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THE IMPACT OF THE ECONOMIC CRISIS ON INDONESIA'S MANUFACTURING SECTOR

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I. INDONESIA'S MANUFACTURING SECTOR BEFORE THE ECONOMIC CRISIS OF 1997/98: AN OVERVIEW

DURING the thirty years preceding the financial and economic crisis of 1997/98, Indonesia's manufacturing sector experienced unprecedented rapid growth and transformation. Unlike its Southeast Asian neighbors, Indonesia by the mid-1960s had not done much to build a modern manufacturing sector. However, by the mid-1990s Indonesia was classified as one of the East Asian "newly industrializing economies" (NIEs) by the World Bank along with Malaysia and Thailand. Since the 1980s these three Southeast Asian countries have experienced a surge in manufactured exports which, while smaller in magnitude, is similar to the surge achieved earlier by the "Four Tigers," the Republic of Korea, Taiwan, Hong Kong, and Singapore (World Bank 1993, pp. 1, 37).

Indonesia's export surge in manufactured goods was primarily fuelled by the rapid growth of low-skill labor-intensive products, including textiles, garments, and footwear, and resource-intensive products, particularly plywood and other wood-based products. The data in Table I show some features of Indonesia's rapid industrial transformation over the period 1965–97 in regional perspective.

As a result of its rapid and sustained industrial growth, by the mid-1990s Indonesia had one of the largest manufacturing sectors among the 100-odd developing countries. Like Malaysia and Thailand, Indonesia has since the end of the oil-boom era in the early 1980s also been increasingly successful in reducing its traditional dependence on primary exports, specifically oil and gas, by relying more and more on manufactured exports as the major source of its export earnings. This success was largely achieved by a series of deregulation measures in the trade, investment, and financial sectors introduced from the mid-1980s through the early 1990s to promote the growth of a more efficient private sector.

The trade reforms brought about a significant decline in the "anti-export bias" of the trade regime. As a result, since 1987 Indonesia has experienced a surge in manufactured exports so remarkable that it can be considered an important milestone in the country's modern economic history, since it was the first broad-based expan-

TABLE I

INDONESIA'S INDUSTRIAL DEVELOPMENT IN REGIONAL PERSPECTIVE, 1965–97

	Value Added in Manufacturing (U.S.$ Million)		Growth of Manufacturing Sector (Average Annual % Growth)			Manufacturing Value Added (% of GDP)		Manufactured Exports (% of Total Exports)	
	1970	1996	1965–80	1980–90	1990–97	1965	1997	1980	1997
ASEAN-4									
Indonesia	994	58,244	12.0	12.6	10.8	8	26	2	42
Malaysia	500	34,030	—	8.9	13.1	9	34	19	76
Philippines	1,622	18,908	7.5	0.2	3.1	20	22	21	45
Thailand	1,130	51,525	11.2	4.5	9.3	14	29	25	71
Large northeast Asian developing economies									
Rep. of Korea	1,880	125,314	18.7	—	—	18	26	90	92
China	30,466	308,945	9.5	10.4	15.5	31	37	—	85

Sources: World Bank (1991, Tables 2, 3, 6, 16; 1999, Tables 1, 4.2, 4.3, 4.5).

sion of manufactured exports (Hill 1987, p. 29). As a result of the surge in manufactured exports, Indonesia's manufacturing sector, particularly the non–oil and gas manufacturing subsector, emerged not only as the major source of foreign exchange earnings, replacing oil and gas, but also as the country's major engine of economic growth. During the period 1989–93, manufactured exports grew at an average annual rate of 27 per cent, while manufacturing value added (MVA) grew at an average annual rate of 22 per cent (UNIDO 2000, p. 1).

The manufactured export surge, however, turned out to be short-lived as in 1992 and 1993 the growth of manufactured exports began to slow down to 15 and 12 per cent respectively (Kuncoro 2000, p. 2). During the period 1994–97, manufactured export growth slowed down further to an average annual rate of 7 per cent, while MVA dropped to an average annual rate of 12 per cent (UNIDO 2000, p. 1).

