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THE COMPETITIVENESS OF INDONESIA'S EXPORT TO UNITED STATES, 1986-2003: A SHIFT-SHARE ANALYSIS

Ahmad Helmy Fuady

Researcher for Centre of Regional Development LIPI

E-mail: helmyfuady@yahoo.com

ABSTRACT

The objective of this paper is to examine the competitiveness of Indonesia's exports to the United States (US) market, compared to other Asian economies, namely Thailand, Malaysia, Singapore, China, Republic of Korea and India, over the period of 1986-2003. A shift-share method is applied to single digit SITC US imports data from those countries. It found that the competitiveness of Indonesia's exports changes over time. The Indonesia's exports reached its best performance in the period 1992-1997. However, after the 1997 economic crisis, Indonesia faces a serious problem, since none of its export has competitiveness in the US market, compared to the reference economy. The analysis also shows that China has consistently posed a serious pressure not only for Indonesia, but also for the other Asian economies.

***Keywords**: Indonesia, exports, competitiveness, shift-share*

INTRODUCTION

In the last three decades, Indonesia has experienced remarkable changes in its foreign trade environment. First, substantive trade and industrial liberalizations occurred since the mid 1980s. Indonesia's exports primarily relied on fuel, mineral and metal sector, which reached more than 70 per cent of total exports at the beginning of 1980s; while manufactures only shared less than 10 per cent (Hill 2000:82). The fall in oil prices in the mid 1980s pressured the Indonesian government to diversify its economy, and move away from its dependency on oil, to lift its export performance (Aswicahyono and Pangestu 2000:454).

By 1986, Indonesia replaced the old export certificate scheme with a duty drawback system and other substantive deregulation packages, such as a reduction in non-tariff barriers (NTBs) (Aswicahyono and Feridhanusetyawan 2004:13; Hill 2000:116-7). In 1988 financial and investment deregulation was announced, and therefore the country became more permissive for foreign and domestic investment, particularly for export oriented foreign direct investment (FDI) (Aswicahyono and Feridhanusetyawan 2004:13). The 1991 deregulation package further replaced NTBs with tariff and export taxes, reduced general tariff levels, and re-open several business areas for foreign investment (Aswicahyono and Feridhanu setyawan 2004:14).

The liberalization of trade policies continued in the 1992-96 period and deeper

after the 1997 economic crisis. The 1992-96 liberalization resulted in a range of tariff reductions, trading arrangements for certain commodities (the removal of NTBs), improvement in trade facilitation measures, and shortening the lists of activities closed to domestic and or foreign investment (Aswicahyono and Feridhanusetyawan 2004:14). Since the 1997 economic crisis, assisted by the IMF, trade liberalization in Indonesia going further through opening various sensitive commodities, such as in the agriculture sector.

Second, in the international context, Indonesian placed higher priority on foreign trade, not only through multilateral trade negotiations, but also through many regional trade arrangements. By 1986, Indonesia reentered the general agreement of trade and tariff (GATT) round, which then became the World Trade Organization WTO. Then, in the 1990s, the country followed the proliferation of regional trade arrangements, engaged in ASEAN Free Trade Area (AFTA), AFTA plus China, Japan and the Republic of Korea, and Asia Pacific Economic Cooperation (APEC). Theoretically, as a consequence of having bigger free market, relative price of inputs and outputs in the country will change, which will then lead to production changes (Llyod and Smith 2004:18).

Third, Indonesian economic performance changed significantly after the 1997 economic crisis. Prior to the crisis, Indonesia was one of the Asian economic 'miracles', which grew around 6 per cent on average for over two decades. The crisis contracted Indonesia's gross domestic product (GDP) by 13.6 per cent in 1998 (Hill 2000:264). Compared with the pre-crisis level, the imports in 1998-99 decreased by US$ 15 billion (Hill 2000:267), because of a currency depreciation. Indonesia also experienced negative exports growth since the 1998 because of the collapse of banking sector, bankruptcy in many manufacturing sectors with heavy import content, and the low international oil and gas prices.

These changes in Indonesia's foreign trade environment are believed to influence the country's exports competitiveness in international market. Nowadays, there is an increasing attention on Indonesia's exports rivalry with other Asian economies, such as other ASEAN countries, newly industrialized economies (NIEs), China and lately India, in the third market. The objective of this paper is to examine the competitive positions of Indonesia's exports to the United States (US) market, compared to other Asian economies, namely Thailand, Malaysia, Singapore, China, Rep. Korea and India, in line with the changes in Indonesia's foreign trade environment, over the period of 1986-2003, using a shift-share analysis. The US market is chosen since it is a major destination for Indonesia and the other developing Asian economies' exports.

This paper is organized as follows. Section 2 provides brief review and explanation on the shift-share methods used for the analysis. Section 3 provides empirical findings of this paper. Finally, conclusion highlights the findings, and discusses further implications.

REVIEW AND ANALYTICAL METHOD

Shift-share analysis has been widely used to examine regional issues, such as industrial

structure, employment changes, labor productivity, and export rivalry (Herschede 1991:292). It is a relatively simple descriptive analysis, but powerful to show trends in regional performance and changes in economic structure (Wilson and Wong 1999:5; Wilson 2000:541). The application of shift-share analysis to examine export rivalry among countries or regions are shown by Herschede (1991), Voon and Yue (2003), Peh and Wong (1999), Wilson and Wong (1999), Wilson (2000), and Coughlin and Pollard (2001). Following Herschede (1991), this paper applies the shift-share method to answer question concerning export rivalry to the US market, from Indonesia and other Asian economies. Hereafter, Indonesia and the other Asian economies will be referred to as competing economies, while the combined of them will be referred to as reference economy.

