CHAPTER 5

EMPIRICAL RESULTS AND DISCUSSION

This chapter is concisely divided into three sections: the interpretation of the CAI decomposition, organization notation for the decomposition, and the comparative advantage index of Thailand. To understand the result of the CAI index of Thailand, the first section will explain the interpretation and decomposition of the CAI decomposition. Then the second section focuses on the organizational notations of its decomposition because the number of results to present is very large. Finally, the last section presents the Thailand's competitiveness during the period 1974-94.

5.1 Interpretation of the CAI Decomposition

Following Chapter 3, the comparative advantage index was decomposed in two steps. In the first step, the index was decomposed into the wage effect (WE) and the productivity effect (PE). In the second step, the productivity effect (PE) was decomposed into the technology effect (TE) and the endowment effect (EE).

In the first step of decomposition, the productivity effect captures the effect of different labor productivity on comparative advantage. On the other hand, the wage effects represent how differences in relative wage rates affect the comparative advantage.

For the second step of decomposition, the technology effect captures the impact of different technological progress on labor productivity, and through it on comparative advantage. The endowment effect captures the effect of differences in the capital-labor ratio on labor productivity and consequently on labor cost shares. Therefore, the changes in labor productivity are the combination of these two effects: the technology and endowment effects (Saito, 1999).

Finally, the value of index can be any positive (or negative) number according to the value of wage effect and the value of productivity effect. The key driving of comparative advantage in each sector is possibly determined by the wage effect or the productivity effect. Therefore, it is not necessary that all of sectors have the same key driving force of comparative advantage. Besides, given one sector, all countries need not necessarily to have the same key drive force because capital accumulation and technological development level could not be the same in each country.

5.2 Organization Notations for the Decomposition

Since the results to present are very large, the organizational notation is thus necessary. The comparative advantage is computed for all 55 combinations of countries for each of the 45 industry combinations and for two periods (1974 and 1994)[1]. Two countries, such as Korea and Thailand are discussed. The superscript m represents the first country. The superscript n represents the second country. Similarly, two industries, such as the furniture industry (FUR) relative to the rubber industry (RUB) are discussed. The subscripts i and j represent the first industry and the second industry, respectively. Each county combination and industry combination has an index number, which is given in Table 1 and 2 in Appendix C. For example, if one is interested in the comparative advantage of the furniture industry (FUR) relative to the rubber industry in case of Korea with respect to Thailand, they should refer to country combination index (45) and industry combination (27), see Appendix C.

To understand the way to compute the index (CAI) between two countries, we will look at one value index sample. For example, the comparative advantage index (CAI) for the chemical industry in 1974 between Japan and Thailand is -0.1508 (see Table 5.3.5). This value is the average of CAI for the chemical industry relative to all other 9 sectors, i.e., the average of CAI for the industry combination index -5, -13, -20, -26, -31, 36, 37, 38 and 39 (see Appendix C). The negative sign implies that Japan had a comparative advantage over Thailand in the chemical industry relative to

[1] Due to the sample with 11 countries and 10 industries, see Appendix C.

other industries on average in 1974. In addition, the magnitude is in natural logarithm, thus -0.1508 implies that the relative labor cost in Japan was approximately 0.86 times lower that in Thailand.

The next section will represent all empirical results of the comparative advantage in each sector of Thailand relative to selected ten countries. In other words, it is likely to indicate the competitiveness of Thailand in ten industries relative to ten countries.

5.3 Results of the Comparative Advantage Index

In this section, the result of the comparative advantage index is divided into two important topics. The first topic presents and explains the result of comparative advantage in producing commodities indicated by the CAI index. The final topic is to summarize the important points of the empirical result during the period 1974-94.

5.3.1 Thailand Competitiveness during the period of 1974-94: By Sector

This section explains how a country's trade competitiveness can be analyzed using the comparative advantage index decomposition. In other words, it represents the source of comparative advantage such as wage effect and the productivity effect.

In fact, the wage effect and the productivity effect could be computed directly by using wage per labor and output per labor, respectively. In contrast, the technology effect and the endowment effect need to be computed by using the parameters of a simultaneous equations system of (4.3) and (4.4). These parameters of each country group in each sector are presented in Appendix D. Table 1(d) represents the technological parameters for each country, while Table 2(d) shows the structural parameters in three country groups[2].

[2] Due to differences in their economy size and the level of country developing, these countries need not to have the same production technology. In other words, all of countries could not obtain the common shared parameters in the production function.

For Table 5.1 - 5.10, the non-shaded columns are for 1974 result and the shaded columns are for 1994 result[3]. In each table, a positive sign (in bold) indicates that Thailand had a comparative advantage over the country in comparison. While a negative sign implies that Thailand had a comparative dis-advantage.

