980-Ajanant et al. (1986)	88	42	90	40
1982-Monkolsmai et al. (1984)	92	36	73	44
1984-Meerod (1996)	92	35	73	49
1985-Meerod (1996)	92	35	46	46
1990-Meerod (1996)	87	41	86	40
1990-Tambunlerchai	93	37	76	80
1995-Meerod (1996)	88	22	49	40
1997-Tambunlerchai (2002)	93	17	46	38
EFFECTIVE RATES OF PROTECTION: INPUT-OUTPUT BASED				
1980-Ajanant et al. (1986)	80	217	nc	17
1982-Monkolsmai et al. (1984)	89	136	308	15
1984-Meerod (1996)	92	66	433	169
1985-Meerod (1996)	92	102	194	168
1990-Meerod (1996)	88	67	214	53
1990-Tambunlerchai (2002)-Balassa method	87	550	263	957
1990-Tambunlerchai (2002)-Corden method	93	122	179	491
1995-Meerod (1996)	87	29	105	78
1997-Tambunlerchai (2002)-Balassa method	91	20	116	119
1997-Tambunlerchai (2002)-Corden method	93	28	90	100

Notes: nc=cannot be calculated because value added at world prices was negative;
for industries subject to quotas, in-quota tariff rates were used in the calculation;
calculations do not account for non-tariff barriers; - = not available or not applicable.
WTO=World Trade Organization

Source: Various sources indicated above as compiled in Tambunlerchai (2002).

Table 3: Exports of Vehicles by Major Commodity Group and Top Destination (US\$ millions)

Commodity	1996	1997	1998	1999	2000	2001	1996-2001
Vehicles, excluding rail & trams	746	1,086	1,312	1,981	2,502	2,767	10,394
Australia	25	77	95	340	448	312	1,297
Japan	30	84	93	137	157	270	771
Vietnam	117	79	103	97	135	87	618
Belgium	0	0	0	44	119	450	613
Laos	43	86	109	144	87	51	520
United States	57	43	66	71	69	87	393
Portugal	30	54	69	97	65	62	377
Germany	30	51	60	95	76	55	367
Italy	12	38	40	66	120	88	364
United Kingdom	15	36	40	75	66	105	337
Spain	13	33	46	65	80	58	295
Cambodia	112	50	34	21	33	45	295
Malaysia	25	29	4	25	65	109	257
Philippines	48	41	25	36	51	54	255
Sweden	5	17	25	59	62	69	237
Others	184	368	503	609	869	865	3,398
Automobiles	16	48	108	221	365	1,094	1,852
Belgium	0	0	0	0	116	636	752
Australia	0	0	22	96	87	99	304
Japan	0	0	0	0	0	188	188
Singapore	9	11	16	20	42	22	120
New Zealand	0	0	20	32	22	22	96
Israel	0	0	0	42	32	6	80
Indonesia	0	0	0	0	9	21	30
Myanmar	0	0	0	7	17	4	28
Hong Kong	0	6	13	4	0	4	27
Taiwan	0	0	0	0	2	22	24
Brunei	0	10	2	4	3	1	20
South Africa	0	0	0	0	0	18	18
China	0	0	0	0	2	15	17
Cambodia	0	0	0	0	7	8	15
Saudi Arabia	0	0	1	2	3	6	12
Others	7	21	34	14	23	22	121
Trucks under 5 tons	182	523	621	1,111	1,354	1,212	5,003
Australia	24	73	78	273	372	239	1,059
Portugal	29	54	69	96	63	62	373
Germany	28	49	57	92	72	50	348
Italy	10	36	36	62	110	80	334
Spain	12	32	43	62	75	50	274
United Kingdom	8	26	16	68	59	93	270
Greece	1	20	22	42	28	37	150
France	8	22	25	25	32	35	147
Israel	0	21	27	33	22	33	136
New Zealand	0	7	8	32	52	37	136
Cyprus	0	13	27	18	38	18	114
Austria	7	27	23	15	20	17	109
Sweden	2	16	12	25	21	30	106
Turkey	9	0	6	29	54	7	105
Belgium	0	0	0	28	41	22	91
Others	44	127	172	211	295	402	1,251

Table 3 (continued)

Commodity	1996	1997	1998	1999	2000	2000	2001
Motorcycles	167	152	112	132	114	99	776
Vietnam	99	60	49	44	52	10	314
Laos	30	46	28	56	27	6	193
Cambodia	21	13	8	9	9	19	79
United States	0	1	0	1	3	26	31
Philippines	4	14	4	5	1	0	28
Singapore	0	1	1	4	6	9	21
Colombia	0	1	2	4	7	6	20
Japan	3	3	2	2	3	3	16
Greece	5	4	3	0	0	0	12
Indonesia	0	1	0	0	3	7	11
Argentina	0	2	5	3	0	0	10
Myanmar	1	1	1	1	1	2	7
Hong Kong	1	0	4	1	0	0	6
Maldives	0	0	1	1	1	1	4
Canada	0	0	0	0	0	3	3
Others	3	5	4	1	1	7	21
Automobile & truck parts	124	165	233	343	508	501	1,874
Japan	16	39	71	105	130	140	501
United States	33	36	45	63	61	57	295
Malaysia	12	19	0	20	46	61	158
Sweden	2	1	13	33	42	39	130
South Africa	0	0	0	0	57	31	88
Philippines	14	11	7	11	21	23	87
Indonesia	1	4	2	3	27	28	65
Belgium	0	0	0	16	19	8	43
Australia	0	3	3	9	9	10	34
India	0	4	8	6	9	6	33
Belgium and Luxembourg	5	11	14	0	0	0	30
Netherlands	2	2	4	5	7	7	27
Taiwan	3	1	4	4	8	6	26
Singapore	4	3	8	1	2	4	22
Pakistan	1	0	3	1	5	9	19
Others	31	31	51	66	65	72	316
Motorcycle Parts	40	85	160	160	183	147	775
Vietnam	11	8	46	49	79	56	249
Laos	1	26	67	69	36	22	221
Cambodia	9	23	20	5	11	10	78
Japan	1	4	5	13	17	15	55
Philippines	2	2	9	6	17	18	54
Indonesia	4	5	1	1	2	6	19
Malaysia	3	2	1	3	3	5	17
United Kingdom	2	2	2	2	2	3	13
Italy	1	1	2	2	3	1	10
Brazil	0	4	0	1	2	2	9
Pakistan	1	1	1	1	1	1	6
Singapore	1	1	3	0	1	0	6
India	0	0	0	1	3	1	5
Greece	1	1	0	1	0	1	4
Hong Kong	0	1	1	1	1	0	4
Others	3	4	2	5	5	6	25

Source: United Nations Statistics Division (various years).

Table 4: Explaining the Market-Wise Variation in Export Levels: Standard Gravity Models

Industry, Indicator	1996	1997	1998	1999	2000	2001
VEHICLES, EXCLUDING RAIL & TRAMS (HS 87)						
Constant	13.062	10.191	10.540	12.610	16.597	13.116
significance level	0.05	0.05	0.09	0.09	0.08	0.23
GDP	0.000006303	0.000005645	0.000006332	0.000006489	0.000005664	0.000006901
significance level	0.00	0.07	0.01	0.05	0.14	0.11
GDP per capita	-0.000007597	0.000526597	0.000737197	0.001372542	0.001616010	0.002107765
significance level	0.96	0.01	0.00	0.00	0.00	0.00
Distance	-0.000993	-0.000910	-0.001014	-0.001368	-0.001698	-0.001592
significance level	0.03	0.02	0.02	0.03	0.03	0.09
F-statistic	10.565	15.597	18.426	10.559	9.369	10.469
significance level	0.00	0.00	0.00	0.00	0.00	0.00
White statistic	38.659	38.390	29.394	7.489	6.269	13.574
significance level	0.00	0.00	0.00	0.59	0.71	0.14
Adjusted R-squared	0.169	0.237	0.270	0.172	0.154	0.175
Observations	142	142	142	139	139	135
AUTOMOBILES (HS 87032~87039)						
Constant	0.253	0.567	0.629	0.821	1.474	0.730
significance level	0.19	0.06	0.11	0.68	0.59	0.95
GDP	-0.000000066	-0.000000168	-0.000000355	-0.000000882	-0.000001260	-0.000000290
significance level	0.39	0.18	0.06	0.31	0.26	0.95
GDP per capita	0.000012667	0.000041273	0.000106962	0.000276702	0.000407041	0.001422916
significance level	0.33	0.06	0.03	0.00	0.00	0.01
Distance	-0.000028	-0.000062	-0.000092	-0.000168	-0.000261	-0.000617
significance level	0.22	0.08	0.05	0.32	0.26	0.56
F-statistic	2.180	3.227	5.096	3.123	4.047	2.523
significance level	0.09	0.02	0.00	0.03	0.01	0.06
White statistic	23.687	20.624	14.809	7.132	10.233	5.901
significance level	0.00	0.01	0.10	0.62	0.33	0.75
Adjusted R-squared	0.024	0.045	0.080	0.044	0.062	0.033
Observations	142	142	142	139	139	135
TRUCKS UNDER 5 TONS (870421+870431)						
Constant	0.280	-1.136	-0.895	-0.546	-0.179	-0.158
significance level	0.68	0.41	0.47	0.92	0.98	0.98
GDP	0.000000456	0.000000689	-0.000000210	-0.000000742	-0.000001166	-0.000001203
significance level	0.72	0.81	0.92	0.76	0.69	0.55
GDP per capita	0.000169520	0.000617410	0.000672363	0.001171940	0.001295004	0.001089950
significance level	0.01	0.00	0.00	0.00	0.00	0.00
Distance	-0.000053	-0.000068	-0.000066	-0.000209	-0.000228	-0.000093
significance level	0.28	0.54	0.54	0.66	0.71	0.83
F-statistic	6.026	14.018	12.774	6.755	5.537	7.691
significance level	0.00	0.00	0.00	0.00	0.00	0.00
White statistic	18.478	21.392	19.084	8.058	5.897	8.757
significance level	0.03	0.01	0.02	0.53	0.75	0.46
Adjusted R-squared	0.097	0.217	0.200	0.111	0.090	0.130
Observations	142	142	142	139	139	135

Table 4 (continued)