This slowdown raised serious concern among Indonesia's government officials, businessmen, and academic economists about the sustainability of manufactured export growth. In their view, Indonesia could not continue to rely on traditional resource- and low-skill labor-intensive manufactured exports. The sustainability of Indonesia's major resource-intensive manufactured exports, namely plywood and other processed wood products, could no longer be relied upon because the domestic supplies of timber had reached their natural limits of sustainability due to rapid deforestation caused by the reckless harvesting. Similarly, the sustainability of low-skill labor-intensive manufactured exports could also no longer be taken for granted because of the sharp competition from lower wage countries, including China, Vietnam, India, and Bangladesh.

Sustained growth of non–oil and gas exports, of which manufactured exports are by far the largest component, is deemed important because they are an essential source of foreign exchange earnings needed to service Indonesia's large foreign debt. Non–oil and gas exports are also important to generate employment for Indonesia's large and growing labor force (James 1995, p. 20).

The slowdown of the late 1990s was particularly evident in the case of wood-based products (plywood) and textile/garment exports, the country's largest manufactured exports. The concern that Indonesia's low-skill, labor-intensive manufactured exports were becoming less competitive in the face of strong price competition from the other low-wage Asian countries was warranted by the fact that textile and garment exports in 1994 had declined most sharply in the non-quota markets (James 1996, pp. 22–25). Textile industry circles attributed this declining export competitiveness to the mandatory steep rise in the minimum wage, which over the period 1991–96 rose by 350 per cent. This steep rise, however, was until 1993 matched by a corresponding rise in labor productivity (Tanudjaja 1999, p. 7). However, between 1993 and 1994 the minimum wage grew about 10 per cent faster than labor productivity (World Bank 1996a, p. 75). As a result, per unit labor costs began to rise, which adversely affected employment growth, as well as the export-competitiveness of labor-intensive, export-oriented industries, including the textile, garment, and footwear industries, most of which are located in the Greater Jakarta and surrounding regions in West Java.

Another source of concern about the slowdown in manufactured exports was that the surge of such exports had been fuelled by a narrow range of products, particularly resource-intensive and low-skill labor-intensive products, particularly plywood and other wood-based products and textiles, garments, and footwear. In fact, about half of Indonesia's total manufactured exports were generated by only five manufactured products (plywood, textiles, garments, footwear, and electronics). In addition to this vulnerability, manufactured exports were also too dependent on a small number of export markets, as about half of manufactured exports were directed at only three countries (the United States, Japan, and Singapore), while the United States alone absorbed nearly half of the total exports of garments and footwear (UNIDO 2000, p. 3).

For this reason several economists have argued that Indonesia should make greater efforts to diversify its manufactured export base and its export markets. They also recommend that Indonesia transform its export base by moving gradually towards the export of more sophisticated manufactured goods (HIID 1995, p. 6). In other words, Indonesia should gradually reduce its reliance on its traditional sources of competitiveness, namely cheap labor and natural resources, and instead develop a more sustainable source of competitiveness through a wider diffusion of technological capabilities and organizational competence (Ernst, Ganiatsos, and Mytelka, 1998, p. 1).

The slowdown in the growth of manufactured exports since 1993, however, is not solely due to a decline in export competitiveness. It was to be expected that the surge of manufactured exports during the late 1980s and early 1990s could not be sustained, since growth rates were very high because they started from a very low base. In addition, the global recession during the early 1990s adversely affected the growth of world trade, including Indonesia's export growth (HIID, 1995, p. 1).

Nevertheless, it was widely agreed that broadening and transforming Indonesia's manufactured export base was essential to sustain the growth of manufactured exports. In line with this view, a report prepared for the Asian Development Bank (ADB) recommended that in the face of the emerging international environment of accelerating technical change and globalization of production, and the entry of many low-cost competitors, the sustainability of Indonesia's manufactured export growth would require a broadening and deepening of its competitive advantages. This in turn would require upgrading existing export products, increasing their local content, and promoting the emergence of new, more highly value-added export products and activities (Lall and Rao 1995, p. 3).