The shift-share method compares actual changes in a competing economy exports to the US market with its share effect. The share effect is the changes of a competing economy's exports to the US if it behaves as a small version of the reference economy. The share effect measures export changes of each sector if it experience same rate of growth and same percentage of total exports as the reference economy. A positive result in the net shift or difference shows how many US dollar the competing economy's has experienced higher exports changes compared to that if the competing economy would experience as a mini-reference; A negative result shows how many US dollar the competing economy's has experienced lower exports changes than the competing economy would experience as a mini-reference.

Net shift or difference between actual changes and the share effect is attributed to particular sources, namely industry mix effect, competitive effect, and interactive effect. The industry mix effect is resulted from the difference between a competing economy's export structure and that in the reference economy. The competitive effect is resulted from difference between the growth rate of exports in a competing economy and that in the reference economy. Finally, the interactive effect is resulted from difference in the rate of growth and difference in the structure of exports between a competing economy and the reference economy. The mechanics of the analysis is provided in Annex A.

The method is applied to single digit Standard International Trade Classification (SITC) US import data from Indonesia and the other developing Asian economies for the period 1986-2003. An exception is made for SITC no 3 (mineral fuels, lubricants and related materials) US imports from Thailand in 1998 since it is unavailable. The missing data is filled with export data from Thailand to US, which is adjusted by 11 per cent addition. The adjustment is needed since on average exports data from Thailand is 11 per cent lower than import data reported by the US. Single digit SITC imports and exports data for those countries are obtained from the United Nations COMTRADE database.

This paper applied the method to the single digit SITC, and therefore to have a better understanding of a country's competitiveness, further desegregation is needed. Indeed, there is no theoretical basis in what level of data dis-aggregation best suit the shift-share method. Moreover, Stilwell (1969:165) argues that 'the finer the better'

as commonly conclude is not the answer for the problem, since infinite dis-aggregation will reduce the differential component into zero.

The shift-share method only considers data on the starting and the terminal year of analysis, and therefore it does not take into account continuous changes in export structure and the size of total exports in a concerned economy (Wilson and Wong 1999). As 1986-2003 is a long period, not to lose sight on dynamic changes of the export rivalry in the period, this paper separates the shift-share analysis into three sub-periods; 1986-91, 1992-97, and 1998-2003. Considering not only the first and the end years of the period will have a better capture of dynamic changes of exports performance of those countries. Indeed, the separation into the three sub-periods in line with changes economic environment of the Indonesian economy. As a starting point, 1986 is chosen because it is the year when Indonesia started a substantial trade liberalization policies and the year when Indonesia re-entered GATT negotiation. 1992 is a good base year for the second sub-period since it was the year Indonesia signed the AFTA commitment to have deeper integration in the Southeast Asian economy, and the year when Indonesia started its second significant trade liberalization. The year 1998 is reasonable for the third sub-period since it was the first year the 1997 economic crisis had a serious effect on the Indonesian economy. A careful choice of the starting and the terminal years of each sub-period of analysis is designed to represent the dynamic of the period.

It should also be considered that the shift-share method only shows the dollar amount of a particular effect, but does not explain causes of the particular effects (Herschede 1991:293; Wilson 2000:547). Therefore, it can show that a particular export from Indonesia to the US loss or gain a certain amount of dollars because of competitive effect, but it cannot explain what competitive factor accounted for the lost or gain in the particular sector.

EMPIRICAL RESULTS

The summary of shift-share analysis of Indonesia's exports to the US compared to the reference economy in three sub-periods (1981-91, 1992-97, and 1998-2003) is provided in Table 1. It shows the difference between actual changes in exports and the share effect, and three sources of the different, namely industry mi effect, competitive effect, and interactive effect. The next section will discuss the each effect in details.

Share Effect

Difference in Table 1 indicates whether Indonesia performed better or worse compared to the reference economy. Technically, the difference is the actual changes in a competing economy exports minus the share effect; that is changes that occurred if the competing economy behaves as a mini version of the reference economy, i.e., having a same structure and growth rate of exports as the reference economy. A positive result in the difference means that the competing economy's exports performed better than if the country behaves as a mini reference economy, while a negative result indicates the opposite.

Table 1. Shift-Share Analysis of Indonesia's Exports to the US (US$ thousand)