Industry, Indicator	1996	1997	1998	1999	2000	2001
MOTORCYCLES (HS 8711)						
Constant	6.433	5.441	3.596	4.733	3.743	0.902
significance level	0.12	0.07	0.11	0.00	0.00	0.10
GDP	0.000000117	0.000000180	0.000000027	0.000000060	0.000000224	0.000001700
significance level	0.82	0.68	0.91	0.91	0.61	0.00
GDP per capita	-0.000131364	-0.000105412	-0.000058185	-0.000073265	-0.000054093	-0.000005031
significance level	0.17	0.11	0.20	0.24	0.26	0.84
Distance	-0.000446	-0.000374	-0.000245	-0.000331	-0.000261	-0.000076
significance level	0.12	0.07	0.11	0.00	0.00	0.11
F-statistic	3.258	4.298	3.236	3.601	3.213	23.849
significance level	0.02	0.01	0.02	0.02	0.03	0.00
White statistic	18.353	32.511	24.534	32.558	22.576	40.797
significance level	0.03	0.00	0.00	0.00	0.01	0.00
Adjusted R-squared	0.046	0.066	0.045	0.054	0.046	0.338
Observations	142	142	142	139	139	135
AUTOMOBILE & TRUCK PARTS (8706+8707+8708)						
Constant	0.145	0.461	0.029	0.181	3.039	3.868
significance level	0.87	0.62	0.97	0.92	0.25	0.16
GDP	0.000003254	0.000003950	0.000005077	0.000006482	0.000006439	0.000005943
significance level	0.01	0.00	0.00	0.00	0.00	0.00
GDP per capita	0.000013357	0.000027974	0.000087917	0.000172599	0.000178694	0.000182006
significance level	0.68	0.52	0.21	0.06	0.14	0.15
Distance	-0.000044	-0.000089	-0.000091	-0.000153	-0.000360	-0.000450
significance level	0.47	0.24	0.33	0.34	0.11	0.06
F-statistic	64.058	48.955	37.538	28.821	17.422	15.623
significance level	0.00	0.00	0.00	0.00	0.00	0.00
White statistic	54.487	93.978	98.792	93.938	85.099	85.383
significance level	0.00	0.00	0.00	0.00	0.00	0.00
Adjusted R-squared	0.573	0.505	0.437	0.377	0.263	0.247
Observations	142	142	142	139	139	135
MOTORCYCLE PARTS (HS 87141)						
Constant	1.234	2.779	6.025	5.731	6.306	4.943
significance level	0.03	0.05	0.07	0.00	0.00	0.00
GDP	0.000000067	0.000000155	0.000000114	0.000000269	0.000000408	0.000000388
significance level	0.31	0.33	0.77	0.69	0.53	0.40
GDP per capita	-0.000018390	-0.000047203	-0.000100320	-0.000079258	-0.000081257	-0.000060437
significance level	0.17	0.12	0.13	0.28	0.26	0.26
Distance	-0.000088	-0.000194	-0.000427	-0.000417	-0.000459	-0.000362
significance level	0.02	0.05	0.06	0.00	0.00	0.00
F-statistic	5.887	5.198	4.699	3.915	4.330	4.950
significance level	0.00	0.00	0.00	0.01	0.01	0.00
White statistic	34.596	39.454	33.284	30.415	20.772	19.771
significance level	0.00	0.00	0.00	0.00	0.01	0.02
Adjusted R-squared	0.094	0.082	0.073	0.060	0.067	0.081
Observations	142	142	142	139	139	135

Table 5: Exports of Autos and Auto Parts by Firm (US\$ millions)

Commodity, company	1997	1998	1999	2000	2001	2002 q1-3
Autos, trucks, & auto parts total	660.59	806.30	1,589.67	2,047.22	2,428.94	1,785.29
MMC Sittipol (Mitsubishi)	504.66	637.49	713.68	734.70	716.94	615.96
AutoAlliance (Thailand)	0.01	10.10	443.57	580.17	484.19	414.78
General Motors (Thailand)	0.00	0.00	0.00	89.60	655.70	318.16
Toyota Motor Thailand	84.07	59.23	204.65	320.86	309.49	224.58
Honda Automobile (Thailand)	35.92	66.33	130.18	140.47	141.40	129.18
Isuzu Motor Thailand	29.64	28.88	56.06	110.27	86.26	47.93
Siam-Nissan Automobile	4.11	0.64	21.87	44.49	11.68	19.80
Nissan Diesel Thailand	1.47	0.62	3.44	5.83	4.74	0.45
Hino Motors Thailand	0.70	1.18	13.86	11.07	8.45	5.38
Thai-Swedish Assembly	0.00	0.07	1.21	0.73	0.62	0.09
Thai Automotive Industry	0.00	1.75	1.15	3.21	2.65	2.17
Ford Operation	0.00	0.00	0.00	5.83	6.83	6.40
Thai Rung Union Car	0.00	0.00	0.00	0.00	0.00	0.39
ADDENDUM: total from Table 2	725.91	940.15	1,607.81	2,128.45	2,409.62	-
Autos & trucks (CBU)	517.60	670.66	1,327.35	1,550.70	1,887.80	1,358.04
MMC Sittipol (Mitsubishi)	499.09	617.99	682.10	679.42	640.36	564.27
AutoAlliance (Thailand)	0.00	10.10	404.85	443.55	358.87	312.77
General Motors (Thailand)	0.00	0.00	0.00	89.60	655.70	318.16
Toyota Motor Thailand	13.16	12.61	115.85	147.73	102.23	76.84
Honda Automobile (Thailand)	5.22	28.37	81.08	68.44	71.67	54.47
Isuzu Motor Thailand	0.00	0.43	8.25	63.42	36.80	12.57
Siam-Nissan Automobile	0.00	0.00	17.42	42.66	10.10	14.09
Nissan Diesel Thailand	0.13	0.53	3.27	5.64	4.57	0.15
Hino Motors Thailand	0.00	0.63	13.48	10.23	7.50	4.72
Thai-Swedish Assembly	0.00	0.00	1.05	0.00	0.00	0.00
ADDENDUM: total from Table 1	562.24	705.66	1,264.14	1,620.37	1,909.12	-
Auto parts	142.98	135.64	262.32	496.52	541.15	427.24
MMC Sittipol (Mitsubishi)	5.57	19.51	31.58	55.28	76.58	51.69
AutoAlliance (Thailand)	0.01	0.00	38.72	136.61	125.32	102.02
Toyota Motor Thailand	70.92	46.61	88.80	173.14	207.26	147.74
Honda Automobile (Thailand)	30.69	37.96	49.10	72.03	69.73	74.71
Isuzu Motor Thailand	29.64	28.45	47.81	46.84	49.45	35.37
Siam-Nissan Automobile	4.11	0.64	4.45	1.83	1.58	5.71
Nissan Diesel Thailand	1.34	0.09	0.17	0.18	0.18	0.29
Hino Motors Thailand	0.70	0.55	0.38	0.84	0.95	0.67
Thai-Swedish Assembly	0.00	0.07	0.16	0.73	0.62	0.09
Thai Automotive Industry	0.00	1.75	1.15	3.21	2.65	2.17
Ford Operation	0.00	0.00	0.00	5.83	6.83	6.40
Thai Rung Union Car	0.00	0.00	0.00	0.00	0.00	0.39
ADDENDUM: total from Table 2	163.67	234.49	343.67	508.08	500.51	-

Source: The Brooker Group (2002); Media Overseas (2003); International Monetary Fund (2003).

Table 6: Exports of Motorcycles by Firm

Commodity, company	1997	1998	1999	2000	2001	2002 q1-3
ESTIMATES BY THE BROOKER GROUP (2001 refers to January-June)						
Motorcycles, number	195,098	192,347	210,336	170,536	67,943	-
Thai Honda Manufacturing	147,963	135,784	171,735	121,915	46,542	-
Thai Suzuki Motor	37,737	43,072	34,312	45,367	19,141	-
Kawasaki Motors Enterprise	9,098	7,316	3,010	1,324	564	-
Thai Yamaha Motor	300	6,175	1,273	1,930	1,533	-
International Vehicles	0	0	6	0	163	-
ESTIMATES BY MEDIA OVERSEAS						
Motorcycles & parts total (US\$ millions)	-	-	-	268.92	287.29	211.69
Thai Honda Manufacturing	-	-	-	216.24	189.29	153.37
Thai Suzuki Motor	-	-	-	38.04	43.53	25.19
Kawasaki Motors Enterprise	-	-	-	10.39	48.84	26.61
Thai Kawasaki Motors	-	-	-	2.53	-	-
Thai Yamaha Motor	-	-	-	1.72	5.62	6.51
ADDENDUM: total from Table 1	236.86	272.93	292.34	296.89	245.49	-
Motorcycles CBU & CKD (US\$ millions)						
Motorcycles CBU & CKD (US\$ millions)	-	-	-	185.02	176.63	121.26
Thai Honda Manufacturing	-	-	-	165.05	136.55	102.56
Thai Suzuki Motor	-	-	-	8.33	0.50	2.17
Kawasaki Motors Enterprise	-	-	-	7.84	36.98	16.45
Thai Kawasaki Motors	-	-	-	2.53	-	-
Thai Yamaha Motor	-	-	-	1.27	2.60	0.08
ADDENDUM: total from Table 1	151.52	112.75	132.30	114.04	99.23	-
Motorcycle parts (US\$ millions)						
Motorcycle parts (US\$ millions)	-	-	-	83.90	110.66	90.43
Thai Honda Manufacturing	-	-	-	51.19	52.74	50.82
Thai Suzuki Motor	-	-	-	29.71	43.03	23.02
Kawasaki Motors Enterprise	-	-	-	2.55	11.86	10.16
Thai Yamaha Motor	-	-	-	0.45	3.03	6.43
ADDENDUM: total from Table 2	85.34	160.18	160.04	182.85	146.26	-

Notes: - = not available or not applicable; Thai Kawasaki Motors production was transferred to Kawasaki Motors Enterprise in 2000.

Source: The Brooker Group (2002); Media Overseas (2003); International Monetary Fund (2003).