The need to increase local content by developing efficient and economically viable supporting industries is obvious in view of the lack of backward linkages and the resulting high import dependence of Indonesia's assembling industries. For example, in 1997 the value of imported raw materials, intermediate inputs, parts and components (i.e., excluding the value of imported capital equipment) ranged from 45 per cent in the chemical industry to 53 per cent in the machinery industry, 56 per cent in the transport equipment industry, and 70 per cent in the electrical goods industry. This high import dependence was even evident in labor-intensive, largely export-oriented industries, where the value of imported raw materials, intermediate inputs, parts and components ranged from 40–43 per cent in the textile, garment, and leather industries to 56 per cent in the footwear industry (UNIDO 2000, p. 3).

The recommendations contained in the report to the Asian Development Bank were largely similar to the recommendations presented to Indonesia's Department of Industry by a team of experts from the Harvard Institute of International Development (HIID 1995): to wit, for the short- to medium-term further rapid manufactured export growth requires policies that support the continued growth of existing export products; over the long-run Indonesia will have to take necessary steps to increase skill- and capital-intensive exports (HIID 1995, p. 2).

Hence, despite the considerable achievements of Indonesia's manufacturing sector, its export competitiveness even before the severe economic crisis of 1997/98 was under threat because of the relatively low efficiency and lack of dynamism in many manufacturing firms in responding speedily and effectively to changing demands in export markets. This state of affairs, however, was the inevitable outcome of various shortcomings in the incentive system for manufacturers, particularly in the trade, competition, and investment regimes, and the relative weakness of the

TABLE II

RECENT ESTIMATES OF AVERAGE ANNUAL TFP GROWTH IN INDONESIAN NON–OIL AND GAS MANUFACTURING, 1975–95

Period	Average Annual TFP Growth (%) (1)	Period	Average Annual TFP Growth (%) (2)
1976–81	0.7	1975–81	1.0
1982–85	1.1	1982–85	0.1
1986–91	2.1	1986–90	7.9
		1991–95	2.1
		1975–95	2.8

Sources: For (1), Hill, Aswicahyono, and Bird (1997, Table 3.8); and for (2), Timmer (1999, p. 87, Table 4).

"supply-side capabilities" of many manufacturing firms, particularly the large shortage of highly skilled workers.

While the trade regime in some of the East Asian "first-tier" NIEs, such as Korea, was used effectively to raise the competitiveness of its manufacturing firms, protection policy in Indonesia has not been effective in significantly encouraging manufacturing firms to increase exports and improve efficiency. This is evident from a quantitative study conducted by Hal Hill, which found a negative correlation between the rate of effective protection and export growth, and a positive, but insignificant, correlation between effective protection and total factor productivity (TFP) growth for the period 1982–91. These findings indicate that there is little empirical support for the view that selective industrial policy through protection has been successful in Indonesia (Hill 1996, pp. 157–58).

A related study conducted by Hal Hill, Haryo Aswicahyono, and Kelly Bird found that while the average TFP growth in Indonesia's manufacturing sector for the period 1976–91 was positive, it was relatively low compared to the "first tier" East Asian NIEs (Hill, Aswicahyono, and Bird 1997) (see Table II).

This study also found that TFP growth rates varied if the above period was subdivided into three distinct policy periods: namely, the period of import-substitution policies during the oil boom (1976–81), the immediate post–oil boom period when existing policies were reassessed (1982–85), and the period marked by a more decisive shift to export-promotion policies (1986–91). The study found that average annual TFP growth was quite low during the first period, then slowly rose during the second period, and then rose even faster during the third period (Hill, Aswicahyono, and Bird 1997, p. 78). Evidently, the more favorable policy environment since the mid-1980s had a positive impact on TFP growth.

A more recent study on aggregate TFP growth in Indonesia's manufacturing sector done for the period 1975–95 by Marcel Timmer came up with largely similar

findings. Subdividing the above period by five-year intervals, Timmer found, like Hill et al., that average annual TFP growth was low during the import-substitution phase of the late 1970s and early 1980s. However, from the policy reforms introduced since the mid-1980s, TFP growth rose steeply in the late 1980s (Timmer 1999, pp. 84–87). During the first half of the 1990s, however, TFP growth declined again, although it was still higher than during the import-substitution phase.