SITC	Difference*	Source of Difference		
		Industry Mix Effect	Competitive Effect	Interactive Effect
1986-1991				
0-Food and live animals	-25,818.46	110,341.93	-73,676.55	-62,483.84
1-Beverages and tobacco	1,562.78	1,327.86	163.45	71.48
2-Crude materials, inedible, except fuels	84,024.91	99,347.44	-3,986.52	-11,336.01
3-Mineral fuels, lubricants & related materials	-1,416,860.83	-934,713.33	-87,502.38	-394,645.12
4-Animal and vegetable oils and fats	5,683.56	558.93	6,828.88	-1,704.26
5-Chemicals	-96,077.91	-59,939.50	-92,606.74	56,468.33
6-Manufact goods classified chiefly by material	-130,133.49	-51,945.78	-96,105.18	17,917.48
7-Machinery and transport equipment	-1,372,162.44	-1,464,951.37	6,320,396.09	-6,227,607.17
8-Miscellaneous manufactured articles	-755,828.12	-1,346,013.77	2,483,769.51	-1,893,583.86
9-Not classified	-38,229.80	-37,861.02	-1,505.95	1,137.17
Total	-3,743,839.80	-3,683,848.62	8,455,774.62	-8,515,765.80
1992-1997				
0-Food and live animals	372,149.33	107,152.82	104,178.85	160,817.66
1-Beverages and tobacco	23,275.23	2,774.54	7,501.87	12,998.82
2-Crude materials, inedible, except fuels	188,722.78	360,230.41	-24,597.33	-146,910.31
3-Mineral fuels, lubricants & related materials	12,181.09	26,040.58	-2,533.79	-11,325.69
4-Animal and vegetable oils and fats	70,130.29	19,288.44	12,713.13	38,128.71
5-Chemicals	-36,827.96	-83,695.31	172,684.63	-125,817.28
6-Manufact goods classified chiefly by material	34,058.11	166,626.55	-93,255.60	-39,312.84
7-Machinery and transport equipment	-1,282,272.35	-2,150,555.26	6,252,580.85	-5,384,297.93
8-Miscellaneous manufactured articles	854,569.60	32,209.04	803,954.66	18,405.91
9-Not classified	-40,614.58	-54,140.45	61,835.03	-48,309.17
Total	**195,371.54**	**-1,574,068.64**	**7,295,062.30**	**-5,525,622.13**
1998-2003				
0-Food and live animals	-69,423.47	320,007.35	-106,285.04	-283,145.78
1-Beverages and tobacco	-17,111.20	22,681.84	-7,891.81	-31,901.22
2-Crude materials, inedible, except fuels	-60,788.56	56,640.18	-21,321.00	-96,107.74
3-Mineral fuels, lubricants & related materials	-4,134.07	158,733.90	-30,592.58	-132,275.38
4-Animal and vegetable oils and fats	-37,518.12	4,035.72	-10,909.62	-30,644.23
5-Chemicals	-209,938.78	-99,094.50	-165,946.04	55,101.76
6-Manufact goods classified chiefly by material	-1,034,113.70	218,191.65	-960,556.78	-291,748.57
7-Machinery and transport equipment	-3,164,537.62	-1,837,658.47	-3,399,513.36	2,072,634.21
8-Miscellaneous manufactured articles	-1,553,362.60	349,039.72	-1,648,554.40	-253,847.92
9-Not classified	-141,665.81	-46,147.64	-158,620.93	63,102.76
Total	**-6,292,593.95**	**-853,570.27**	**-6,510,191.56**	**1,071,167.87**

*Actual changes in exports minus the share effect
Source: Calculation based on UN COMTRADE database

Table 1 shows that in the first sub-period (1986-91), Indonesia's export performance is worse compared to that if Indonesia behaves as a mini reference economy. If Indonesia has the same structure and growth as the reference economy, Indonesia's export would be US$ 3,743.84 million higher than it was. The second sub-period (1992-97) indicates an opposite figures. Indonesia's exports were US$ 195,371.54 thousand higher than that as mini reference economy. The figures are not only in the total export, but almost in every sector. Only three sectors, namely chemicals, machinery and equipment, and not classified sector that had lesser performance than that as mini reference economy.

In the third sub-period (1998-2003) Indonesia's exports lost their advantage.

Indonesia did much worse than if it performed as the mini reference economy. Negative differences in all SITC sectors indicate that there was no sector that could perform better than that if Indonesia acted as mini reference economy in the sub-period.

Table 2 compares the difference of Indonesia's total exports to that of the other Asian countries. It shows that in the first sub-period, Indonesia was part of three from seven countries that performed worse than that if it acted as mini reference economy. The best performance was, shown by China; China's total exports changes were US$ 9,843,384.21 thousand higher than what mini reference economy could reach. The next best export performances were Thailand, Malaysia, and Singapore, which their actual exports changes were US$ 2,722,461.55 thousand, US$ 1,305,665.73 thousand, and US$ 472,983.62 thousand higher than that as mini reference economy.

However, between 1992 and 1997, Indonesia performed much better. Along with China and Malaysia, Indonesia was one of three Asian countries with a positive difference. While, at the same time, Thailand and Singapore joined India and Rep. of Korea in the bottom four. An interesting figure appears for the third sub-period of analysis. Between 1998 and 2003, only China that performed better than if it acted as mini reference economy. Another six Asian countries experienced actual total exports changes below that if they acted as mini reference economies. However, only Indonesia had a negative difference in every sector. Even Singapore, which its total exports difference is the biggest, had one sector (chemicals) that performed better that if it acted as mini reference economy.

Industry Mix Effect

The industry mix effect is resulted from the difference between the exports structure in a competing economy's export structure and the reference economy's export structure. It should be considered that even though proportion of a sector in a competing economy's structure is higher compared to that in the reference economy, it does not guarantee a positive industry mix effect or structural advantage, because the result in industry mix effect is also determined by growth rate of export in the reference economy. As noted by Herschede (1991: 297), 'a negative growth rate multiplied by positive structural difference results in negative industry mix effect.'

Overall, as shown in Table 1, Indonesia experienced a structural disadvantage in all three sub-periods of the analysis. However, the analysis in each SITC sector shows variation over the periods. Between 1986 and 1991, four sectors; food and live animal sector, beverages and tobacco sector, crude

Table 2. Total Exports Difference* for the Asian Economies (US$ million)

Period	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
1986-91	-3,743.83	2,722.46	1,305.66	472.98	9,843.38	-1,480.13	-9,120.53
1992-97	195.37	-2,335.49	1,832.06	-2,083.88	12,511.27	-182.16	-9,937.18
1998-03	-6,292.59	-7,099.00	-6,218.38	-15,451.92	38,533.11	-627.99	-2,843.23

*Actual change in exports minus the share effect
Source: Calculation based on UN COMTRADE database

material and inedible sector, and animal and vegetables oils and fat sector, had a structural advantage. However, it was not all of those sectors that had a higher proportion in Indonesia's exports structure compared to those in the reference economy. The animal and vegetables oils and fat sector had a lower proportion in Indonesia's export structure compare to that in the reference economy, but the growth rate of the sector in the reference economy over the period was negative. An opposite case was shown by mineral fuels, lubricants and related material sector, which had a negative industry mix effect since the proportion of the sector in Indonesia's exports structure was higher than that in the reference economy, but the rate of growth of the sector in the reference economy was negative.