5.3.1.1 Food and Beverage

The Thailand food and beverage industry remained competitive during the period of 1974 - 1994. It had a comparative advantage over 6 out of 10 countries; Australia, the U.K., U.S., Japan, Singapore and Indonesia in 1974 and over all countries in 1994, except Philippines. However, its competitiveness seemed to have fallen in 1994, especially in the U.K., U.S. and Japan (see Table 5.1).

It is interesting to note that the key driving force of comparative advantage in this sector was the productivity effect in 1974, but was the wage effect in 1994. The comparative advantage in the productivity effect was over all countries in 1974, while it seemed to decrease dramatically in 1994. In contrast, the wage effect improved significantly during the period of 1974 - 94. In terms of the wage effect, Thailand had comparative dis-advantage over all countries in 1974, but had comparative advantage over 8 countries in 1994.

It is also interesting to note that the comparative advantage in the productivity effect (or labor requirement) was mainly determined by the endowment effect. It indicated that, keeping technologies the same, differences in the capital-labor ratio in the food and beverage industry (with respect to the same industry of other countries) brought the comparative advantage in Thailand. Nevertheless the endowment effect seemed to drop during these twenty years.

[3] Following Appendix C, there were many table results for representing all of decompositions in two periods (1974, 1994). In the case of this study, we are really interested in comparing comparative advantage in production between Thailand and other countries (developing countries and developed countries). Therefore, this study will present only table results of Thailand. It refers to country combination index as: 10, 19, 27, 34, 40, 45, 49, 52, 54, and 55.

5.3.1.2 Textile and Clothing

The textile industry in Thailand was not competitive between 1974 and 1994. This industry had a comparative dis-advantage over 6 out of 10 countries in 1974 and over all countries in 1994. Table 5.2 shows that Thailand competitiveness in 1994 was worse than that of 1974. It means that the cost of production in Thailand was higher than other countries during the period of 1974-94.

In addition, Table 5.2 shows again that the wage effect had not been the comparative advantage factor in this industry. The productivity effect was also not the key player of the comparative advantage too, except ASEAN countries in 1974. Compared to four ASEAN countries in both periods, the comparative advantage in the productivity effect of Thailand was over four countries in 1974, but over one country in 1994. It indicated that the improvement in the productivity effect (labor requirement) in Thailand was lower than other countries in ASEAN.

The interesting point is that the change in comparative advantage in the productivity effect for Thailand was mainly driven by the technology effect. In term of the technology effect, Thailand had a comparative advantage over all countries in 1974 and over 9 countries in 1994. On the other hand, the endowment effect had brought the comparative dis-advantage in Thailand during the period of 1974-94. It is interesting to note that a decrease in the productivity between 1974 and 1994 was caused by the drop in the technology effect.

The reason explaining a comparative dis-advantage in Thailand's textile and clothing industry is as follows. The first fact was that Thai government issued a highly protection policy for textile industry during the period of 1980-1994 (Kohpaiboon, 1995). It had not only an influence on competition within the textile sector, but also weak forward-linkages in clothing sector. The second fact was about textile export and clothing production characteristics. In the textile sector, its export was actually determined by excess supply of domestic textiles. Moreover, for the clothing sector, Thai manufactures seemed to depend on production orders from foreign firms. It meant that Thai manufacturers had learned the skill of producing a lot of clothing, but they were likely to not get knowledge in clothing design and brand making. Therefore, it was not surprising to note that textile and clothing in Thailand

seemed to have less value added over developed countries. It was also an importantly a reason in explaining comparative dis-advantage in Thailand's textile and clothing sector (relatively to developed countries). On the other hand, among ASEAN developing countries, the comparative dis-advantage in Thailand was possibly caused by a lower wage rate and higher productivity (see Table 5.2).

5.3.1.3 Footwear

In the footwear industry, Thailand had a less competitive position relative to other countries because it had a comparative dis-advantage over all countries in both 1974 and 1994, except Malaysia and the Philippines in 1994. Although the comparative dis-advantage in this industry (with respect to other countries) in 1994 seemed to moderately improve from that of 1974. Additionally, Table 5.3 shows that comparative advantage in the wage effect had significantly reduced, while the comparative dis-advantage in the productivity effect had considerably improved. Therefore, the improvement in comparative advantage in this industry was possibly caused by the change in the productivity effect.

The fall in the productivity effect was mainly driven by a fall substantially in the endowment effect. In other words, the effective endowment of labor inputs with machinery played an important role in improvement of the productivity effect in Thailand.

In the case of the footwear industry, Thailand's manufacture was like the clothing sector. Thai manufactures were likely to export footwear which was ordered by foreign firms. It implied that Thailand could produce footwear products. However, Thailand hardly obtained a skill in design and knowledge of improving product quality itself. It was obvious that Thailand brands in footwear products could not compete against foreign brands. In conclusion, Thailand had probably comparative advantage in producing footwear products. However it did not have actual comparative advantage in export footwear products by itself because of the lack of skill in design and development of new products.