Comparing the relative TFP levels of manufacturing sectors in Indonesia, Korea, and Taiwan with those of the United States, Timmer also found that over the period 1975–89 Indonesia's TFP level was only 18 per cent of the U.S. figure in 1975, and since then largely stagnated in relative terms, although by the late 1980s it had risen to slightly over 20 per cent of the U.S. figure. By contrast, the relative TFP levels of Korea and Taiwan during this period were not only much higher than that of Indonesia, but also over time narrowed the gap with the United States. While average annual TFP growth in Indonesia over this period was positive, it was not rapid enough to narrow the gap with the United States (Timmer 1999, pp. 91–92).

Hence, although Indonesia's rapid industrial growth and transformation during the past three decades have been accompanied by technological upgrading, as reflected by rising TFP levels, particularly since the mid-1980s, the development of technological capabilities in Indonesian manufacturing has not been as rapid as that of Korea or Taiwan, and from a international perspective has even stagnated in relative terms (Timmer 1999, pp. 92–93).

The findings of more qualitative firm-level surveys conducted by international consulting firms (e.g., SRI International 1992) and individual scholars (e.g., Thee 1990; McKendrick 1992; Thee and Pangestu 1998) have largely confirmed the findings of the above quantitative macro surveys that the industrial technological capabilities (ITCs) of most Indonesian manufacturing firms are still quite limited.

The relatively low ITCs of Indonesia's manufacturing sector is reflected in its shallow and relatively backward technological base, its narrow and weak domestic capability to absorb and improve upon complex imported technologies, its underdeveloped capital goods sector, the concentration of its export industries in simple, labor-intensive assembly and resource-processing activities, and the relatively small amount of technological effort, which is concentrated and distorted (Lall 1998, p. 136). This concentrated and distorted technological effort is particularly evident in Indonesia's costly efforts to develop high-technology industries, specifically a state-owned aircraft industry.

To the extent that Indonesia's manufacturing industry, particularly its export-oriented firms, improved its ITCs, these technological capabilities were largely confined to basic production (operational) capabilities required to operate a plant efficiently and to a lesser extent to minor change capabilities required to adjust product or process technologies to local tastes and conditions. However, the more

demanding marketing and major change (innovation) capabilities, which are crucial to raising international competitiveness, were generally still beyond reach (Thee and Pangestu 1998, pp. 261–62).

Not surprisingly, the relatively low ITCs of most manufacturing firms have adversely affected their international competitiveness and their ability to meet new challenges posed by increasing trade liberalization within AFTA (ASEAN Free Trade Area), WTO (World Trade Organization), and APEC (Asia-Pacific Economic Cooperation). For this reason, there was broad agreement among Indonesian policymakers and economists, as well as international aid organizations, that improvement in the ITCs of manufacturing firms would have to be an important part of any overall strategy for strengthening and upgrading Indonesia's industrial structure and raising its industrial competitiveness for sustaining growth in its manufactured exports (World Bank 1996b, p. 2).

II. THE IMPACT OF THE FINANCIAL AND ECONOMIC CRISIS ON THE INDONESIAN ECONOMY

The severe financial and economic crisis which hit Indonesia in 1997/98 had a severely adverse impact on the Indonesian economy, including the manufacturing sector. Although the crisis hit Indonesia in mid-1997, its full devastating effect was only felt in 1998, when the economy contracted by almost 14 per cent. This contraction was much worse than the crisis of the early 1960s, when the economy contracted by 3.0 per cent in 1963 (World Bank 1998, p. 2.1). However, by early 1999 there were already signs that Indonesia was slowly emerging from the depths of the crisis, as macroeconomic stability was gradually being restored.

Despite this slight economic recovery, Indonesia is still far away from achieving full economic recovery. The major factors hampering full economic recovery are the slowness of bank and corporate restructuring and a continuing lack of confidence on the part of domestic and foreign investors (World Bank 2000, p. 3). Without steady progress in bank and corporate restructuring, it is unlikely that the business confidence necessary to stimulate new capital investment, particularly by foreign investors, will be restored.

Since growth was still relatively high in early 1997 before the onset of the crisis, economic growth remained positive, though it slowed down to 4.9 per cent after a growth rate of 8.2 per cent in 1995 and 7.8 per cent in 1996 (see Table III).