In contrast to the first sub-period, in the second and third sub-periods (1992-97, 1998-2003), only three sectors experienced a structural disadvantage. They were chemicals sector, machinery and transport equipment sector, and not classified sector. Indonesia's export structure during those two sub-periods was consistent compared to the reference economy. One sector that consistently contribute biggest problem in the industry mix was machinery and transport equipment. This occurred because the proportion of the sector in Indonesia's exports structure was much lower than that in the reference economy, while the export growth of the sector was very high.

Table 3 shows why in the first sub-period Indonesia had experienced a bad industry mix effect and a relatively better in the next two sub-periods. The relative growth rate is fast if the reference economy SITC growth rate is above the reference economy's average growth rate; and low if it less than the reference economy's average growth rate. As can be seen from Table 3, in 1986, only 9.73 per cent of Indonesia's exports structure was in fast growing sectors; another 90.27 per cent was in the low growing sectors. In 1992, Indonesia's exports in fast growing

Table 3. The Reference Economy's Relative Growth and the Indonesia's Export Structure

SITC	Relative Growth* 1986-91	Proportion of 1986 exports	Relative Growth* 1992-97	Proportion of 1992 Exports	Relative Growth* 1998-03	Proportion of 1998 Exports
0	low	9.68%	Low	10.46%	low	10.26%
1	low	0.20%	Low	0.37%	fast	0.34%
2	low	10.35%	Low	12.52%	low	7.71%
3	low	58.20%	Low	10.92%	low	4.94%
4	low	0.38%	Low	1.12%	low	0.65%
5	fast	0.64%	Fast	0.58%	fast	1.48%
6	low	11.46%	Fast	14.97%	fast	14.11%
7	fast	0.42%	Fast	4.83%	fast	16.76%
8	fast	8.39%	Low	43.96%	fast	42.81%
9	fast	0.27%	Fast	0.28%	fast	0.94%
Average	71.17%		68.83		59.21	

* Relative growth rate is fast if the sector in the reference economy grew above the reference economy's average growth rate; and low if it less than the reference economy's average growth rate.

Source: Calculation based on UN COMTRADE database

sectors increased to 20.65 percent of its total exports; and exports in the sectors that grew below the average decreased to 79.35 per cent of its exports structure. In the third sub-period of analysis presents more obvious figures. In 1998, 76.44 per cent of Indonesia's exports are concentrated in fast growing sectors; and only 23.35 per cent of its exports were in the low growing sector.

The sharp increase of Indonesia's export proportion in fast growing sectors mainly came from the miscellaneous manufactured articles sector. At the 1986, this fast growing sector shared only 8.39 per cent of Indonesia's total export, but at the 1998 it shared more than 40 per cent. In contrast, the sharp decrease of Indonesia's export proportion in low growing sectors mainly came from the mineral fuels, lubricant and related material sector. At the 1986, this low growing sector shared more than 58 per cent of Indonesia's total export, but at the 1998 it shared less than 5 per cent. The figures also show that Indonesia's export structure has shifted, moved away from minerals fuels to the manufacturing sector.

Competitive Effect

The competitive effect is resulted from the difference between the growth rate of exports in a competing economy and the one in the reference economy, with an assumption that the competing economy has the same export structure as the reference economy. A positive competitive effect (competitive advantage) is resulted when a competing economy exports' growth rate is higher than that in the reference economy; while a negative result (competitive disadvantage) is obtained when the competing economy's export growth is lower than that in the reference economy (Herschede 1991:298).

Overall, Table 1 shows that Indonesia had a competitive advantage in the first and second sub-periods of analysis; and experienced a competitive disadvantage in the third sub-period. From 1986 to 1991, the competitive advantage of Indonesia's exports reached US$ 8,455.77 million. It was contributed by four sectors; machinery and transport equipments sector, miscellaneous manufactured articles sector, animal and vegetables oils and fats sector, and beverages and tobacco sector.

Between 1992 and 1997, the competitive advantage of Indonesia's exports decreased to US$ 7, 295.06 million compared to the first sub-period, which particularly came from machinery and transport equipments sector which experienced a sharp decline in the respecting period. However, in the 1992-97 period seven from ten Indonesia's export sectors grew higher than that in the reference economy, shown by a positive result in the competitive effect. Again, machinery and transport equipments sector contributed the biggest share (US$ 6,252,580.85 thousand) of the competitive advantage.

Poor performance in Indonesia's exports was shown in the third sub-period (1998-2003). In the period, Indonesia experienced a competitive disadvantage up to US$ 6,510.19 million. There was also no export sector that grew above the rate of growth of the reference economy's exports, leading to a large competitive disadvantage.

Interactive Effect

The interactive effect is a combination of industry mix effect and competitive effect. A positive value or interactive advantage

resulted from a combination of positive industry mix effect and positive competitive effect, or if a negative industry mix effects come with negative competitive effect. Herschede (1991:300) describes the first possibility as 'emphasizing industry in which it does relatively well,' and the second possibility as 'de-emphasizing industry in which it does relatively poor.'