5.3.1.4 Furniture

In 1974, the Thailand furniture industry gained a comparative advantage over 6 out of 10 countries. However, it lost to lose a comparative advantage over all countries, except Indonesia during the period 1974-94. According to Table 5.4, it implied that the industry had a comparative advantage in relative wage effect over all countries in both periods, except the Philippines in 1994. On the other hand, it had a comparative dis-advantage in relative productivity effect over most countries in both 1974 and 1994. The cause of the loss competitiveness in this industry was perhaps due to a significant fall in comparative advantage in the wage effect and a poor improvement in the productivity effect (labor requirement) in 1994.

In case of the furniture industry, the important component of the comparative dis-advantage in the productivity effect was the endowment effect in 1974, but it was the technology effect in 1994. In other words, it implied that the endowment effect had substantially improved, while the technology effect had notably decreased between 1974 and 1994.

Furthermore, Table 5.4 showed that all the technology effects (with respect to other countries) were positive in 1974 and negative in 1994, except Korea. On the other hand, all the endowment effect was negative in 1974 but was positive in 1994, except Germany, Korea and Malaysia. The interesting point was that the source of the comparative advantage in the productivity effect changed dramatically in case of Thailand.

5.3.1.5 Paper

The Thailand’s paper industry remained competitive during the period 1974 -1994. It had a comparative advantage over 9 out of 10 countries in 1974 and over all countries in 1994. Moreover, its competitiveness had moderately improved in this period, except over the U.K. and Indonesia. In other words, it implied that the relative cost of production in Thailand was lower than other countries.

The key determinant source of its competitiveness was the productivity effect in both periods. The improvement in comparative advantage for this industry was mainly due to the increase in the productivity effect. In terms of the relative wage effect, during the period of 1974-94, it mainly brought a comparative dis-advantage in this industry as in the case of the textile industry.

In 1974, the endowment effect was an important source of comparative advantage in the productivity effect. While the key player of the productivity effect, in 1994, was both the endowment effect and technology effect, except over Malaysia and Indonesia. It is interesting to note that the key player in comparative advantage in productivity is the ability to combine the two effects together, as in the case of the paper industry.

5.3.1.6 Chemicals

During the period 1974-1994, Thailand remained less competitive. It had a comparative advantage over 3 out of 10 countries in 1974: Germany, the U.K. and Indonesia, and over 1 country, Germany, in 1994. It is interesting to note that there was the improvement in comparative advantage between 1974 and 1994 in case of Germany and Thailand, see Table 5.6. It was mainly due to a substantial improvement in the productivity effect. On the other hand, in ASEAN countries, the comparative dis-advantage in Thailand seemed to slightly increase with respect to Singapore, Indonesia and the Philippines, but Thailand lost more its competitiveness with respect to Malaysia.

In addition, the chemical industry in Thailand had lost the comparative advantage in the wage effect in this period; the comparative advantage was over all countries in 1974 but over 4 countries in 1994. In contrast, the comparative advantage in the productivity effect had improved moderately, except Malaysia. Table 5.6 shows that the negative sign of the productivity effect had been dropped in some countries and had become positive in 4 countries; Australia, Germany, the U.K., and Korea. Therefore, this indicated the improvement in the productivity effect (labor requirement) in Thailand.

The cause of improvement in the productivity effect was mainly due to a significant improvement in the endowment effect. A negative sign of the endowment effect (with respect to other countries) had turned to a positive sign between 1974 and 1994, excluding the UK.

5.3.1.7 Rubber

Thailand's rubber industry gained a comparative advantage substantially in rubber industry during the period of 1974-94. It had a comparative advantage over 9 out of 10 countries in 1974 and over all countries in 1999. In addition, its competitiveness seemed to drop in this period, except over the Philippines and Malaysia.

In 1974, the key determinant of comparative advantage in the rubber industry was the productivity effect. However, in 1994, the main source of comparative advantage (with respect to OECD countries) was the wage effect, while the wage effect and the productivity effect were together the source of comparative advantage in this industry, with respect to ASEAN countries.

In terms of the relative productivity effect, the technology effect was the important component of the productivity effect in 1974. However, its comparative advantage had significantly diminished between 1974 and 1994. Table 5.7 shows that the technology effect had become a negative sign. On the other hand, there was a substantial improvement in the endowment effect.

According to the change in CAI, the productivity effect, and the technology effect, it pointed out that the comparative dis-advantage in this industry of developed countries was able to be reduced by keeping technology development in their countries.

5.3.1.8 Plastic

The result of CAI was quite unexpected since Thailand had a comparative advantage over all countries in 1974, but it had a comparative dis-advantage over 9 countries in 1994. The key player of comparative advantage in 1974 and comparative dis-advantage in 1994 was the same player: the productivity effect. Additionally, it is interesting to note that there was a substantial change in the comparative advantage in the productivity effect during the period 1974-94. Table 5.8 shows that a positive sign of the productivity effect had become a negative sign in this period. It meant that there was a loss of comparative advantage in the productivity effect (labor requirement).