Table 7: Characteristics of Large Automobile and Motorcycle Firms in 1997 (1996) and 2001 (2002), values in US\$ millions, age in years

Major Activity, Company	Exports		Sales		Sales/ Employee		Assets/ Employee		FixAssets/ Employee		Exports/ Sales, %		Foreign Owner, %		Profits/ Sales, %		Equity/ Assets,%		Age
	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	2001
AUTOMOBILES, TRUCKS (& PARTS)																			
Large Exporters-mean	109	399	542	835	0.261	0.427	0.342	0.248	0.169	0.129	13	52	80	96	-2,302	0.54	2	23	23
-standard deviation	196	263	605	424	0.163	0.141	0.251	0.165	0.160	0.118	20	36	23	6	5,423	4.54	27	22	17
-number	6	6	6	6	5	6	5	6	5	6	6	6	6	6	6	6	6	6	6
Small Exporters-mean	0	2	135	60	0.372	0.151	0.369	0.184	0.038	0.051	0	4	45	61	-8.68	-13.12	27	-9	23
-standard deviation	1	4	204	144	0.516	0.186	0.454	0.209	0.035	0.032	0	8	35	43	17.66	28.29	37	90	14
-number	9	10	9	10	9	9	9	9	9	9	9	10	9	10	9	10	9	10	10
Large Exporters - Small Exporters-mean	109	397	407	775	-0.11	0.28	-0.03	0.06	0.13	0.08	13	48	36	35	-2,293	13.66	-25	32	-0.2
-significance level	0.23	0.01	0.16	0.00	0.57	0.01	0.88	0.52	0.15	0.17	0.17	0.02	0.03	0.03	0.35	0.17	0.16	0.31	0.98
AUTOMOBILE PARTS ONLY																			
Exporters-mean	0	6	29	44	0.129	0.224	0.115	0.108	0.054	0.031	0	16	43	61	10.54	7.30	50	43	9
-standard deviation	0	7	27	25	0.089	0.208	0.052	0.074	0.010	0.008	0	17	19	32	30.49	4.15	19	25	6
-number	7	9	7	9	7	9	4	9	4	5	7	9	6	9	4	9	4	9	9
Non-Exporters-mean	0	0	60	78	0.114	0.126	0.122	0.085	0.063	0.034	0	0	21	36	6.15	13.38	40	52	17
-standard deviation	0	0	54	73	0.124	0.187	0.157	0.125	0.077	0.045	0	0	25	40	12.79	11.91	28	32	10
-number	19	19	19	19	19	19	17	19	17	10	19	19	17	18	17	18	17	19	17
Large Exporters - Small Exporters-mean	0	6	-31	-35	0.01	0.10	-0.01	0.02	-0.01	0.00	0	16	22	26	4.39	-6.08	10	-9	-8
-significance level	-	0.01	0.16	0.00	0.57	0.01	0.88	0.52	0.15	0.17	0.17	0.02	0.03	0.03	0.35	0.17	0.16	0.31	0.98
MOTORCYCLES & MOTORCYCLE PARTS																			
Large Exporters-mean	-	94	301	315	0.141	0.166	0.089	0.107	0.022	0.028	-	38	68	78	18.53	4.03	79	53	25
-standard deviation	-	83	372	364	0.125	0.033	0.023	0.049	0.012	0.021	-	14	16	24	27.30	1.40	10	39	18
-number	0	3	3	3	3	3	3	3	3	3	0	3	3	3	3	3	3	3	3
Small Exporters-mean	0	2	98	56	0.073	0.091	0.111	0.094	0.049	0.050	0	2	38	56	-33.88	34.66	23	19	27
-standard deviation	0	3	106	23	0.022	0.059	0.055	0.047	0.024	0.030	0	4	10	26	32.08	45.52	26	55	13
-number	2	3	3	3	3	3	3	3	3	3	2	3	3	3	3	3	3	3	3
Large Exporters - Small Exporters-mean	-	92	204	260	0.07	0.08	-0.02	0.01	-0.03	-0.02	-	36	31	22	52.41	-30.63	56	34	-2
-significance level	-	0.19	0.46	0.34	0.45	0.15	0.58	0.76	0.18	0.35	-	0.05	0.07	0.34	0.10	0.36	0.04	0.44	0.86

Notes: - = not applicable; When data were not available for 1997 or 2001, data for 1996 and 2000, respectively, were used as proxies; italics indicate differences significant at the 0.05 level or better.

Sources: Advanced Research Group (various years), Board of Investment (1999), Comm Bangkok (various years), Cosmic Publications (various years), Dun & Bradstreet (1999), Kompas (various years), Media Overseas (2003), The Brooker Group (1997, 2002), The Nation (various years), Toyo Keizai (various years)

Appendix Table 1: HS Section Definitions used in Tables 1, 3-5

HS Sections	Definition
87	Vehicles, excluding rail & trams
87032~87039	Automobiles
870421+870431	Trucks under 5 tons
8711	Motorcycles
8706+8707+8708	Automobile & truck parts
87141	Motorcycle parts
87 - sum of above 5 categories	Miscellaneous vehicles
8701-87031,8705	Tractors, buses, specialized
8704-870421-870431	Trucks 5 tons or larger
8712	Bicycles
87149	Bicycle parts
Miscellaneous vehicles - sum of above 4 categories	Other vehicles & parts

Appendix Table 2: Data used in Models Explaining the Market-Wise Variation of Motor Vehicle Exports in 1996-2001

Country Name	Motor Vehicle (HS87) Exports from Thailand, million US\$						Automobiles (HS87032-87039) Exports from Thailand, million US\$						Trucks under 5 tons (HS870421+870431) Exports from Thailand, million US\$					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
ALBANIA	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
ALGERIA	1	0	1	1	0	3	0	0	0	0	0	0	0	0	0	0	0	2
ANGOLA	0	0	0	0	2	3	0	0	0	0	0	0	0	0	0	0	2	3
ANTIGUA BARB	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARGENTINA	1	12	18	15	13	14	0	0	0	0	0	0	0	10	12	11	12	14
ARMENIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUSTRALIA	25	77	95	340	448	312	0	0	22	96	87	99	24	73	78	273	372	239
AUSTRIA	8	27	23	15	20	17	0	0	0	0	0	0	7	27	23	15	20	17
BAHAMAS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BAHRAIN	0	0	2	2	1	2	0	0	0	0	0	1	0	0	1	2	1	1
BANGLADESH	0	1	1	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0
BARBADOS	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1
BELGIUM	11	38	39	44	119	450	0	0	0	0	116	636	7	26	25	28	41	22
BELIZE	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1
BENIN	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
BOLIVIA	0	0	3	3	1	2	0	0	0	0	0	0	0	0	3	3	1	2
BRAZIL	23	33	2	3	5	4	0	0	0	0	0	0	0	0	0	0	0	0
BRUNEI DAR.	0	6	2	3	3	2	0	10	2	4	3	1	0	0	0	0	0	0
BULGARIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BURKINA FASO	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
BURUNDI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAMBODIA	112	50	34	21	33	45	0	0	0	0	7	8	1	0	1	1	1	2
CAMEROON	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
CANADA	4	3	3	5	4	6	0	0	0	0	0	0	0	0	0	0	0	0
CENT.AF.REP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHILE	1	1	7	15	36	21	0	0	0	0	8	0	0	0	5	14	30	19
CHINA	6	1	1	8	6	18	0	0	0	0	2	15	5	0	0	0	0	0
COLOMBIA	1	2	4	6	18	16	0	0	0	0	0	0	0	0	1	1	8	8
COMOROS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CONGO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CONGO, D.R.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COSTA RICA	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1
COTE DIVOIRE	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1
CROATIA	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
CYPRUS	0	14	28	20	38	19	0	0	1	1	0	0	0	13	27	18	38	18
CZECH REP	0	4	6	2	1	1	0	0	0	0	0	0	0	4	6	2	1	1
DENMARK	6	7	6	5	7	7	0	0	0	0	0	0	5	6	5	3	6	6
DJIBOUTI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOMINICA	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0
DOMINICAN RP	0	2	6	12	25	27	0	0	0	0	0	0	0	1	4	10	24	26
ECUADOR	0	0	0	0	2	11	0	0	0	0	0	0	0	0	0	0	1	11
EGYPT	1	1	2	4	3	2	0	0	0	0	0	0	0	0	0	2	1	1
EL SALVADOR	0	0	0	2	4	7	0	0	0	0	0	0	0	0	0	2	4	7
ETHIOPIA	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	2
FIJI	0	0	1	2	2	2	0	0	0	0	0	0	0	0	0	1	1	1
FINLAND	1	4	6	7	7	5	0	0	0	0	0	0	1	4	6	7	7	5
FR.POLYNESIA	0	0	0	2	3	4	0	0	0	0	0	0	0	0	0	2	3	4
FRANCE	8	22	26	26	33	38	0	0	0	0	0	0	8	22	25	25	32	35

Appendix Table 2 (continued, 2/9)

Country Name	Motor Vehicle (HS87) Exports from Thailand, million US\$						Automobiles (HS87032-87039) Exports from Thailand, million US\$						Trucks under 5 tons (HS870421+870431) Exports from Thailand, million US\$					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
GABON	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
GAMBIA	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
GERMANY	30	51	60	95	76	55	0	0	0	0	0	0	28	49	57	92	72	50
GHANA	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	0	1
GREECE	6	25	26	44	29	39	0	0	0	0	0	0	1	20	22	42	28	37
GRENADA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUATEMALA	0	0	0	2	4	7	0	0	0	0	0	0	0	0	0	1	4	7
GUINEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUYANA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HAITI	0	0	1	1	1	1	0	0	0	0	0	0	0	0	1	1	1	1
HONDURAS	0	0	0	5	8	7	0	0	0	0	0	0	0	0	0	5	8	7
HONG KONG	19	9	20	6	3	5	0	6	13	4	0	4	0	0	0	0	0	0
HUNGARY	1	5	6	11	17	16	0	0	0	0	0	0	1	5	6	11	16	15
ICELAND	0	1	1	2	1	1	0	0	0	0	0	0	0	1	1	1	1	1
INDIA	0	5	10	7	12	8	0	0	0	0	0	0	0	0	0	0	0	0
INDONESIA	12	18	3	5	48	72	0	0	0	0	9	21	0	0	0	0	1	0
IRAN (ISLM.R)	0	0	1	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0
IRELAND	0	1	2	2	5	11	0	0	0	0	0	0	0	1	1	1	5	11
ISRAEL	0	21	28	55	39	37	0	0	0	42	32	6	0	21	27	33	22	33
ITALY	12	38	40	66	120	88	0	0	0	0	0	0	10	36	36	62	110	80
JAMAICA	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	1	1
JAPAN	30	84	93	137	157	270	0	0	0	0	0	188	1	31	5	2	1	1
JORDAN	0	0	5	9	4	5	0	0	0	0	0	0	0	0	5	8	3	4
KENYA	1	0	1	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
KOREA REP.	1	0	1	1	5	4	0	0	0	0	0	0	0	0	0	0	0	0
KUWAIT	0	0	4	3	4	4	0	0	0	0	0	2	0	0	4	3	4	3
KYRGYZSTAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAO P.DEM.R	43	86	109	144	87	51	0	0	0	0	6	4	2	3	2	5	5	7
LATVIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEBANON	1	0	1	2	1	1	0	0	0	1	0	1	0	0	0	1	0	0
MADAGASCAR	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1
MALAWI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALAYSIA	25	29	4	25	65	109	2	0	0	0	0	6	0	0	0	0	12	38
MALI	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
MALTA	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	1	3
MAURITANIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAURITIUS	0	0	1	4	3	2	0	0	0	0	0	0	0	0	1	4	3	2
MEXICO	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
MONGOLIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOROCCO	0	0	1	3	2	6	0	0	1	2	2	0	0	0	0	1	1	6
MOZAMBIQUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MYANMAR	10	12	11	19	28	17	0	0	0	7	17	4	0	0	0	0	0	0
N.CALEDONIA	0	0	1	2	2	1	0	0	0	0	0	0	0	0	1	2	2	1
NEPAL	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1
NETHERLANDS	6	11	17	15	15	14	0	0	0	0	0	0	2	7	10	8	8	6
NEW ZEALAND	0	7	22	52	65	48	0	0	20	32	22	22	0	7	8	32	52	37
NICARAGUA	0	0	0	1	2	1	0	0	0	0	0	0	0	0	0	1	2	1
NIGERIA	1	0	1	0	3	6	0	0	0	0	1	3	0	0	0	0	1	1
NORWAY	2	7	6	5	5	3	0	0	0	0	0	0	2	7	6	5	4	2
OMAN	0	0	5	7	7	11	0	0	0	0	1	0	0	0	5	7	5	12