Negative value or interactive disadvantage can be the result of; (1) de-emphasizing a well perform industry, that is negative industry mix combined with positive competitive effect; (2) emphasizing a relatively poor perform industry, that is positive industry mix combined with negative competitive effect; (3) the reference economy's export has negative growth rate, which is less than negative growth rate of the competing economy's export; or (4) there is negative growth in the reference economy, and the share of competing economy in the particular sector is lower than that in the reference economy (Herschede 1991:300).

As can be seen from Table 1, in the period 1986-91 and 1992-97, Indonesia experienced an interactive disadvantage. This happened because, particularly, Indonesia de-emphasized the machinery and transport equipment sector that have a good performance. This sector has fast growth, but its share was negligible. Over the period of 1986-91 for example, exports of the sector grew more than 700 per cent, but unfortunately it shared less than 0.5 per cent in the base year (1986). In addition, the animal and vegetable oil and fats sector for the period 1986-97 experienced an interactive disadvantage, even though had structural and competitive advantages. This was because the exports growth of the sector in the reference economy was negative, and the share of the sector in Indonesia's exports structure is lower than that in the reference economy.

In the period 1998-2003, Indonesia had more than US$ 1,071.16 million interactive advantage. It was primary contributed by the machinery and transport equipment sector, which had nine per cent negative growth over the period. Over the period, the interactive disadvantages of Indonesia's exports resulted from its emphasized on the poor performs sectors. This was unsurprising since the rates of growth of all sectors in Indonesia's exports over the period were lower than that in the reference economy.

CONCLUSIONS

Several points can be drawn from this paper's analysis. First, the competitive position of Indonesia's exports changes over time. In the first sub-period (1986-91) of analysis, Indonesia only showed good performance in three natural resources based sectors. A good performance was shown in the period 1992-97, where Indonesia could challenge other developing Asian countries' exports in almost every sector. Indonesia performed well not only in the natural resource based sectors, but also in the manufacturing sectors, such as sector 6 (manufactured goods classified chiefly by material) and sector 8 (miscellaneous manufactured articles). Unfortunately, after the 1997 economic crisis, in the period 1998-2003, none of Indonesia's export had better performance than the reference economy.

Second, the analysis shows that China consistently posed a serious pressure not only for Indonesia, but also for the other Asian economies. In all sub-periods of analysis,

exports from China to the US market had much better performance compared to the other Asian economies. Moreover, in the last sub-period of analysis, China is the only one that performed better than the reference economy.

Third, by focusing on the post crisis period, it is obvious that currently Indonesia faces a serious problem on its competitiveness. The shift-share method is not an appropriate tool to offer insight of the crisis since it focuses more on structural changes in a medium and long run compared to a reference economy, rather than the causes of the changes (Wong 2000:561). However the finding that Indonesia faces a worse competitiveness problem since the crisis is consistent with the works of Voon and Yue (2003) and Wong (2000), which show that the crisis affected countries experienced a worse competitiveness since the crisis period.

In Indonesia, the problem mainly comes from its competitive effect, since its exports grew much slower than the reference economy. Maybe it is because of a slow economic recovery. Thee (2000:426) explains that a slow economic and export recovery in Indonesia is due to slow corporate and bank restructuring, and a continuing investment shortage, because of lack of confidence from foreign and domestic investors after the crisis. Further, Barichello (1999: 26) argues that the low level of confidence is due to the government's low credibility, political uncertainty and social unrest. These factors inhibit new investment (Barichello 1999:26), and therefore slowdown exports.

Further question arises from this finding is how Indonesia can regain its competitiveness. Simple duplication from the period 1992-97 to further liberalize trade is not an appropriate answer. Since the crisis, Indonesia has gone deeper in liberalizing its trade environment, but it does not help much. Moreover, McGuire (2004:25) notes that faster liberalization will enhance Indonesia's openness, but it is not sufficient to have sustainable gains from trade. It is maybe needed to focus on domestic industry adjustments, such as to catch up technology and to develop human resources, rather than work on border issues, such as decreasing tariff lines.

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Appendix A

The Shift-Share Method

Let:

Cij = Exports in sector i in terminating year minus that in base year (actual changes).
Eoj = Total exports in base year from country j to US.
Pij = Proportion of exports in sector i from country j to US in base year.
Gij = Growth rate of export in sector i from country j to US over a period of analysis.
Pir = Proportion of exports in sector i from the reference economy to US in base year.
Gir = Growth rate of export in sector i from the reference economy to US over a period of analysis.

SEij = Share effect in sector i, country j.
IMEij = Industry mix effect in sector i, country j.
IEij = Interactive effect in sector i, country j.
Dij = Difference in sector i, country j.

$SEij = Eoj\ Pir\ Gir$
$IMEij = Eoj\ (Pij - Pir)\ Gir$
$CEij = Eoj\ Pir\ (Gij - Gir)$
$IEij = Eoj\ (Pij - Pir)\ (Gij - Gir)$
$Dij = Cij - SEij = IMEij + CEij + IEij$

Appendix B
The Shift-share Result

Differences (US$ thousand)