The comparative advantage in the productivity effect in 1974 was mainly due to the endowment effect. In contrast, the endowment effect also was the important component of comparative dis-advantage in the productivity effect in 1994. Furthermore, it is interesting that there was a significant improvement in comparative advantage in the technology effect. Therefore, the fall in the productivity effect was mainly caused by the fall in the endowment effect.

5.3.1.9 Electric Machinery

The comparative advantage in the electric machinery industry in Thailand improved substantially during the period of 1974-94. Thailand had a comparative dis-advantage over all countries in 1974, but a comparative advantage over 7 countries. This improvement was mainly determined by the productivity effect. On the other hand, a change in the wage effect in this period did not mainly bring a comparative advantage in this industry.

The cause of improvement in the productivity was due to the significant improvement in the technology effect. Table 5.9 shows that Thailand had a comparative dis-advantage in the relative technology effect over 9 out of 10 countries in 1974, but had a comparative advantage in that over all countries in 1994. However, Thailand seemed to lose a comparative advantage in the endowment effect between 1974 and 1994.

5.3.1.10 Transport Equipment

As in the case of the electric machinery industry, the transport equipment industry also saw a substantial improvement in competitiveness; the comparative advantage was over 4 out of 10 countries in 1974, but was over all countries in 1994, except Indonesia. The key player of its competitiveness was also determined by the productivity effect, like the electric machinery industry. Table 5.10 shows that Thailand had a comparative advantage in the relative productivity effect over all countries in both periods, except Indonesia. In addition, it implied that Thailand was able to keep comparative advantage in the productivity effect.

On the other hand, during the period of 1974-94, the relative wage effect was not the key player in comparative advantage in this industry. Moreover, it is interesting to note that the comparative dis-advantage in 1974 was mainly caused by the wage effect. In other words, the wage effect seemed to hamper the comparative advantage in this industry in 1974. This quite contrasted with the fact that foreign investors invested their capital in Thailand to produce a good which Thailand had a comparative advantage in labor cost. The reason accounting for this situation was that, in 1974, there was little amount of effective labor for transport equipment industry in Thailand. It probably caused the comparative advantage in wage effect in this industry relative to other industries on average in 1974 to be less than those of other countries.

In terms of the productivity effect, the endowment effect played an important role in comparative advantage in the productivity effect in 1974. However, in 1994, the key player of its comparative advantage became the technology effect. It pointed out that there were a substantial improvement in the technology effect and a fall in comparative advantage in the endowment effect between 1974 and 1994.

5.3.2 The Important Features of Comparative Advantage in Thailand during the period of 1974-1994

According to the comparative advantage analysis in the industries, there were the key features of Thai competitiveness during the period of 1974-94 and the international competitiveness between developed countries and developing countries. First, there was a substantial improvement in comparative advantage in some heavy industries in Thailand such as electric machinery and transport equipment. On the other hand, in light industries, Thailand seemed to lose a comparative advantage (relative to other countries) in the textile, footwear and furniture industries during the period 1974-94. The key determinant in explaining this improvement in heavy industry was the productivity effect and not the wage effect. However, the loss of comparative dis-advantage in some light industries was due to both the wage effect and the productivity effect.

Second, it is interesting to note that most industries in Thailand lost their comparative advantage in the relative wage effect, especially light industries such as textile, footwear, and furniture. In addition, the relative wage effect between 1974 and 1994 had changed substantially in many industries; the comparative dis-advantage in textile had increased moderately in this period. It is also surprising that Thailand had a comparative dis-advantage in some industries to all of the developed countries such as textile, paper, and chemicals. Compared to ASEAN countries excluding Singapore, Thailand seemed to have a comparative advantage in the wage effect during the period 1974-97 except in textile, paper, and transport equipment. This result was possibly explained by two reasons. Firstly, the wage rate (total wage and salaries divided by number of labor) could not represent the skill level of labor. If two countries have the same wage rate, it does not necessarily imply that they have the same comparative advantage in the wage effect. Secondly, a value of decomposition (wage effect and productivity effect) may be determined by number of industrial sectors. In this study, there were only ten industrial sectors (i.e. not including all industrial sectors). The two reasons were an important cause of comparative dis-advantage in the wage effect for Thailand.

Third, in terms of the relative productivity effect (labor requirement), there was a substantial improvement in three industries: paper, electric machinery, and transport equipment industry. However, several industries seemed to lose their comparative advantage significantly, for instance, food and beverage, textile and clothing, rubber, and plastic. According to Saito (1999), it concluded that the key player in comparative advantage in the relative productivity effect was distinctive in light and heavy industries (among developed countries; G7 and Non-G7). It is that the key determinant in light industry was the technology effect (the technological progress), while was the endowment effect (the capital-labor ratio) in heavy industry. Since Table 5.1 -5.10 show that the key player, in light and heavy industry in Thailand, was not according to this conclusion. Therefore, this conclusion was not found in case of international trade between developing countries and developed countries.