Appendix Table 2 (continued, 3/9)

Country Name	Motor Vehicle (HS87) Exports from Thailand, million US\$						Automobiles (HS87032-87039) Exports from Thailand, million US\$						Trucks under 5 tons (HS870421+870431) Exports from Thailand, million US\$					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
PAKISTAN	5	3	5	4	8	12	0	0	0	0	0	0	1	0	0	0	0	0
PANAMA	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0
PAPUA N.GUIN	0	0	1	3	2	2	0	0	0	0	0	0	0	0	0	3	2	2
PARAGUAY	0	2	2	2	4	4	0	0	0	0	0	0	0	2	2	2	3	4
PERU	0	0	2	2	4	3	0	0	0	0	0	0	0	0	1	2	4	2
PHILIPPINES	48	41	25	36	51	54	0	0	0	0	2	0	12	4	2	8	8	8
POLAND	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0
PORTUGAL	30	54	69	97	65	62	0	0	0	0	0	0	29	54	69	96	63	62
ROMANIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RUSSIAN FED	0	0	0	2	1	2	0	0	0	0	0	0	0	0	0	2	1	2
S.AFR.CUS.UN	1	12	14	20	0	0	0	13	0	0	0	0	0	0	0	1	0	0
SAMOA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAUDI ARABIA	2	2	22	18	25	28	0	0	1	2	3	6	0	0	19	16	20	19
SENEGAL	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1
SINGAPORE	17	22	36	30	75	37	9	11	16	20	42	22	0	0	1	1	12	0
SLOVAKIA	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOLOMON ISLS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH AFRICA	0	0	0	0	72	92	0	0	0	0	0	18	0	0	0	0	13	52
SPAIN	13	33	46	65	80	58	0	0	0	0	0	0	12	32	43	62	75	50
SRI LANKA	1	2	2	2	2	2	0	0	1	0	0	0	0	0	0	0	0	0
ST.KITTS NEV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ST.LUCIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUDAN	0	0	3	0	2	5	0	0	0	0	0	0	0	0	1	0	2	5
SWEDEN	5	17	25	59	62	69	0	0	0	0	0	0	2	16	12	25	21	30
SWITZ.LIECHT	1	3	7	7	10	5	0	0	0	0	0	0	1	2	4	5	10	5
SYRIA A. R.	1	1	1	1	0	9	0	0	0	0	0	1	0	0	0	0	0	7
TAIWAN (POC)	4	3	7	7	11	25	0	0	0	0	2	22	0	0	0	0	0	0
TANZANIA, U.R	1	1	2	3	2	1	0	0	0	0	0	0	0	1	0	0	0	1
TOGO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRINIDAD TBG	0	0	0	4	3	6	0	0	0	0	0	0	0	0	0	4	3	5
TUNISIA	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2	2
TURKEY	9	0	6	30	55	7	0	0	0	0	0	0	9	0	6	29	54	7
UGANDA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
UKRAINE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNTD ARAB EM	2	2	15	14	12	12	0	0	2	2	0	1	0	0	8	7	5	4
UNTD KINGDOM	15	36	40	75	66	105	0	0	5	0	0	4	8	26	16	68	59	93
URUGUAY	0	2	3	1	2	4	0	0	0	0	0	0	0	1	2	1	1	4
USA,PR,USVI	57	43	66	71	69	87	0	0	0	0	0	0	0	2	3	1	0	0
VANUATU	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0
VENEZUELA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VIET NAM	117	79	103	97	135	87	0	0	0	0	0	0	0	0	0	0	0	7
YEMEN	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0
ZAMBIA	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ZIMBABWE	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	2

Appendix Table 2 (continued, 4/9)

Country Name	Motorcycles (HS8711) Exports from Thailand, million US\$						Automobile & Truck Parts (HS8706+8707+8708) Exports from Thailand, million US\$						Motorcycle Parts (HS87141) Exports from Thailand, million US\$					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
ALBANIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ALGERIA	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
ANGOLA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ANTIGUA BARB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARGENTINA	0	2	5	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARMENIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
AUSTRALIA	0	0	0	0	0	2	0	3	3	9	9	10	0	0	0	0	0	0
AUSTRIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BAHAMAS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BAHRAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BANGLADESH	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BARBADOS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BELGIUM	0	0	0	0	0	0	0	0	0	16	19	8	0	0	0	0	0	0
BELIZE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BENIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BOLIVIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BRAZIL	0	0	0	0	0	0	0	0	0	1	3	1	0	4	0	1	2	2
BRUNEI DAR.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BULGARIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BURKINA FASO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BURUNDI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CAMBODIA	21	13	8	9	9	19	0	0	0	0	1	0	9	23	20	5	11	10
CAMEROON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CANADA	0	0	0	0	0	3	2	2	2	3	2	2	0	0	0	0	0	0
CENT.AF.REP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CHILE	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
CHINA	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0
COLOMBIA	0	1	2	4	7	6	0	0	0	1	3	0	0	0	0	0	0	0
COMOROS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CONGO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CONGO, D.R.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COSTA RICA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
COTE DIVOIRE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CROATIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CYPRUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CZECH REP	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DENMARK	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
DJIBOUTI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOMINICA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DOMINICAN RP	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
ECUADOR	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
EGYPT	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0
EL SALVADOR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETHIOPIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FIJI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FR.POLYNESIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FRANCE	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	0

Appendix Table 2 (continued, 5/9)

Country Name	Motorcycles (HS8711) Exports from Thailand, million US\$						Automobile & Truck Parts (HS8706+8707+8708) Exports from Thailand, million US\$						Motorcycle Parts (HS87141) Exports from Thailand, million US\$					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
GABON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GAMBIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GERMANY	0	0	0	0	0	2	1	1	1	2	2	1	0	0	0	0	0	0
GHANA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GREECE	5	4	3	0	0	0	0	0	0	0	0	0	1	1	0	1	0	1
GRENADA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUATEMALA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUINEA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GUYANA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HAITI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HONDURAS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HONG KONG	1	0	4	1	0	0	0	1	1	0	1	2	0	1	1	1	1	0
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
INDIA	0	0	0	0	0	0	0	4	8	6	9	6	0	0	0	1	3	1
INDONESIA	0	1	0	0	3	7	1	4	2	3	27	28	4	5	1	1	2	6
IRAN (ISLM.R)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ITALY	0	0	0	0	0	0	0	0	1	0	1	1	1	1	2	2	3	1
JAMAICA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JAPAN	3	3	2	2	3	3	16	39	71	105	130	140	1	4	5	13	17	15
JORDAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KENYA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KOREA REP.	0	0	0	0	0	0	0	0	1	0	2	2	0	0	0	0	0	0
KUWAIT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
KYRGYZSTAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAO P.DEM.R	30	46	28	56	27	6	0	0	0	0	2	2	1	26	67	69	36	22
LATVIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LEBANON	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MADAGASCAR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALAWI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALAYSIA	0	0	0	0	0	0	12	19	0	20	44	54	3	2	1	3	3	5
MALI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MALTA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAURITANIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MAURITIUS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MEXICO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MONGOLIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOROCCO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MOZAMBIQUE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
MYANMAR	1	1	1	1	1	2	1	0	0	0	1	1	0	0	0	0	0	0
N.CALEDONIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NEPAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NETHERLANDS	0	0	0	0	0	0	2	2	4	5	7	7	0	0	0	0	0	0
NEW ZEALAND	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0
NICARAGUA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NIGERIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NORWAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
OMAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix Table 2 (continued, 6/9)

Country Name	Motorcycles (HS8711) Exports from Thailand, million US\$						Automobile & Truck Parts (HS8706+8707+8708) Exports from Thailand, million US\$						Motorcycle Parts (HS87141) Exports from Thailand, million US\$					
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001
PAKISTAN	0	0	0	0	0	0	1	0	3	1	5	9	1	1	1	1	1	1
PANAMA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PAPUA N.GUIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PARAGUAY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PERU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PHILIPPINES	4	14	4	5	1	0	14	11	7	11	21	23	2	2	9	6	17	18
POLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PORTUGAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ROMANIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RUSSIAN FED	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
S.AFR.CUS.UN	0	1	1	1	0	0	0	0	11	16	0	0	0	0	0	0	0	0
SAMOA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SAUDI ARABIA	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	0	0
SENEGAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SINGAPORE	0	1	1	4	6	9	4	3	8	1	2	4	1	1	3	0	1	0
SLOVAKIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOLOMON ISLS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOUTH AFRICA	0	0	0	0	0	0	0	0	0	0	57	31	0	0	0	0	0	0
SPAIN	0	0	0	0	0	0	0	0	0	1	3	3	0	0	1	0	0	0
SRI LANKA	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0
ST.KITTS NEV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ST.LUCIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUDAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SWEDEN	0	0	0	0	0	0	2	1	13	33	42	39	0	0	0	0	0	0
SWITZ.LIECHT	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
SYRIA A. R.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TAIWAN (POC)	0	0	0	0	0	0	3	1	4	4	8	6	0	0	0	0	0	1
TANZANIA, U.R	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOGO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TRINIDAD TBG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TUNISIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TURKEY	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
UGANDA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UKRAINE	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
UNTD ARAB EM	0	0	0	0	0	0	1	1	1	2	1	3	0	0	0	0	1	0
UNTD KINGDOM	0	0	0	0	0	1	0	0	0	0	0	3	2	2	2	2	2	3
URUGUAY	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
USA,PR,USVI	0	1	0	1	3	26	33	36	45	63	61	57	0	0	0	0	0	1
VANUATU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VENEZUELA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VIET NAM	99	60	49	44	52	10	0	0	1	1	1	1	11	8	46	49	79	56
YEMEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ZAMBIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ZIMBABWE	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0