1986-1991

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	-25,818.46	768,162.45	-11,363.23	-144,490.76	107,515.50	-210,059.56	-483,945.94
1	1,562.78	13,019.45	-2,323.34	-4,012.72	1,821.77	2,442.86	-12,510.79
2	84,024.91	21,580.22	-25,775.32	-55,081.93	68,554.80	-14,549.12	-78,753.56
3	-1,416,860.83	130,161.83	174,510.64	128,088.48	219,303.46	14,096.93	750,699.49
4	5,683.56	902.71	-38,486.44	1,575.89	1,880.39	18,836.21	9,607.69
5	-96,077.91	-43,003.41	-29,221.18	246,954.73	93,828.94	59,081.22	-231,562.40
6	-130,133.49	263,079.19	-58,614.17	-393,592.18	784,186.92	305,393.68	-770,319.95
7	-1,372,162.44	668,061.31	1,133,266.11	2,468,649.79	933,969.97	-952,790.78	-2,878,993.95
8	-755,828.12	872,145.71	167,826.87	-1,873,475.70	7,608,051.08	-682,788.35	-5,335,931.50
9	-38,229.80	28,352.10	-4,154.22	98,368.02	24,271.38	-19,791.54	-88,815.94
total	-3,743,839.80	2,722,461.55	1,305,665.73	472,983.62	9,843,384.21	-1,480,128.46	-9,120,526.85

1992-1997

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	372,149.33	177,567.62	-134,580.87	-136,176.36	-294,877.82	262,466.89	-246,548.80
1	23,275.23	-4,446.54	-2,183.63	-4,246.25	-16,284.41	2,034.77	1,850.82
2	188,722.78	59,542.13	-43,759.16	-139,670.68	33,112.50	55,707.29	-153,654.85
3	12,181.09	-31,854.73	137,892.86	-7,899.07	27,938.56	-137,037.81	-1,220.91
4	70,130.29	-11,396.79	-8,413.34	-17,949.69	-28,714.60	18,301.72	-21,957.58
5	-36,827.96	-149,585.41	31,452.34	-100,642.71	149,264.31	185,964.79	-79,625.37
6	34,058.11	-415,522.29	-461,058.99	-886,351.48	1,516,837.62	1,102,135.73	-890,098.69
7	-1,282,272.35	-861,287.32	3,499,280.91	2,410,687.09	-1,884,211.55	-1,665,819.94	-216,376.84
8	854,569.60	-1,103,213.56	-1,160,009.04	-3,517,521.04	13,267,898.64	9,115.61	-8,350,840.21
9	-40,614.58	4,705.20	-26,554.75	315,888.61	-259,689.33	-15,029.76	21,294.61
total	195,371.54	-2,335,491.70	1,832,066.34	-2,083,881.58	12,511,273.92	-182,160.71	-9,937,177.81

1998-2003

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	-69,423.47	58,081.31	-194,702.19	-230,363.03	480,427.15	184,188.36	-228,208.13
1	-17,111.20	22,859.97	-6,693.77	-12,052.54	-28,906.62	10,617.68	31,286.47
2	-60,788.56	23,399.21	-66,649.57	-32,202.87	194,058.34	-73,963.84	16,147.30
3	-4,134.07	-13,747.88	56,794.01	-161,996.13	-221,568.13	226,472.38	118,179.82
4	-37,518.12	-780.19	70,663.31	-5,449.11	-10,459.91	-12,652.20	-3,803.78
5	-209,938.78	-211,623.49	-586,299.00	1,578,437.99	-462,372.11	405,334.15	-513,538.76
6	-1,034,113.70	-493,917.60	-1,421,632.68	-1,375,574.84	5,089,400.04	1,106,750.53	-1,870,911.74
7	-3,164,537.62	-4,568,467.69	612,644.37	-11,073,615.20	15,020,535.92	-2,036,738.61	5,210,178.84
8	-1,553,362.60	-1,845,561.63	-4,691,752.60	-4,178,233.09	18,245,184.19	-418,343.17	-5,557,931.10
9	-141,665.81	-69,242.86	9,249.36	39,130.36	226,811.56	-19,654.90	-44,627.71
total	-6,292,593.95	-7,099,000.84	-6,218,378.76	-15,451,918.46	38,533,110.42	-627,989.62	-2,843,228.79

Source: Calculation based on UN COMTRADE database

Industry Mix Effect (US$ thousand)

1986-1991

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	110,341.93	261,122.94	-46,420.88	-119,237.09	-41,517.47	183,127.86	-347,417.30
1	1,327.86	8,794.09	-1,901.40	-2,396.71	2,278.37	-1,218.70	-6,883.50
2	99,347.44	18,010.91	40,370.56	-33,934.14	-5,034.08	4,647.04	-123,407.72
3	-934,713.33	59,348.10	98,222.56	148,208.05	-88,080.13	-20,691.88	737,706.64
4	558.93	938.11	-16,262.52	2,252.77	2,864.67	1,424.45	8,223.59
5	-59,939.50	-27,742.74	-18,505.11	68,779.66	172,373.27	-15,606.37	-119,359.21
6	-51,945.78	21,663.06	-125,701.47	-307,512.11	11,651.38	402,020.61	49,824.31
7	-1,464,951.37	-271,868.84	1,093,035.74	2,869,977.66	-1,913,138.95	-926,636.60	613,582.36
8	-1,346,013.77	-222,937.91	-727,879.03	-1,365,341.03	1,538,437.20	-517,517.15	2,641,251.70
9	-37,861.02	348.08	14,157.72	85,043.47	35,218.98	-10,399.03	-86,508.21
total	-3,683,848.62	-152,324.21	309,116.16	1,345,840.54	-284,946.75	-900,849.76	3,367,012.65