In 1998, however, almost all sectors, except for agriculture and electricity, gas, and water supply, experienced a sharp contraction in their activities as compared to 1997. As a result, Indonesia's Gross Domestic Product (GDP) in 1998 contracted by an unprecedented 13.7 per cent (Indonesia, BPS 1999b, p. 9).

The data in Table III shows that in 1998 construction was the hardest hit sector, contracting by 39.7 per cent, followed by the financial sector (26.7 per cent), trade,

TABLE III

REAL GDP GROWTH AT 1993 CONSTANT PRICES BY INDUSTRIAL SECTOR, 1995–99

(%)

Sector	1995	1996	1997	1998	1999
1. Agriculture, livestock, forestry, and fishering	4.4	3.1	0.7	0.2	0.7
2. Mining and quarrying	6.7	6.3	1.7	–4.2	–0.1
3. Manufacturing	10.9	11.6	6.4	–12.9	2.2
4. Electricity, gas, and water supply	15.9	13.6	12.8	3.7	7.3
5. Construction	12.9	12.8	6.4	–39.7	1.2
6. Trade, hotels, and restaurants	7.9	8.2	5.8	–18.9	–1.1
7. Transport and communication	8.5	8.7	8.3	–12.8	–0.7
8. Financial ownership, and business	11.0	6.0	6.5	–26.7	–8.7
9. Services	3.3	3.4	2.8	–4.7	2.8
GDP	8.2	7.8	4.9	–13.7	0.2
Non–oil and gas GDP	9.2	8.2	5.5	–14.8	0.4

Sources: For data on 1995–98, Indonesia, BPS (1999b, p. 108, Table 12). For data on 1999, BPS (2000d, p. 5, Table 3).
Note: Rounded figures. Figures for 1999 are preliminary figures.

hotels, and restaurants (18.9 per cent), manufacturing (12.9 per cent), and transport and communications (12.8 per cent).

In 1999, however, this severe economic contraction was reversed, as GDP grew again by a positive, albeit miniscule, 0.2 per cent. However, it can be argued that a GDP growth of 0.2 per cent should more accurately be interpreted as zero growth (stagnation) rather than economic recovery. As a result, GDP in 1999 was still substantially below its level of 1997 (World Bank 2000, p. 1). Moreover, capital investment remained depressed as a result of low business confidence and low domestic demand. Non–oil and gas exports, notably manufactured exports, have not increased rapidly, despite radical rupiah depreciation. For this reason, export markets have not been able to offset reduced demand in the domestic market.

The slight economic recovery of 1999 has to a large extent been driven by increased private household and government consumption, which were growing again at 1.6 and 8.4 per cent respectively after the negative growth of 1998. Gross capital investment, however, was still growing at a negative, though higher rate than in 1998 (see Table IV).

However, private and government consumption cannot continue to drive economic recovery, and exports cannot be expected to pull the Indonesian economy from its current slump. As a matter of fact, exports, like imports, recorded negative growth in 1999. Hence, a strong economic recovery requires a resumption in the growth of domestic demand strongly supported by renewed capital investment (World

TABLE IV

GROWTH RATE OF GROSS DOMESTIC PRODUCT AT 1993 CONSTANT PRICES ACCORDING TO TYPE OF EXPENDITURE, 1995–99

(%)

Type of Expenditure	1995	1996	1997	1998	1999
1. Private consumption	12.6	9.7	6.6	–2.9	1.6
2. Government consumption	1.3	2.7	0.1	–14.4	8.4
3. Gross domestic fixed capital formation	14.0	14.5	8.6	–40.9	–21.2
4. Exports	7.7	7.6	7.8	–10.6	–32.5
5. Less imports	20.9	6.9	14.7	–5.4	–45.3
GDP	8.2	7.8	4.9	–13.7	0.1

Sources: For data on 1995–98, Indonesia, BPS (1999b, p. 113, Table 16). For data on 1999, Indonesia, BPS (1999a, p. 14, Table 2.9).
Notes: Rounded figures. Figures for 1999 are very preliminary figures.

Bank 2000, p. 1). Negative growth in capital investment for two consecutive years is thus a source of serious concern.