Fourth, the analysis of the CAI result indicated that the development in technology level in developed countries had helped to keep their competitiveness or decrease their comparative dis-advantage. In fact, the development in the technological level is likely to improve the labor productivity. The change in the productivity effect (the labor productivity) has also impact on an improvement in comparative advantage in production. This conclusion was able to be seen in case of food and beverage, footwear, furniture, and rubber.

Fifth, in ASEAN countries excluding Singapore, Thailand seemed to have a comparative advantage in 5 industries during the period 1974-94. In light industries, Thailand gained a comparative advantage substantially in food and beverage, and paper. On the other hand, in heavy industry, Thailand was strongly competitive in rubber, electric machinery, and transport equipment. In addition, the result of CAI indicated that the source of comparative advantage (or dis-advantage) in 7 industries of Thailand was mainly determined by the productivity effect[4]. Thus, this study can conclude that the way to keep Thailand competitive (relative to ASEAN countries,

[4] In the case of food and beverage, paper, rubber, electric machinery, and transport equipment, the source of comparative advantage in them was the productivity effect. In case of the chemical and plastic sectors, their comparative dis-advantage was also due to the productivity effect.

except Singapore) is to improve its productivity effect. The cause of improvement in the productivity effect is due to the development in new technology levels (the technology effect) and the improvements in effective endowment of labor working with machinery (the endowment effect).

Table 5.1

Thailand Competitiveness in Food and Beverage Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	**0.3766**	**0.3283**	-0.5579	**0.2342**	**0.9345**	**0.0941**	**0.1553**	-0.1128	**0.7792**	**0.2069**
GER	-0.1416	**0.1279**	-0.5180	**0.0740**	**0.3764**	**0.0539**	-0.1477	-0.0634	**0.5241**	**0.1172**
UK	**0.5876**	**0.2147**	-0.2054	**0.1461**	**0.7931**	**0.0686**	**0.0636**	-0.1233	**0.7294**	**0.1919**
USA	**0.2068**	**0.0073**	-0.5036	**0.1393**	**0.7104**	-0.1320	**0.0718**	-0.2785	**0.6386**	**0.1465**
JAP	**0.2981**	**0.1591**	-0.8045	-0.0890	**1.1026**	**0.2482**	**0.3165**	**0.1207**	**0.7861**	**0.1275**
KOR	-0.0542	**0.0853**	-0.6220	**0.0775**	**0.5678**	**0.0078**	-0.6144	-0.4899	**1.1821**	**0.4977**
SIN	**0.2233**	**0.1715**	-0.4009	**0.2662**	**0.6241**	-0.0947	**0.2132**	**0.3185**	**0.4109**	-0.4131
MAL	-0.0774	**0.2022**	-0.5048	**0.2126**	**0.4274**	-0.0104	-0.4817	-0.6248	**0.9091**	**0.6144**
INDO	**0.2166**	**0.4028**	-0.7361	-0.0728	**0.9527**	**0.4757**	-0.4045	-0.3599	**1.3572**	**0.8355**
PHIL	-0.3123	-0.1000	-0.4157	**0.3776**	**0.1034**	-0.4775	**0.2454**	**0.0424**	-0.1420	-0.5200

Table 5.2

Thailand Competitiveness in Textile and Clothing Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	-0.2100	-0.8233	**0.0219**	-0.4018	-0.2319	-0.4215	**0.7440**	**0.2187**	-0.9760	-0.6402
GER	-0.1204	-0.7154	-0.0081	-0.3228	-0.1123	-0.3926	**0.6358**	**0.3081**	-0.7481	-0.7007
UK	**0.3141**	-0.7117	**0.3482**	-0.4410	-0.0341	-0.2707	**0.7476**	**0.1195**	-0.7817	-0.3901
USA	-0.0442	-0.6417	-0.1187	-0.4713	**0.0745**	-0.1704	**0.8602**	**0.4113**	-0.7857	-0.5816
JAP	-0.0164	-0.7943	-0.0405	-0.7226	**0.0241**	-0.0717	**0.9732**	**0.4455**	-0.9491	-0.5172
KOR	-0.1052	-0.5266	**0.0667**	-0.2621	-0.1719	-0.2646	**1.0244**	**0.3115**	-1.1963	-0.5761
SIN	**0.1457**	-0.3634	-0.1368	-0.5786	**0.2826**	**0.2152**	**1.8816**	**0.3135**	-1.5991	-0.0983
MAL	**0.2156**	-0.5352	-0.0497	-0.2583	**0.2654**	-0.2769	**1.0828**	**0.2714**	-0.8175	-0.5483
INDO	-0.2498	-0.7615	-0.3931	-0.2607	**0.1433**	-0.5008	**1.5983**	**0.9085**	-1.4550	-1.4093
PHIL	**0.0450**	-0.5244	-0.0440	-0.3013	**0.0890**	-0.2231	**1.0628**	-0.2040	-0.9738	-0.0191