Industry Mix Effect (US$ thousand) *(Continued)*

1992-1997

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	107,152.82	386,880.29	-74,397.48	-123,494.92	-149,709.49	42,072.94	-188,504.16
1	2,774.54	10,375.46	-2,706.12	-3,232.58	-2,216.32	-735.61	-4,259.37
2	360,230.41	37,799.69	36,866.37	-129,946.10	-184,612.10	20,724.59	-141,062.86
3	26,040.58	-7,712.80	-5,342.65	-5,452.34	1,323.11	4,462.39	-13,318.28
4	19,288.44	-9,399.43	59,615.98	-12,549.85	-35,149.50	496.33	-22,301.97
5	-83,695.31	-145,989.08	-126,261.23	346,729.10	-9,785.61	105,131.16	-86,129.03
6	166,626.55	-7,312.72	-419,311.92	-856,932.95	-236,285.59	1,069,411.68	283,804.94
7	-2,150,555.26	-567,391.84	3,277,678.77	7,247,164.80	-7,472,711.60	-1,880,021.52	1,545,836.65
8	32,209.04	-351,843.69	-955,840.30	-2,391,260.03	4,101,042.91	-265,721.78	-168,586.16
9	-54,140.45	-18,253.01	-8,250.31	131,383.04	46,767.47	-39,679.50	-57,827.24
total	-1,574,068.64	-672,847.12	1,782,051.11	4,202,408.16	-3,941,336.72	-943,859.31	1,147,652.52

1998-2003

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	320,007.35	666,949.70	-186,055.87	-168,009.97	-561,633.87	168,727.25	-239,984.59
1	22,681.84	16,263.21	-9,515.35	-8,149.53	-20,527.54	1,963.03	-2,715.66
2	56,640.18	11,449.92	-5,140.31	-21,181.76	-42,215.82	13,884.09	-13,436.30
3	158,733.90	-50,835.21	22,020.24	8,660.78	-100,650.62	-31,776.42	-6,152.67
4	4,035.72	-1,926.41	10,951.66	-2,035.87	-10,043.29	2,490.35	-3,472.17
5	-99,094.50	-293,890.44	-164,730.12	-54,094.22	-140,545.40	436,756.25	315,598.44
6	218,191.65	-204,866.33	-1,028,827.43	-1,248,482.06	-363,186.65	1,928,947.99	698,222.83
7	-1,837,658.47	34,705.45	4,006,867.39	5,435,793.59	-8,414,484.45	-2,264,953.78	3,039,730.27
8	349,039.72	-630,426.53	-2,260,937.95	-3,476,757.03	9,312,963.05	-272,719.69	-3,021,161.58
9	-46,147.64	-30,765.57	-14,511.46	377,067.46	-315,908.73	-42,334.01	72,599.95
total	-853,570.27	-483,342.21	370,120.80	842,811.40	-656,233.31	-59,014.95	839,228.54

Competitive Effect (US$ thousand)

1986-1991

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	-73,676.55	102,631.87	72,701.35	-81,327.22	191,974.65	-126,870.00	-500,395.70
1	163.45	631.96	-4,623.53	-3,978.59	-299.22	9,121.19	-14,705.33
2	-3,986.52	1,773.89	-24,709.67	-78,538.80	81,856.70	-16,018.56	1,172,172.81
3	-87,502.38	161,757.95	244,351.54	-43,550.12	236,828.70	30,280.08	423,645.44
4	6,828.88	-199.35	-1,926.17	-2,782.71	-9,520.85	338,440.46	18,675,045.75
5	-92,606.74	-34,224.88	-14,744.16	116,728.37	-35,234.18	97,858.16	-167,633.23
6	-96,105.18	209,444.63	194,300.84	-507,361.86	750,534.94	-30,657.00	-782,060.37
7	6,320,396.09	1,466,374.15	19,464.04	-163,656.16	29,052,184.74	-371,005.14	-3,139,720.36
8	2,483,769.51	1,456,062.67	2,229,807.27	-1,215,067.64	3,768,038.32	-293,636.11	-5,668,057.09
9	-1,505.95	27,627.45	-12,989.18	5,854.17	-7,335.63	-13,598.88	-4,352.98
Total	8,455,774.62	3,391,880.35	2,701,632.33	-1,973,680.57	34,029,028.17	-376,085.81	9,993,938.94

1992-1997

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	104,178.85	-46,983.10	-155,493.37	-52,049.28	-236,462.27	127,205.03	-250,826.70
1	7,501.87	-2,954.48	15,603.09	-7,151.74	-18,701.96	6,229.20	24,722.97
2	-24,597.33	15,658.84	-59,741.72	-115,707.76	481,616.09	24,717.27	-37,247.70
3	-2,533.79	-134,644.54	301,209.85	-4,063.52	25,575.65	-73,476.11	34,271.38
4	12,713.13	-21,250.71	-10,796.07	-31,689.02	297,459.97	16,286.24	18,563.10
5	172,684.63	-16,950.51	424,644.16	-195,938.52	161,512.90	38,379.37	8,255.52
6	-93,255.60	-412,945.62	-106,144.19	-375,713.33	1,963,210.42	7,663.45	-975,638.79
7	6,252,580.85	-342,073.69	126,587.06	-2,165,217.98	12,034,990.36	2,377,087.20	-1,499,516.36
8	803,954.66	-889,230.66	-333,911.06	-4,060,155.01	6,023,606.02	356,139.44	-8,469,496.54
9	61,835.03	27,438.38	-19,641.78	102,162.08	-273,424.78	80,048.03	103,585.85
Total	7,295,062.30	-1,823,936.10	182,315.97	-6,905,524.09	20,459,382.41	2,960,279.14	-11,043,327.26

Competitive Effect (US$ thousand) (*Continued*)