Appendix Table 2 (continued, 7/9)

Country Name	GDP, current int'l \$, billions						Per capita GDP, current int'l \$						Dis- tance
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	All
ALBANIA	9	8	9	10	11	12	2,880	2,700	2,900	3,180	3,500	3,680	8,234
ALGERIA	160	159	166	176	187	188	5,580	5,490	5,610	5,870	6,150	6,090	9,754
ANGOLA	22	22	24	27	28	28	1,890	1,800	1,900	2,120	2,110	2,040	9,959
ANTIGUA BARB	1	1	1	1	1	1	8,760	9,150	9,200	9,750	10,210	10,170	16,071
ARGENTINA	388	419	433	428	440	424	11,010	11,730	11,990	11,700	11,880	11,320	16,895
ARMENIA	7	8	8	9	9	10	1,970	2,020	2,120	2,250	2,420	2,650	6,153
AUSTRALIA	387	402	419	447	471	492	21,150	21,680	22,360	23,560	24,550	25,370	7,489
AUSTRIA	182	185	190	201	214	217	22,610	22,870	23,510	24,890	26,420	26,730	8,451
BAHAMAS	4	4	4	5	5	-	14,300	14,440	14,660	15,190	16,270	-	15,706
BAHRAIN	8	9	9	10	10	10	13,480	13,840	13,720	14,750	15,820	16,060	5,371
BANGLADESH	156	164	171	184	202	214	1,270	1,320	1,350	1,430	1,540	1,610	1,536
BARBADOS	3	3	4	4	4	4	12,250	12,920	13,350	13,850	15,340	15,560	16,329
BELGIUM	219	226	229	241	259	262	21,570	22,220	22,450	23,570	25,220	25,520	9,262
BELIZE	1	1	1	1	1	1	4,580	4,580	4,590	4,820	5,470	5,690	16,438
BENIN	5	5	5	5	6	6	840	850	850	890	950	980	10,693
BOLIVIA	16	17	18	18	19	20	2,150	2,180	2,210	2,230	2,310	2,300	18,779
BRAZIL	1,064	1,101	1,098	1,145	1,234	1,269	6,580	6,720	6,620	6,820	7,250	7,360	16,633
BRUNEI DAR.	6	6	6	-	-	-	19,610	19,550	19,210	-	-	-	1,865
BULGARIA	48	45	46	48	53	55	5,800	5,460	5,610	5,850	6,490	6,890	7,944
BURKINA FASO	10	10	11	12	12	13	970	1,000	990	1,050	1,080	1,120	10,958
BURUNDI	4	4	4	4	5	5	680	660	670	670	680	690	8,079
CAMBODIA	17	17	17	19	21	23	1,560	1,540	1,510	1,590	1,760	1,860	576
CAMEROON	19	20	21	22	24	26	1,420	1,460	1,470	1,520	1,640	1,680	9,806
CANADA	668	692	716	770	826	843	22,500	23,080	23,680	25,250	26,840	27,130	13,437
CENT.AF.REP	4	4	4	5	5	5	1,160	1,180	1,210	1,250	1,310	1,300	9,032
CHILE	114	121	124	125	136	142	7,880	8,300	8,360	8,320	8,940	9,190	17,667
CHINA	3,329	3,600	3,873	4,228	4,724	5,111	2,730	2,930	3,120	3,370	3,740	4,020	3,301
COLOMBIA	278	282	280	278	296	303	7,090	7,030	6,850	6,680	7,010	7,040	17,906
COMOROS	1	1	1	1	1	1	1,870	1,900	1,860	1,890	1,890	1,870	6,922
CONGO	3	3	3	3	3	3	1,040	960	1,050	890	950	970	9,617
CONGO, D.R.	42	42	39	39	37	36	930	900	800	780	730	680	9,598
COSTA RICA	27	29	31	38	38	37	7,730	8,000	8,550	10,120	10,070	9,460	17,350
COTE DIVOIRE	22	23	23	24	25	24	1,510	1,540	1,540	1,560	1,550	1,490	11,438
CROATIA	32	34	34	35	38	40	6,990	7,560	7,830	8,100	8,710	9,170	8,498
CYPRUS	12	13	13	14	15	16	16,700	16,870	17,510	18,680	20,330	21,190	7,074
CZECH REP	135	133	131	135	145	151	13,040	12,880	12,720	13,150	14,110	14,720	8,568
DENMARK	131	134	136	142	153	155	24,870	25,450	25,700	26,710	28,680	29,000	8,629
DJIBOUTI	1	1	1	1	1	2	2,350	2,310	2,260	2,310	2,350	2,370	6,220
DOMINICA	0	0	0	0	0	0	4,870	4,890	5,060	5,410	5,790	5,520	16,071
DOMINICAN RP	41	44	47	52	58	60	5,260	5,570	5,850	6,340	6,910	7,020	16,297
ECUADOR	37	38	38	37	40	42	3,140	3,170	3,120	3,020	3,170	3,280	18,524
EGYPT	172	180	187	204	222	229	2,910	2,990	3,030	3,250	3,470	3,520	7,277
EL SALVADOR	27	28	29	31	33	34	4,670	4,800	4,840	5,070	5,240	5,260	16,796
ETHIOPIA	41	43	42	45	49	53	700	720	690	720	770	810	6,749
FIJI	4	4	4	4	4	4	4,600	4,530	4,590	5,100	4,730	4,850	9,253
FINLAND	98	103	108	114	125	127	19,190	20,090	21,050	22,150	24,160	24,430	7,894
FR.POLYNESIA	5	5	6	6	7	#N/A	24,370	24,340	25,240	26,410	28,020	#N/A	12,551
FRANCE	1,178	1,193	1,222	1,282	1,383	1,420	20,300	20,500	20,930	21,860	23,490	23,990	9,455

Appendix Table 2 (continued, 8/9)

Country Name	GDP, current int'l \$, billions						Per capita GDP, current int'l \$						Dis- tance
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	All
GABON	7	7	7	7	7	8	6,220	6,210	6,100	5,730	6,000	5,990	10,123
GAMBIA	2	2	2	2	3	3	1,700	1,720	1,770	1,860	1,970	2,050	12,469
GERMANY	1,817	1,838	1,864	1,939	2,064	2,087	22,180	22,390	22,720	23,620	25,100	25,350	9,074
GHANA	34	35	36	39	42	44	1,910	1,940	1,980	2,060	2,190	2,250	11,023
GREECE	142	147	151	161	175	185	13,600	14,020	14,370	15,270	16,530	17,440	7,932
GRENADA	1	1	1	1	1	1	5,330	5,540	6,060	6,550	7,280	6,740	16,545
GUATEMALA	41	43	44	47	50	51	4,000	4,050	4,090	4,230	4,430	4,400	16,753
GUINEA	12	12	13	13	14	15	1,720	1,770	1,800	1,840	1,910	1,960	12,324
GUYANA	3	3	3	3	3	4	4,200	4,540	4,310	4,520	4,560	4,690	16,751
HAITI	14	14	14	15	15	15	1,860	1,840	1,830	1,880	1,920	1,860	16,357
HONDURAS	16	17	17	17	18	19	2,800	2,800	2,770	2,680	2,830	2,830	16,819
HONG KONG	144	150	139	145	168	167	22,380	23,050	21,170	21,960	25,180	24,850	1,725
HUNGARY	96	100	105	111	121	126	9,420	9,850	10,390	11,050	11,960	12,340	8,254
ICELAND	6	7	7	7	8	8	23,520	24,330	25,330	26,490	28,910	29,990	10,103
INDIA	2,157	2,247	2,375	2,574	2,773	2,930	2,270	2,330	2,420	2,580	2,730	2,840	2,925
INDONESIA	580	607	539	567	613	615	2,970	3,070	2,680	2,790	2,970	2,940	2,323
IRAN (ISLM.R)	305	313	318	332	364	387	5,090	5,150	5,140	5,300	5,720	6,000	5,459
IRELAND	69	77	84	98	115	124	18,980	21,080	22,630	26,230	30,380	32,410	9,869
ISRAEL	107	110	112	117	131	126	18,730	18,880	18,760	19,080	20,940	19,790	6,938
ITALY	1,239	1,255	1,269	1,313	1,401	1,430	21,590	21,810	22,040	22,780	24,280	24,670	8,840
JAMAICA	9	9	9	9	9	10	3,510	3,400	3,400	3,460	3,590	3,720	16,488
JAPAN	2,956	2,993	2,937	3,025	3,207	3,193	23,500	23,740	23,230	23,890	25,280	25,130	4,613
JORDAN	16	17	17	18	19	19	3,770	3,710	3,630	3,720	3,820	3,870	6,828
KENYA	27	28	28	29	30	30	1,000	990	970	980	980	980	7,218
KOREA REP.	555	582	546	616	692	714	12,180	12,660	11,790	13,200	14,720	15,090	3,727
KUWAIT	34	33	33	35	37	38	19,990	18,240	17,760	18,180	18,780	18,700	5,660
KYRGYZSTAN	10	11	11	12	13	14	2,100	2,300	2,330	2,460	2,670	2,750	4,066
LAO P.DEM.R	6	6	7	7	8	9	1,240	1,320	1,330	1,420	1,520	1,620	520
LATVIA	13	14	15	15	17	18	5,280	5,800	6,090	6,450	7,110	7,730	7,903
LEBANON	16	17	17	17	18	18	3,980	4,070	4,030	4,070	4,150	4,170	6,867
MADAGASCAR	10	11	11	12	13	13	750	750	740	760	810	830	6,854
MALAWI	5	5	5	6	6	6	540	550	550	570	590	570	7,975
MALAYSIA	164	176	162	179	212	208	7,740	8,140	7,310	7,890	9,100	8,750	1,185
MALI	6	7	8	8	8	9	660	690	730	740	780	810	11,622
MALTA	4	4	5	5	5	5	10,950	11,340	11,870	12,160	14,010	13,160	8,770
MAURITANIA	4	4	5	5	5	5	1,860	1,850	1,830	1,840	1,870	1,990	12,214
MAURITIUS	9	9	10	10	11	12	7,690	8,020	8,340	8,850	9,330	9,860	6,035
MEXICO	657	693	722	761	839	838	7,100	7,380	7,580	7,880	8,570	8,430	15,761
MONGOLIA	3	4	4	4	4	4	1,440	1,540	1,560	1,650	1,720	1,740	3,848
MOROCCO	89	87	92	94	98	105	3,310	3,170	3,320	3,340	3,410	3,600	10,782
MOZAMBIQUE	12	14	15	17	18	21	760	810	890	960	1,000	1,140	8,578
MYANMAR	-	-	-	-	-	-	-	-	-	-	-	-	576
N.CALEDONIA	5	5	5	5	5	-	25,530	25,370	23,980	24,260	25,200	-	8,263
NEPAL	24	25	25	27	29	31	1,140	1,160	1,160	1,190	1,280	1,310	2,214
NETHERLANDS	353	363	387	402	428	436	22,750	23,270	24,630	25,410	26,910	27,190	9,184
NEW ZEALAND	64	64	63	68	68	74	17,150	17,010	16,550	17,860	17,840	19,160	9,756
NICARAGUA	11	11	-	-	-	-	-	-	-	-	-	-	17,055
NIGERIA	91	93	97	101	109	111	790	790	800	820	860	850	10,613
NORWAY	113	118	120	124	131	134	25,830	26,780	26,980	27,810	29,200	29,620	8,683
OMAN	24	26	27	27	29	-	11,250	11,490	11,720	11,680	12,040	-	4,539