Table 5.3

Thailand Competitiveness in Footwear Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	-0.7636	-0.3411	**0.6164**	**0.0701**	-1.3800	-0.4112	-0.3534	-0.5153	-1.0266	**0.1041**
GER	-0.8112	-0.3698	**0.5472**	**0.1425**	-1.3583	-0.5123	-0.0850	-0.7118	-1.2734	**0.1995**
UK	-0.2677	-0.4609	**1.0999**	-0.0159	-1.3676	-0.4450	-0.3016	-0.6335	-1.0660	**0.1884**
USA	-0.6968	-0.5694	**0.4082**	-0.1807	-1.1050	-0.3886	-0.0158	-0.2404	-1.0892	-0.1482
JAP	-0.7593	-0.5455	**0.7159**	-0.0349	-1.4753	-0.5106	-0.1038	-0.3172	-1.3715	-0.1934
KOR	-0.6310	-0.1070	**0.7763**	**0.0658**	-1.4073	-0.1727	**0.9534**	-0.2254	-2.3607	0.0527
SIN	-0.2836	-0.2843	**0.6018**	**0.1715**	-0.8853	-0.4558	-0.0528	**0.1323**	-0.8325	-0.5881
MAL	-0.4793	**0.1124**	**0.5346**	**0.1706**	-1.0139	-0.0582	**0.9365**	**0.1994**	-1.9504	-0.2577
INDO	-1.2384	-0.3497	**0.8709**	**0.1039**	-2.1093	-0.4537	-0.6591	**0.4677**	-1.4502	-0.9214
PHIL	-0.0967	**0.0758**	-0.0349	-0.2484	-0.0618	**0.3242**	**1.0406**	**0.6369**	-1.1025	-0.3127

Table 5.4

Thailand Competitiveness in Furniture Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	-0.2481	-0.1148	**0.6264**	**0.0954**	-0.8745	-0.2102	**1.8799**	-0.7558	-2.7544	**0.5455**
GER	-0.3527	-0.8282	**0.7688**	**0.4249**	-1.1214	-1.2532	**1.7808**	-0.8090	-2.9022	-0.4441
UK	**0.2671**	-0.1908	**1.2692**	**0.3949**	-1.0021	-0.5857	**1.6367**	-1.0949	-2.6388	**0.5092**
USA	-0.0424	-0.0772	**0.5333**	**0.2230**	-0.5757	-0.3002	**2.0428**	-0.9609	-2.6185	**0.6607**
JAP	-0.1093	-0.6346	**0.5298**	**0.0660**	-0.6391	-0.7006	**1.8432**	-0.9929	-2.4823	**0.2923**
KOR	**0.1305**	-0.2972	**0.3733**	**0.3854**	-0.2428	-0.6826	**3.0344**	**0.2175**	-3.2772	-0.9002
SIN	**0.1623**	-0.1283	**0.7068**	**0.2210**	-0.5444	-0.3493	**0.1212**	-2.0024	-0.6657	**1.6531**
MAL	**0.2183**	-0.0614	**0.7505**	**0.1355**	-0.5322	-0.1969	**1.7712**	-0.0633	-2.3033	-0.1336
INDO	**0.2925**	**0.3968**	**0.5007**	**0.0366**	-0.2082	**0.3602**	**2.0977**	-0.6828	-2.3059	**1.0430**
PHIL	**0.4958**	-0.0129	**0.3675**	-0.0858	**0.1284**	**0.0729**	**1.6019**	-0.8373	-1.4736	**0.9102**

Table 5.5

Thailand Competitiveness in Paper Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	**0.1638**	**0.5686**	-0.1629	-0.0807	**0.3267**	**0.6493**	-1.8238	**0.3280**	**2.1505**	**0.3213**
GER	**0.2655**	**0.6306**	-0.3077	-0.4668	**0.5732**	**1.0974**	-1.6299	**0.2938**	**2.2031**	**0.8036**
UK	**0.5653**	**0.5644**	**0.1455**	-0.3404	**0.4198**	**0.9048**	-1.6240	**0.4883**	**2.0437**	**0.4165**
USA	**0.1132**	**0.5969**	-0.1456	-0.2076	**0.2588**	**0.8045**	-2.0235	**0.5832**	**2.2823**	**0.2213**
JAP	**0.0378**	**0.4966**	-0.1983	-0.3970	**0.2362**	**0.8937**	-2.0321	**0.4631**	**2.2683**	**0.4305**
KOR	**0.1103**	**0.4886**	-0.0966	-0.4282	**0.2068**	**0.9168**	-2.1958	**0.1920**	**2.4026**	**0.7249**
SIN	**0.0194**	**0.2758**	-0.6146	-0.3668	**0.6340**	**0.6426**	-1.5237	**0.1796**	**2.1577**	**0.4630**
MAL	**0.0665**	**0.5781**	-0.4671	-0.3756	**0.5336**	**0.9538**	-0.7833	**1.2003**	**1.3169**	-0.2465
INDO	**0.7143**	**0.3580**	-0.1742	-0.1038	**0.8885**	**0.4618**	-3.9879	**0.6762**	**4.8764**	-0.2145
PHIL	-0.3338	**0.3265**	-0.0218	-0.2796	-0.3121	**0.6061**	-1.9635	**0.1910**	**1.6514**	**0.4151**