1998-2003

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	-106,285.04	-122,678.23	-41,528.12	-248,208.66	2,749,083.56	5,905.98	59,904.93
1	-7,891.81	2,149.60	21,198.95	-17,545.88	-16,297.22	6,168.86	42,219.16
2	-21,321.00	7,240.14	-77,773.74	-113,004.85	426,635.21	-38,653.57	51,902.45
3	-30,592.58	3,192,623.55	26,613.44	-151,520.23	-190,154.03	85,113,120.07	133,317.57
4	-10,909.62	26,685.91	12,194.43	-14,139.38	-5,815.07	-5,053.48	-11,777.83
5	-165,946.04	276,912.71	-587,283.98	1,807,976.06	-343,297.93	-11,699.95	-581,741.55
6	-960,556.78	-362,927.69	-1,466,345.59	-1,826,373.15	5,845,037.05	-200,889.32	-1,847,157.17
7	-3,399,513.36	-4,565,649.16	-2,020,880.96	-8,399,621.88	37,243,158.92	1,697,156.10	1,544,188.62
8	-1,648,554.40	-1,516,108.23	-4,959,727.27	-3,921,855.31	5,778,992.39	-169,050.09	-5,466,925.05
9	-158,620.93	-47,462.34	25,384.14	-123,325.01	850,227.29	39,125.46	-93,656.08
Total	-6,510,191.56	-3,109,213.74	-9,068,148.68	-13,007,618.28	52,337,570.16	86,436,130.06	-6,169,724.94

Source: Calculation based on UN COMTRADE database

Interactive Effect (US$ thousand)

1986-1991

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	-62,483.84	404,407.64	-37,643.70	56,073.54	-42,941.68	-266,317.42	363,867.05
1	71.48	3,593.40	4,201.59	2,362.57	-157.38	-5,459.63	9,078.04
2	-11,336.01	1,795.42	-41,436.21	57,391.01	-8,267.82	-3,177.60	-1,127,518.65
3	-394,645.12	-90,944.22	-168,063.46	23,430.55	70,554.89	4,508.72	-410,652.59
4	-1,704.26	163.95	-20,297.75	2,105.84	8,536.57	-321,028.70	-18,673,661.65
5	56,468.33	18,964.21	4,028.09	61,446.70	-43,310.15	-23,170.57	55,430.04
6	17,917.48	31,971.50	-127,213.54	421,281.79	22,000.60	-65,969.94	-38,083.89
7	-6,227,607.17	-526,444.01	20,766.33	-237,671.71	-26,205,075.83	344,850.96	-352,855.94
8	-1,893,583.86	-360,979.04	-1,334,101.37	706,932.98	2,301,575.56	128,364.91	-2,309,126.10
9	1,137.17	376.57	-5,322.76	7,470.38	-3,611.97	4,206.37	2,045.25
total	-8,515,765.80	-517,094.59	-1,705,082.77	1,100,823.65	-23,900,697.21	-203,192.89	-22,481,478.44

1992-1997

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	160,817.66	-162,329.56	95,309.98	39,367.84	91,293.94	93,188.91	192,782.07
1	12,998.82	-11,867.53	-15,080.60	6,138.07	4,633.87	-3,458.82	-18,612.78
2	-146,910.31	6,083.60	-20,883.81	105,983.18	-263,891.48	10,265.43	24,655.71
3	-11,325.69	110,502.62	-157,974.34	1,616.80	1,039.79	-68,024.08	-22,174.01
4	38,128.71	19,253.35	-57,233.25	26,289.18	-291,025.07	1,519.15	-18,218.71
5	-125,817.28	13,354.18	-266,930.59	-251,433.29	-2,462.98	42,454.26	-1,751.87
6	-39,312.84	4,736.04	64,397.13	346,294.81	-210,087.22	25,060.59	-198,264.84
7	-5,384,297.93	48,178.21	95,015.09	-2,671,259.72	-6,446,490.31	-2,162,885.62	-262,697.13
8	18,405.91	137,860.78	129,742.32	2,933,894.00	3,143,249.71	-81,302.05	287,242.49
9	-48,309.17	-4,480.17	1,337.34	82,343.49	-33,032.02	-55,398.30	-24,463.99
total	-5,525,622.13	161,291.53	-132,300.74	619,234.35	-4,006,771.77	-2,198,580.54	-41,503.06

1998-2003

SITC	Indonesia	Thailand	Malaysia	Singapore	China	India	Rep. of Korea
0	-283,145.78	-486,190.16	32,881.80	185,855.59	-1,707,022.54	9,555.14	-48,128.47
1	-31,901.22	4,447.17	-18,377.37	13,642.87	7,918.13	2,485.80	-8,217.03
2	-96,107.74	4,709.16	16,264.47	101,983.74	-190,361.05	-49,194.37	-22,318.85
3	-132,275.38	-3,155,536.22	8,160.34	-19,136.69	69,236.52	-84,854,871.27	-8,985.09
4	-30,644.23	-25,539.69	47,517.23	10,726.14	5,398.45	-10,089.06	11,446.22
5	55,101.76	-194,645.75	165,715.10	-175,443.86	21,471.23	-19,722.15	-247,395.65
6	-291,748.57	73,876.42	1,073,540.33	1,699,280.37	-392,450.36	-621,308.14	-721,977.40
7	2,072,634.21	-37,523.98	-1,373,342.07	-8,109,786.91	-13,808,138.55	-1,468,940.93	626,259.94
8	-253,847.92	300,973.14	2,528,912.61	3,220,379.25	3,153,228.75	23,426.61	2,930,155.53
9	63,102.76	8,985.04	-1,623.32	-214,612.09	-307,507.00	-16,446.34	-23,571.58
total	1,071,167.87	-3,506,444.89	2,479,649.13	-3,287,111.58	-13,148,226.43	-87,005,104.72	2,487,267.61

Source: Calculation based on UN COMTRADE database