Appendix Table 2 (continued, 9/9)

Country Name	GDP, current int'l \$, billions						Per capita GDP, current int'l \$						Dis- tance
	1996	1997	1998	1999	2000	2001	1996	1997	1998	1999	2000	2001	All
PAKISTAN	218	220	224	238	258	267	1,730	1,710	1,710	1,760	1,870	1,890	3,542
PANAMA	13	14	15	16	17	17	5,040	5,210	5,350	5,690	5,830	5,750	17,505
PAPUA N.GUIN	13	13	12	14	14	14	2,910	2,690	2,530	2,710	2,710	2,570	5,765
PARAGUAY	26	27	27	27	28	29	5,260	5,290	5,110	5,100	5,110	5,210	17,416
PERU	104	110	109	113	120	120	4,260	4,430	4,330	4,410	4,630	4,570	19,710
PHILIPPINES	250	262	256	270	290	301	3,580	3,660	3,500	3,610	3,790	3,840	2,211
POLAND	283	302	314	333	360	365	7,330	7,800	8,110	8,620	9,320	9,450	8,100
PORTUGAL	144	150	156	164	177	182	14,460	15,060	15,600	16,450	17,710	18,150	10,695
ROMANIA	132	124	116	117	123	131	5,830	5,480	5,160	5,230	5,500	5,830	7,718
RUSSIAN FED	831	840	809	890	984	1,028	5,630	5,700	5,510	6,080	6,760	7,100	7,075
S.AFR.CUS.UN	433	444	445	466	500	519	9,847	9,891	9,744	10,027	10,575	10,856	10,156
SAMOA	1	1	1	1	1	1	4,820	4,840	4,840	5,080	5,650	6,180	7,052
SAUDI ARABIA	243	247	249	253	279	285	13,030	12,890	12,660	12,520	13,460	13,330	5,748
SENEGAL	11	11	12	13	14	15	1,250	1,280	1,290	1,360	1,450	1,500	12,504
SINGAPORE	71	73	72	82	95	94	19,210	19,160	18,470	20,730	23,700	22,680	1,436
SLOVAKIA	52	54	56	59	62	65	9,590	10,120	10,440	10,890	11,550	11,960	8,387
SLOVENIA	26	27	28	30	33	34	13,080	13,740	14,190	15,280	16,530	17,130	8,607
SOLOMON ISLS	1	1	1	1	1	1	2,680	2,540	2,490	2,470	2,160	1,910	7,052
SOUTH AFRICA	410	420	421	439	470	488	10,280	10,320	10,160	10,430	10,990	11,290	10,156
SPAIN	645	670	695	742	799	828	16,400	16,870	17,430	18,460	19,740	20,150	10,192
SRI LANKA	48	51	53	57	63	60	2,770	2,890	2,970	3,130	3,400	3,180	2,385
ST.KITTS NEV	0	0	0	0	0	1	9,690	10,300	10,390	10,710	11,210	11,300	16,104
ST.LUCIA	1	1	1	1	1	1	5,160	5,090	5,100	5,310	5,460	5,260	16,342
SUDAN	44	46	48	54	62	62	1,520	1,560	1,600	1,770	2,000	1,970	7,291
SWEDEN	178	181	184	196	210	215	20,160	20,430	20,830	22,110	23,650	24,180	8,278
SWITZ.LIECHT	184	183	185	191	199	203	26,010	25,770	26,000	26,720	27,780	28,100	9,132
SYRIA A. R.	45	46	51	50	53	54	3,070	3,080	3,280	3,200	3,280	3,280	6,799
TAIWAN (POC)	366	388	402	434	471	473	17,034	17,888	18,376	19,695	21,219	21,190	2,531
TANZANIA, U.R	14	14	15	16	17	18	460	460	460	470	510	520	7,141
TOGO	7	7	7	7	7	8	1,730	1,750	1,640	1,690	1,660	1,650	10,853
TRINIDAD TBG	9	9	9	10	12	12	7,060	7,050	7,270	7,940	8,900	9,100	16,671
TUNISIA	46	48	50	54	59	62	5,050	5,210	5,330	5,700	6,120	6,390	9,136
TURKEY	344	367	374	369	411	390	5,590	5,880	5,890	5,730	6,300	5,890	7,141
UGANDA	25	26	27	30	32	34	1,240	1,260	1,280	1,370	1,450	1,490	7,627
UKRAINE	184	178	174	179	197	213	3,600	3,510	3,470	3,590	3,980	4,350	7,421
UNTD ARAB EM	60	61	56	-	-	-	24,240	23,520	20,530	-	-	-	4,974
UNTD KINGDOM	1,190	1,221	1,237	1,304	1,385	1,420	20,400	20,900	21,140	22,240	23,580	24,160	9,542
URUGUAY	26	27	28	28	29	28	8,090	8,410	8,660	8,550	8,660	8,400	16,717
USA,PR,USVI	7,847	8,181	8,421	8,926	9,584	9,792	29,260	30,110	30,600	32,030	33,960	34,320	14,169
VANUATU	1	1	1	1	1	1	3,680	3,500	3,360	3,300	3,490	3,190	8,273
VENEZUELA	126	134	133	127	135	140	5,670	5,900	5,710	5,350	5,580	5,670	17,000
VIET NAM	116	125	132	140	155	164	1,560	1,660	1,720	1,810	1,970	2,070	980
YEMEN	11	12	12	13	14	14	710	720	700	740	800	790	6,053
ZAMBIA	7	7	7	7	8	8	750	750	720	720	760	780	8,587
ZIMBABWE	31	32	33	34	32	29	2,620	2,670	2,730	2,700	2,540	2,280	8,351

Note: - = not available.

Sources: International Centre for the Study of East Asian Development (2003); United Nations Statistics Division (various years); World Bank (2003);

<http://www.macalester.edu/research/economics/PAGE/HAVEMAN/Trade.Resources/Data/Gravity/dist.txt>

<http://www.indo.com/distance/index.html>

Appendix Table 3: Employment of Japanese and U.S. MNCs in Transportation Machinery (thousands)

Country	U.S. MNCs					Japanese MNCs					
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	2001
Argentina	8.4	11.0	12.0	9.5	8.5	0.8	1.0	1.0	1.0	1.0	0.9
Australia	20.9	21.0	20.1	19.9	20.4	12.2	12.9	12.0	6.6	9.5	8.6
Austria	5.3	5.4	5.1	7.2	7.0	0.0	0.0	0.0	0.0	0.0	0.0
Bangladesh	-	-	-	-	-	0.1	0.1	0.1	0.1	0.0	0.0
Barbados	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Belgium	10.3	10.9	10.6	14.5	11.4	1.0	1.1	1.1	0.3	0.1	0.0
Bermuda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Brazil	43.1	46.4	40.8	47.1	50.6	5.7	7.6	6.7	7.1	8.0	8.6
Cambodia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Canada	125.0	125.0	125.0	125.0	128.6	8.8	10.4	9.9	11.4	15.4	15.0
Chile	0.8	0.8	0.8	0.5	0.8	0.1	0.1	0.1	0.0	0.0	0.0
China	17.5	17.5	17.5	20.4	19.9	48.3	50.1	55.0	55.7	51.8	50.6
Colombia	1.8	1.8	1.8	1.3	1.3	4.8	5.0	4.2	4.0	4.4	2.4
Costa Rica	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Czech Republic	0.0	0.0	0.0	12.9	13.6	0.0	0.0	0.0	0.0	0.3	0.1
Denmark	0.6	0.6	0.6	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Dominican Republic	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ecuador	1.0	1.0	0.5	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Egypt	1.8	1.8	1.8	1.8	1.8	0.7	0.7	1.2	1.2	1.3	0.0
Finland	0.2	0.3	0.3	0.3	0.5	0.0	0.0	0.0	0.0	0.0	0.0
France	19.7	17.5	24.6	33.2	37.5	1.4	2.6	3.3	4.5	5.8	7.3
Germany	140.0	140.0	140.0	148.7	142.2	0.1	0.1	0.1	0.2	0.2	0.3
Greece	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Guatemala	0.0	0.0	0.0	-	-	0.1	0.3	0.3	0.0	0.0	0.0
Honduras	0.0	0.0	0.0	0.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Hong Kong	0.6	0.5	0.5	0.7	0.7	0.1	0.1	0.2	0.2	0.2	0.2
Hungary	0.0	0.0	0.0	7.7	6.4	1.8	1.8	1.9	2.8	2.5	2.4
India	2.4	3.8	3.8	7.2	9.9	35.4	36.2	36.5	35.2	32.5	28.3
Indonesia	0.5	0.8	0.3	1.8	2.0	38.1	39.7	31.3	34.8	37.1	34.1
Iran	0.0	0.0	0.0	0.0	0.0	1.6	1.6	0.0	0.0	0.0	0.1
Ireland	0.5	0.6	0.6	1.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Israel	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Italy	14.0	14.8	17.4	26.6	37.5	3.2	3.4	3.4	5.0	2.7	2.6
Jamica	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Japan	46.8	52.7	37.5	41.0	42.0	597.2	586.8	567.0	536.0	562.9	547.1
Korea, Republic of	6.2	4.6	7.5	6.7	7.5	87.7	77.2	76.7	65.0	64.4	6.8
Laos	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
Luxembourg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Malaysia	0.0	0.0	0.0	1.6	1.6	19.8	19.9	17.9	18.1	19.3	16.7
Mexico	122.1	130.0	128.6	197.7	207.3	28.8	31.1	34.8	34.1	36.2	20.9
Myanmar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Netherlands	7.5	8.7	9.9	10.5	10.5	7.1	8.0	6.7	7.6	5.7	5.6
Netherlands Antilles	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
New Zealand	0.0	0.0	0.0	0.1	0.1	1.4	1.6	0.6	0.3	0.2	0.2
Nigeria	0.5	0.5	0.3	0.3	0.3	0.1	0.1	0.0	0.0	0.0	0.0
Norway	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Appendix Table 3: (continued)