Table 5.6

Thailand Competitiveness in Chemical Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	-0.0922	-0.2400	**0.1267**	-0.3077	-0.2189	**0.0677**	**0.3871**	-0.3932	-0.6059	**0.4609**
GER	**0.0109**	**0.5297**	**0.1725**	-0.3227	-0.1616	**0.8525**	**0.6391**	**0.1936**	-0.8007	**0.6588**
UK	**0.2157**	-0.1819	**0.5591**	-0.1954	-0.3433	**0.0135**	**0.4879**	**0.0419**	-0.8312	-0.0284
USA	-0.3436	-0.2326	**0.1455**	-0.1612	-0.4892	-0.0713	-0.0869	-0.6705	-0.4023	**0.5991**
JAP	-0.1508	-0.0332	**0.2390**	**0.0847**	-0.3898	-0.1179	-0.0167	-1.2041	-0.3731	**1.0862**
KOR	-0.2607	-0.0514	**0.2971**	-0.3111	-0.5578	**0.2596**	-0.2133	-0.7472	-0.3445	**1.0068**
SIN	-0.2540	-0.2956	**0.4304**	**0.1139**	-0.6845	-0.4096	**0.0749**	-0.9156	-0.7594	**0.5061**
MAL	-0.0100	-0.8454	**0.5242**	**0.2064**	-0.5341	-1.0518	-0.4488	-1.5072	-0.0854	**0.4554**
INDO	**0.0040**	-0.0635	**0.4640**	**0.2270**	-0.4600	-0.2905	-0.0707	-0.8589	-0.3892	**0.5684**
PHIL	-0.3006	-0.3449	**0.3362**	-0.1189	-0.6369	-0.2261	-0.0066	-0.6959	-0.6303	**0.4698**

Table 5.7

Thailand Competitiveness in Rubber Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	**0.4317**	**0.2465**	-0.1201	**0.4823**	**0.5518**	-0.2358	**1.5617**	-1.1007	-1.0099	**0.8649**
GER	**0.5669**	**0.3140**	-0.1903	**0.3356**	**0.7572**	-0.0216	**1.8476**	-0.8189	-1.0904	**0.7973**
UK	**0.8025**	**0.2156**	**0.2543**	**0.3807**	**0.5481**	-0.1652	**1.5244**	-0.7644	-0.9762	**0.5992**
USA	**0.3945**	**0.2761**	-0.1052	**0.3284**	**0.4998**	-0.0523	**2.1313**	-0.5584	-1.6316	**0.5062**
JAP	**0.4563**	**0.3646**	-0.0886	**0.5620**	**0.5449**	-0.1974	**2.1026**	-0.2436	-1.5577	**0.0461**
KOR	**0.5729**	**0.1433**	-0.3889	**0.2783**	**0.9617**	-0.1350	**1.5623**	-0.3813	-0.6006	**0.2463**
SIN	**0.1578**	**0.3090**	-0.1323	**0.2522**	**0.2901**	**0.0569**	**1.3000**	-0.1996	-1.0099	**0.2565**
MAL	-0.0795	**0.2124**	-0.2266	**0.0597**	**0.1471**	**0.1526**	**0.7527**	-0.3885	-0.6056	**0.5411**
INDO	**0.5431**	**0.2975**	**0.0846**	-0.1052	**0.4585**	**0.4026**	**2.7250**	-1.2145	-2.2666	**1.6171**
PHIL	**0.2296**	**0.4881**	-0.1584	**0.2874**	**0.3881**	**0.2008**	**0.8747**	-0.8239	-0.4867	**1.0247**