Although several sectors, including agriculture, manufacturing, construction, and services, recorded positive, albeit very low, growth (except for electricity, gas, and water supply, which grew by 7.3 per cent), other sectors, including mining and quarrying; trade, hotels, and restaurants; transport and communications; and finance, ownership, and business services, still recorded negative growth. The continuing contraction of the financial, ownership, and business services sector reflects the lack of progress in banking and corporate-debt restructuring programs.

To a large extent, the impact of the financial crisis on the real sectors, notably the manufacturing sector, was largely transmitted through two channels in the socio-economic system. The impact transmitted through the first channel was from substantial capital outflows, radical depreciation of the rupiah, and the contractionary effects of tight fiscal and monetary policy on GDP and its various constituent sectors. The sharp contraction of such sectors as the manufacturing, construction, and financial sectors, much of them geographically located in or near large urban areas, led to many layoffs (Daimon and Thorbecke 1999, p. 2). The impact transmitted through the second channel was caused by the substantial shifts in relative prices, as the prices of tradable goods, including manufactured products, rose steeply vis-à-vis non-tradable goods and services as a result of the steep depreciation of the rupiah in early 1998. As a result, inflation rose steeply in that year (Daimon and Thorbecke 1999, p. 2). Layoffs of hundreds of thousands of workers formerly employed in the real sector and a high rate of inflation led to a sharp decline in the purchasing power of Indonesian consumers, which, in turn, contributed to sharply reduced demand for tradable goods, including manufactured products.

III. THE IMPACT OF THE CRISIS ON THE MANUFACTURING SECTOR

The financial and economic crisis of 1997/98 has seriously injured Indonesia's manufacturing sector. However, as the Indonesian economy during the three years since the crisis has gone from a deep depression to a slight recovery, the manufacturing sector has in general followed the same pattern. Moreover, the impact of the crisis has also had a different impact on manufacturing firms, depending on whether they were heavily indebted or not, mainly export- or domestic market-oriented, either domestic private companies, state-owned enterprises (SOEs), or joint ventures with foreign firms, mainly dependent on imported or domestic inputs, or in either large or small and medium-scale industries (SMIs).

In the following pages an overview will be given in which ways the crisis has affected the manufacturing sector, specifically non–oil and gas manufacturing industries, and how these industries have fared during the crisis.

A. *The Impact on Output*

To get a better idea of the general impact, specifically on output, it would useful to divide the manufacturing sector into two subsectors, namely the oil and gas and the non–oil and gas subsectors. Since the end of the oil boom in 1982, the latter has emerged as the most important of the two.

The contraction of Indonesia's manufacturing sector in 1998 by 12.9 per cent was caused by a sharp reduction in the output of this subsector, as shown in Table V. The output of oil and gas manufacturing, however, recorded a slight increase due to an increase in the output of refined oil and in demand for LNG (liquefied natural gas) in the major export markets of Japan and Korea (Indonesia, BPS 1999b, p. 21). However, because of its low growth rate in 1998 and its relatively minor importance of Indonesian manufacturing (accounting for only 11.4 per cent in total manufacturing value added in 1998), the positive growth of the oil and gas manufacturing subsector was not able to offset the sharp contraction of the non–oil and gas subsector.

The data in Table V shows that in 1998 all the non–oil and gas manufacturing industries recorded output contraction. Among these industries, the transport equipment, machinery, and apparatus (metal goods) industries contracted the most (52.0 per cent), followed by the cement and nonmetallic minerals industries (29.4 per cent), iron and basic steel (basic metals) industries (28.7 per cent), and other manufacturing industries (23.6 per cent).

During 1999, however, most of the non–oil and gas manufacturing industries recorded positive, although still very modest, single-digit growth. The only industries which still recorded negative growth were the wood products, basic metals,

TABLE V

GROWTH AND STRUCTURE OF INDONESIA'S MANUFACTURING SECTOR AT 1993 CONSTANT PRICES, 1995–99

(%)