Country	U.S. MNCs					Japanese MNCs					
	1996	1997	1998	1999	2000	1996	1997	1998	1999	2000	2001
Pakistan	-	-	-	-	-	3.3	3.2	3.2	3.1	2.7	2.8
Panama	0.0	0.0	0.0	1.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Peru	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Philippines	0.0	0.0	0.0	3.8	1.8	22.4	23.7	23.6	29.2	24.7	10.5
Poland	0.0	0.0	0.0	12.4	15.5	0.0	0.0	0.1	4.1	1.2	1.2
Portugal	1.4	0.9	0.8	13.3	15.7	9.6	9.6	8.9	7.8	8.1	1.0
Romania	-	-	-	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Russia	0.0	0.0	0.0	0.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0
SamoaWTF	0.5	0.0	0.0	0.0	0.0	2.3	1.5	1.6	1.8	2.1	0.0
Saudi Arabia	0.5	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Singapore	3.0	3.2	3.7	4.0	4.3	3.3	3.4	3.5	4.8	3.6	0.0
Slovak Republic	-	-	-	-	-	1.2	2.0	1.5	3.4	3.2	0.4
South Africa	1.2	1.4	7.5	7.5	17.5	0.0	0.0	2.5	0.0	10.3	10.2
Spain	37.5	37.5	37.5	37.5	36.8	7.7	7.9	7.9	3.9	7.1	5.7
Sri Lanka	-	-	-	-	-	1.6	1.6	1.6	1.5	1.5	1.5
Sweden	7.5	7.5	17.5	17.5	20.9	0.5	0.5	0.5	7.5	8.5	8.3
Switzerland	0.0	0.2	0.2	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0
Taiwan	3.8	3.8	3.8	3.8	3.8	20.7	20.8	20.7	17.6	19.1	16.0
Thailand	0.4	0.4	0.4	7.5	5.3	57.6	52.9	50.3	49.3	64.9	49.0
Trinidad & Tobago	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	0.0
Turkey	3.8	3.8	3.1	7.0	6.9	2.0	2.1	1.9	2.6	3.5	1.9
United Arab Emirates	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
United Kingdom	67.7	69.2	71.4	92.2	81.1	20.6	20.7	20.3	18.5	22.0	20.8
United Kingdom Islan	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
United States	1,683.3	1,655.4	1,763.8	2,219.6	2,126.8	105.5	115.8	141.5	145.2	143.4	116.0
Venezuela	6.8	9.6	8.5	7.5	7.6	1.7	3.3	1.8	1.3	2.0	2.0
Vietnam	0.0	0.0	0.0	0.0	0.0	4.2	4.4	3.0	3.8	4.6	4.3
Yugoslavia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Zimbabwe	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.6	0.0	0.0	0.0

Note: - = not available.

Sources: Japan, Ministry of Economy, Trade, and Industry (1998, various years); Japan, Ministry of International Trade and Industry (1998), U.S. Bureau of Economic Analysis (various years).

Appendix Table 4: Explaining the Market-Wise Variation in Export Levels: Modeling the Role of MNCs

Industry, Indicator	1996	1997	1998	1999	2000	2001
VEHICLES, EXCLUDING RAIL & TRAMS (HS 87), JAPANESE & U.S. MNCs						
Constant	40.600	27.784	28.494	29.612	40.936	-
significance level	0.01	0.03	0.07	0.12	0.09	-
GDP	-0.000007124	-0.000002831	-0.000003719	-0.000001896	-0.000003323	-
significance level	0.19	0.66	0.51	0.86	0.79	-
GDP per capita	-0.000698618	0.000159251	0.000462075	0.001255305	0.001328527	-
significance level	0.11	0.69	0.33	0.11	0.15	-
Distance	-0.002179	-0.001584	-0.001769	-0.002009	-0.002459	-
significance level	0.01	0.02	0.03	0.14	0.15	-
Japanese MNC Emp.	0.000045995	0.000104424	0.000111879	0.000151888	0.000175646	-
significance level	0.46	0.13	0.25	0.19	0.20	-
U.S. MNC Emp.	0.000072223	0.000029390	0.000038547	0.000012874	0.000012787	-
significance level	0.03	0.45	0.26	0.79	0.84	-
F-statistic	6.081	4.882	5.057	1.981	1.667	-
significance level	0.00	0.00	0.00	0.10	0.16	-
White statistic	32.443	33.983	33.174	9.927	8.765	-
significance level	0.04	0.03	0.03	0.97	0.99	-
Adjusted R-squared	0.291	0.238	0.247	0.078	0.054	-
Observations	63	63	63	59	59	-
VEHICLES, EXCLUDING RAIL & TRAMS (HS 87), JAPANESE MNCs ONLY						
Constant	25.310	18.978	18.469	21.038	29.977	23.127
significance level	0.04	0.04	0.11	0.15	0.10	0.25
GDP	0.000005494	0.000001917	0.000002498	0.000000656	-0.000000968	-0.000002949
significance level	0.22	0.32	0.35	0.90	0.87	0.65
GDP per capita	-0.000320030	0.000381533	0.000699710	0.001454550	0.001585216	0.001994075
significance level	0.39	0.27	0.08	0.03	0.05	0.02
Distance	-0.001507	-0.001197	-0.001332	-0.001641	-0.002026	-0.001690
significance level	0.03	0.02	0.04	0.14	0.15	0.27
Japanese MNC Emp.	0.000000935	0.000088453	0.000089798	0.000144897	0.000170295	0.000170295
significance level	0.98	0.04	0.14	0.16	0.16	0.00
F-statistic	4.127	5.816	6.122	3.224	2.746	5.016
significance level	0.00	0.00	0.00	0.02	0.04	0.00
White statistic	26.299	25.066	22.818	4.490	4.748	5.812
significance level	0.02	0.03	0.06	0.99	0.99	0.97
Adjusted R-squared	0.157	0.223	0.234	0.119	0.096	0.196
Observations	68	68	68	67	67	67
VEHICLES, EXCLUDING RAIL & TRAMS (HS 87), U.S. MNCs ONLY						
Constant	39.590	25.605	26.606	27.659	38.497	-
significance level	0.01	0.05	0.10	0.15	0.11	-
GDP	-0.000003897	0.000003749	0.000002474	0.000005320	0.000004439	-
significance level	0.48	0.66	0.76	0.57	0.68	-
GDP per capita	-0.000644087	0.000279587	0.000574715	0.001393808	0.001494751	-
significance level	0.14	0.52	0.24	0.08	0.10	-
Distance	-0.002186	-0.001600	-0.001802	-0.002096	-0.002546	-
significance level	0.01	0.02	0.03	0.13	0.14	-
U.S. MNC Emp.	0.000059924	0.000003184	0.000016049	-0.000007835	-0.000012161	-
significance level	0.08	0.95	0.72	0.86	0.84	-
F-statistic	7.218	4.179	4.767	2.012	1.639	-
significance level	0.00	0.00	0.00	0.11	0.18	-
White statistic	28.576	25.505	23.734	7.448	6.918	-
significance level	0.01	0.03	0.05	0.92	0.94	-
Adjusted R-squared	0.286	0.170	0.196	0.065	0.042	-
Observations	63	63	63	59	59	-

Appendix Table 5: Quantities and Unit Values of Vehicle Exports by Firm Exports by Firm

Commodity, company	1997	1998	1999	2000	2001	2002 q1-3
Auto & truck quantities (CBU units)	42,239	66,788	125,702	153,028	175,293	128,093
MMC Sittipol (Mitsubishi)	40,072	60,861	60,988	63,541	60,027	54,179
AutoAlliance (Thailand)	0	1,213	42,785	49,977	42,077	33,854
General Motors (Thailand)	0	0	0	6,283	48,987	23,572
Toyota Motor Thailand	1,563	1,819	12,151	16,224	12,028	8,770
Honda Automobile (Thailand)	601	2,823	6,682	6,183	6,900	5,790
Isuzu Motor Thailand	0	22	519	5,689	3,683	1,263
Siam-Nissan Automobile	0	0	1,912	4,590	1,206	520
Nissan Diesel Thailand	3	24	135	215	145	2
Hino Motors Thailand	0	26	469	326	240	143
Thai-Swedish Assembly	0	0	61	0	0	0
Auto & truck unit values (US\$)	12,254	10,042	10,560	10,133	10,769	10,602
MMC Sittipol (Mitsubishi)	12,455	10,154	11,184	10,693	10,668	10,415
AutoAlliance (Thailand)	-	8,324	9,463	8,875	8,529	9,239
General Motors (Thailand)	-	-	-	14,260	13,385	13,497
Toyota Motor Thailand	8,419	6,935	9,534	9,106	8,500	8,762
Honda Automobile (Thailand)	8,694	10,049	12,135	11,069	10,386	9,407
Isuzu Motor Thailand	-	19,496	15,895	11,148	9,992	9,951
Siam-Nissan Automobile	-	-	9,109	9,295	8,377	27,097
Nissan Diesel Thailand	44,218	21,992	24,242	26,246	31,489	77,177
Hino Motors Thailand	-	24,355	28,743	31,380	31,270	32,993
Thai-Swedish Assembly	-	-	17,248	-	-	-
Motorcycle quantities CBU & CKD (u	-	-	-	267,248	272,925	454,198
Thai Honda Manufacturing	-	-	-	248,095	251,787	441,410
Thai Suzuki Motor	-	-	-	9,568	570	1,257
Kawasaki Motors Enterprise	-	-	-	4,691	17,111	11,424
Thai Kawasaki Motors	-	-	-	3,529	120	0
Thai Yamaha Motor	-	-	-	1,365	3,327	107
Motorcycles CBU & CKD, unit values	-	-	-	692	647	267
Thai Honda Manufacturing	-	-	-	665	542	232
Thai Suzuki Motor	-	-	-	870	884	1,728
Kawasaki Motors Enterprise	-	-	-	1,671	2,161	1,440
Thai Kawasaki Motors	-	-	-	717	0	-
Thai Yamaha Motor	-	-	-	932	780	729

Note: - = not available.