Table 5.8

Thailand Competitiveness in Plastic Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	**0.5616**	-0.2651	**0.1547**	**0.1984**	**0.4069**	-0.4635	-1.5151	**0.5841**	**1.9220**	-1.0476
GER	**0.7737**	-0.0936	**0.0641**	**0.2082**	**0.7096**	-0.3018	-1.7228	**0.0100**	**2.4324**	-0.3118
UK	**1.1910**	-0.2150	**0.6254**	**0.2331**	**0.5656**	-0.4481	-1.6216	-0.0028	**2.1872**	-0.4453
USA	**0.6222**	-0.1428	**0.0648**	**0.1739**	**0.5574**	-0.3167	-1.3408	**0.2263**	**1.8981**	-0.5430
JAP	**0.5773**	-0.2888	**0.1527**	**0.1638**	**0.4246**	-0.4526	-1.4879	**0.2795**	**1.9125**	-0.7321
KOR	**0.6964**	-0.3630	-0.0283	**0.2917**	**0.7248**	-0.6547	-1.3913	**0.2633**	**2.1161**	-0.9180
SIN	**0.6307**	-0.1559	-0.1046	**0.1410**	**0.7353**	-0.2968	-0.8515	**0.6605**	**1.5868**	-0.9573
MAL	**0.7575**	-0.1365	-0.1381	**0.0949**	**0.8956**	-0.2314	-1.0469	-0.1041	**1.9425**	-0.1273
INDO	**0.9461**	**0.1733**	-0.5358	**0.0203**	**1.4820**	**0.1530**	-1.2303	-0.2755	**2.7123**	0.4286
PHIL	**0.9075**	-0.2920	**0.1090**	**0.2007**	**0.7985**	-0.4927	-1.3564	-0.3429	**2.1549**	-0.1498

Table 5.9

Thailand Competitiveness in Electric Machinery Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	-0.4694	**0.0868**	-0.1037	-0.0822	-0.3657	**0.1690**	-0.4712	**1.2234**	**0.1055**	-1.0544
GER	-0.3709	-0.3608	-0.0055	**0.0246**	-0.3654	-0.3854	-0.5207	**0.6761**	**0.1553**	-1.0615
UK	-1.9249	**0.2321**	-1.5940	-0.0717	-0.3309	**0.3038**	-0.4822	**1.2154**	**0.1513**	-0.9115
USA	-0.4061	**0.1399**	**0.0646**	**0.0607**	-0.4707	**0.0791**	-0.7308	**0.9493**	**0.2601**	-0.8702
JAP	-0.4431	**0.4789**	-0.0298	**0.1562**	-0.4134	**0.3227**	-0.6978	**1.0056**	**0.2844**	-0.6829
KOR	-0.6487	-0.1021	-0.0759	-0.1864	-0.5728	**0.0843**	-0.5890	**0.6695**	**0.0163**	-0.5852
SIN	-0.8029	-0.1282	-0.2157	-0.1055	-0.5872	-0.0228	-0.2383	**0.9815**	-0.3489	-1.0042
MAL	-0.7477	**0.1117**	-0.0458	-0.1400	-0.7019	**0.2517**	-0.7283	**1.2466**	**0.0264**	-0.9950
INDO	-0.9165	**0.2918**	**0.1753**	**0.1707**	-1.0918	**0.1210**	**0.3007**	**1.4069**	-1.3925	-1.2859
PHIL	-0.5305	**0.2303**	**0.1996**	**0.1385**	-0.7300	**0.0917**	-0.4817	**1.2051**	-0.2483	-1.1134

Table 5.10

Thailand Competitiveness in Transport Equipment Industry

	CAI		Wage Effect		Productivity Effect		Technology Effect		Endowment Effect	
	1974	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**	**1974**	**1994**
AUS	**0.1168**	**0.5542**	-0.6015	-0.2080	**0.7183**	**0.7621**	-0.5644	**0.5235**	**1.2827**	**0.2386**
GER	**0.0335**	**0.7656**	-0.5229	-0.0975	**0.5564**	**0.8631**	-0.7973	**0.9214**	**1.3536**	-0.0583
UK	-1.8585	**0.5334**	-2.5022	-0.0905	**0.6438**	**0.6239**	-0.4309	**0.7538**	**1.0746**	-0.1299
USA	**0.0822**	**0.6434**	-0.3434	**0.0957**	**0.4256**	**0.5477**	-0.9083	**0.5386**	**1.3339**	**0.0092**
JAP	-0.0253	**0.7971**	-0.4758	**0.2108**	**0.4504**	**0.5864**	-0.8972	**0.4433**	**1.3476**	**0.1430**
KOR	-0.0317	**0.7300**	-0.3017	**0.0889**	**0.2700**	**0.6411**	-1.5708	**0.1899**	**1.8407**	**0.4512**
SIN	-0.0527	**0.5994**	-0.1340	-0.1148	**0.0813**	**0.7142**	-0.9248	**0.5318**	**1.0061**	**0.1824**
MAL	**0.1233**	**0.3618**	-0.3771	-0.1058	**0.5004**	**0.4675**	-1.0543	-0.2299	**1.5547**	**0.6974**
INDO	-0.3779	-0.7454	-0.2563	-0.0161	-0.1215	-0.7293	-0.3691	-0.0678	**0.2476**	-0.6615
PHIL	-0.1924	**0.1535**	-0.3375	**0.0298**	**0.1451**	**0.1237**	-1.0172	**0.8286**	**1.1623**	-0.7049