Source: The Brooker Group (2002); Media Overseas (2003); International Monetary Fund (2003).

Appendix Table 6: Characteristics of Large Automobile and Motorcycle Firms , 1997 (1996) and 2001 (2000), values in US\$ millions, age in years

Major Activity, Company	Exports		Sales		Sales/ Employee		Assets/ Employee		FixAssets/ Employee		Exports/ Sales, %		Foreign Owner, %		Profits/ Sales, %		Equity/ Assets,%		Age
	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	2001
AUTOMOBILES, TRUCKS & PARTS: 6 LARGE EXPORTERS																			
MMC Sittipol (Mitsubishi)	505	717	933	1,101	0.384	0.353	0.358	0.177	0.105	0.041	54	65	48	100	-49.28	-1	-44	2	40
General Motors (Thailand)	0	656	12	600	0.059	0.429	0.747	0.352	0.454	0.268	0	109	100	100	-380	-7	17	45	9
AutoAlliance (Thailand)	0	484	1	712	-	0.378	-	0.140	-	0.069	1	68	100	100	-13368	7	-16	-1	6
Toyota Motor Thailand	84	309	1,539	1,517	0.380	0.376	0.323	0.181	0.098	0.066	5	20	70	86	-2.86	0.32	16	13	39
Honda Automobile (Thailand)	36	141	552	781	0.375	0.320	0.192	0.101	0.118	0.039	7	18	62	91	-5.91	2.22	22	51	9
Isuzu Motor Thailand	30	86	215	297	0.107	0.704	0.089	0.536	0.071	0.293	14	29	100	99	-5.79	2.37	19	26	35
AUTOMOBILES, TRUCKS & PARTS: 10 SMALL EXPORTERS																			
Siam-Nissan Automobile	4	12	498	487	0.249	0.559	0.190	0.294	0.041	0.055	1	2	25	25	5.51	-0.34	17	-22	28
Hino Motors Thailand	1	8	250	119	0.449	0.080	0.721	0.125	0.019	0.047	0	7	89	96	-3.20	-7.68	7	10	39
Nissan Diesel Thailand	1	5	164	19	1.673	0.294	1.395	0.710	0.113	0.104	1	25	49	85	2.74	-70.32	8	-63	14
Thai-Swedish Assembly	0	1	71	65	0.246	0.155	0.100	0.082	0.032	0.033	0	1	56	100	-3.61	1.23	24	7	27
Bangchan General Assembly (2000)	0	0	6	2	0.005	0.008	0.015	0.024	0.011	0.015	0	0	34	34	-45.45	-56.83	4	8	9
BMW Manufacturing	-	0	-	81	-	0.406	-	0.187	-	0.104	-	0	-	100	-	-2.09	-	3	1
Siam Motors and Nissan	0	0	21	18	0.018	0.036	0.050	0.074	0.032	0.040	0	0	25	25	3.52	0.99	89	94	39
Thai Rung Union Car PLC	0	0	37	67	0.037	0.074	0.062	0.074	0.019	0.029	0	0	3	5	12.63	18.98	89	76	28
Thonburi Automotive Assembly Plant	0	0	514	157	0.343	0.157	0.451	0.194	0.075	0.037	0	0	0	0	-17.61	-1.64	-15	-232	41
Volvo Truck & Bus	0	0	15	13	0.203	-	0.163	-	0.006	-	0	0	100	100	-18.45	-0.74	10	16	11
MOTORCYCLE & PARTS: 3 LARGE EXPORTERS																			
Thai Honda Manufacturing	-	189	717	736	0.239	0.184	0.091	0.078	0.024	0.014	-	26	83	83	4.32	5.58	73	71	36
Kawasaki Motors Enterprise	-	49	0	92	0.000	0.187	0.065	0.163	0.009	0.052	-	53	71	100	50.00	2.85	90	8	4
Thai Suzuki Motor	-	44	187	118	0.183	0.128	0.112	0.079	0.032	0.017	-	37	51	52	1.26	3.65	74	80	34
MOTORCYCLES & PARTS: 3 SMALL EXPORTERS																			
Thai Yamaha Motor	-	6	219	83	0.095	0.059	0.161	0.096	0.040	0.046	-	7	30	85	-68.32	86.70	-6	-42	37
Inoue Rubber (Thailand) PLC	0	0	50	40	0.051	0.055	0.052	0.046	0.030	0.022	0	0	34	34	-4.85	2.26	34	35	32
Musashi Auto Parts	0	0	24	44	0.074	0.159	0.119	0.140	0.075	0.082	0	0	49	49	-28.46	15.02	42	65	12

Appendix Table 6 (continued)

Major Activity, Company	Exports		Sales		Sales/ Employee		Assets/ Employee		FixAssets/ Employee		Exports/ Sales, %		Foreign Owner, %		Profits/ Sales, %		Equity/ Assets,%		Age
	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	1997	2001	2001
AUTOMOBILE PARTS: EXPORTERS																			
Thai Storage Battery PLC	0	20	44	34	0.111	0.053	0.163	0.059	0.058	0.034	0	57	0	0	-26.58	6.69	16	60	15
Takata-Toa	0	16	15	41	0.119	0.080	0.104	0.042	0.053	-	0	40	49	63	-3.71	12.73	38	49	7
Thai Stanley PLC	0	13	68	87	0.058	0.062	0.065	0.045	0.042	0.026	0	15	30	30	-9.27	8.74	56	67	21
Ford Operations (Thailand)	-	7	-	32	-	0.642	-	0.256	-	-	-	21	-	100	-	2.81	-	10	4
Keihin Auto Parts (Thailand)	-	5	-	29	-	0.464	-	0.138	-	0.042	-	15	-	60	-	1.32	-	27	7
Summit Showa Manufacturing	0	4	11	22	0.056	0.110	-	0.072	-	0.034	0	20	49	49	-	9.49	-	20	7
Thai Automotive Industry	0	3	64	82	0.318	0.209	-	0.081	-	-	0	3	40	40	-	3.55	-	33	14
Koyo Steering (Thailand)	0	2	6	40	0.091	0.145	-	0.179	-	-	0	6	-	99	-	6.92	-	50	6
Siam DK Technology	0	2	13	16	0.130	0.077	0.177	0.053	0.066	0.023	0	10	49	49	44.60	12.85	58	87	7
AUTOMOBILE PARTS: NON-EXPORTERS																			
Asian Autoparts	0	0	90	53	0.180	0.097	0.120	0.094	0.047	-	0	0	49	59	4.34	6.97	85	88	25
Denso	0	0	91	160	0.076	0.102	0.039	0.074	0.033	-	0	0	43	22	5.54	6.45	80	71	27
Enkei Thai	0	0	43	61	0.048	0.050	0.072	0.056	0.060	-	0	0	49	98	1.82	5.76	40	9	13
Goodyear Thailand	0	0	97	79	0.162	0.132	0.100	0.108	0.052	0.043	0	0	65	65	5.21	7.45	68	76	33
Isuzu Engine Manufacturing	0	0	164	202	0.243	0.336	0.185	0.171	0.088	0.088	0	0	10	96	-10.69	1.36	31	23	14
Keihin (Thailand)	0	0	18	34	0.028	0.024	-	0.018	-	-	0	0	-	57	-	18.43	-	100	11
MSC Engine	0	0	136	159	0.049	0.053	0.019	0.016	0.001	0.001	0	0	0	0	-8.72	0.99	-18	-15	13
Siam Battery Industry	0	0	17	15	0.038	0.032	0.017	0.018	0.010	0.005	0	0	0	0	2.84	6.92	31	57	31
Siam Toyota Manufacturing	0	0	189	292	0.287	0.486	0.320	0.235	0.236	-	0	0	40	96	-4.58	3.18	36	46	14
Sumitomo Electric Wiring Systems	0	0	13	40	0.022	0.023	0.024	0.010	0.017	-	0	0	49	91	4.98	-	40	69	7
Summit Auto Body Industry	0	0	23	46	0.033	0.035	0.039	0.032	0.027	-	0	0	0	0	-1.15	11.54	8	27	-
Summit Auto Seats Industry	0	0	73	56	0.337	0.021	0.261	0.017	0.133	0.006	0	0	-	-	2.08	9.67	35	30	-
Summit Laemchabang Auto Seats Manufa	0	0	9	35	0.033	0.050	-	0.036	-	0.006	0	0	0	0	-	33.83	-	77	7
Thai Summit Autoparts Industry	0	0	78	55	0.039	0.014	0.044	0.012	0.029	-	0	0	0	0	-8.25	12.70	22	58	24
Thai Summit Harness	0	0	30	30	0.033	0.029	0.024	0.022	0.005	-	0	0	0	0	19.59	22.70	51	83	8
Thai Summit Laemchabang Autoparts	0	0	35	57	0.442	0.718	0.628	0.540	0.256	0.133	0	0	0	0	25.25	41.17	32	27	7
Thai Summit PKK	0	0	19	40	0.056	0.070	0.059	0.070	0.036	0.041	0	0	49	49	18.61	5.30	35	23	7
Thermstar	0	0	23	28	0.057	0.047	0.060	0.068	0.008	0.005	0	0	0	0	37.43	32.54	81	94	13
Yuasa Battery (Thailand)	0	0	23	19	0.064	0.039	0.055	0.035	0.019	0.007	0	0	32	32	8.51	7.43	76	84	38

Notes: - = not available; when data were not available for 1997 or 2001, data for 1996 and 2000, respectively, were used as proxies.

Sources: Advanced Research Group (various years), Board of Investment (1999), Comm Bangkok (various years), Cosmic Publications (various years), Dun & Broadstreet (1999), Kompas (various years), Media Overseas (2003), The Brooker Group (1997, 2002), The Nation (various years), Toyo Keizai (various years)