Subsector	1995		1996		1997		1998		1999	
	Growth Rate	Structure	Growth Rate	Structure	Growth Rate	Structure	Growth Rate	Structure	Growth Rate	Structure
I. Oil and gas manufacturing	–4.7	2.6	11.1	2.6	–2.0	2.5	1.8	2.9	6.1	3.0
1. Petroleum refining	–2.8	1.4	16.7	1.5	–5.8	1.4	2.7	1.6	6.2	1.7
2. LNG refining	–7.0	1.1	4.2	1.1	3.3	1.1	0.8	1.3	5.9	1.3
II. Non–oil and gas manufacturing	13.1	21.3	11.7	22.1	7.4	22.6	–14.5	22.4	1.7	22.7
1. Food, beverages & tobacco	16.5	9.7	17.2	10.5	14.9	11.5	–2.1	13.1	2.6	13.2
2. Textile, leather products & footwear	10.5	2.1	8.7	2.1	–4.4	1.9	–13.0	1.9	0.4	1.9
3. Wood products	3.0	1.5	3.2	1.4	–2.1	1.3	–18.5	1.3	–9.4	1.0
4. Paper & printing	13.5	0.9	6.9	0.9	9.0	0.9	–11.0	0.9	2.8	1.0
5. Fertilizers, chemicals & rubber products	11.9	2.8	9.1	2.8	3.4	2.7	–23.2	2.4	4.7	2.9
6. Cement & nonmetallic mineral products	20.1	0.7	11.0	0.8	4.5	0.8	–29.4	0.6	2.4	0.6
7. Iron & basic steel	18.7	0.8	8.0	0.8	–1.4	0.7	–28.7	0.6	–3.9	0.6
8. Transport equipment, machinery & apparatus	7.7	2.8	4.6	2.7	–0.4	2.6	–52.0	1.4	–9.9	1.3
9. Other manufacturing	8.9	0.1	9.7	0.1	6.0	0.1	–23.6	0.1	6.6	0.1
Manufacturing industry	10.9	23.9	11.6	24.7	6.4	25.1	–12.9	25.3	2.2	25.7

Sources: For data on 1995–98, Indonesia, BPS (1999b, p. 98, Table 6 and p. 108, Table 12). For data on 1999, Indonesia, BPS (2000a, Tables 6 and 12).

Note: Rounded figures. Figures for 1999 are preliminary figures.

TABLE VI

INDEX OF MANUFACTURING OUTPUT AT 1993 CONSTANT PRICES BY SUBSECTOR, 1995–99

(1993 = 100)

Subsector	1995	1996	1997	1998	1999
I. Oil and gas manufacturing	99.9	110.9	108.7	110.8	117.2
1. Oil refining	97.3	113.6	107.0	109.9	117.9
2. LNG refining	103.2	107.5	111.1	111.9	116.2
II. Non–oil and gas manufacturing	128.4	143.3	154.0	131.7	134.0
1. Food, beverages, and tobacco	138.5	162.2	186.4	182.4	185.4
2. Textile, leather products, and footwear	118.1	128.4	122.7	106.7	105.9
3. Wood products and other wood products	109.1	112.6	110.3	89.9	73.9
4. Paper and printing	129.3	138.2	150.6	134.0	146.4
5. Fertilizers, chemicals, and rubber products	124.4	135.6	140.2	107.6	129.8
6. Cement and nonmetallic mineral products	143.8	159.6	166.7	117.8	118.7
7. Iron and basic steel	126.3	136.5	134.6	96.0	96.2
8. Transport equipment, machinery, and apparatus	118.2	123.6	123.1	59.1	52.5
9. Other manufacturing products	122.4	134.3	142.4	108.8	93.5
Manufacturing industry	124.6	139.0	148.0	128.9	131.8

Sources: For data on 1995–98, Indonesia, BPS (1999b, p. 104, Table 10). For data on 1999, Indonesia, BPS (2000a, Table 10).

and transport equipment and machinery industries. However, compared to the sharp, double-digit contraction of 1998, the single-digit contraction of these three industries was much less than it had been in 1998.

The data in Table VI provides additional evidence of the severe contraction in 1998 and the modest recovery which most of its industries, excepting the textile and footwear, wood products, transport equipment and machinery, and others, experienced in the course of 1999.

Since 1995 growth of the worst affected transport equipment and machinery industries had been steadily declining and in 1997 even contracted slightly. However, it was only in 1998 that the full impact of the crisis hit these largely domestic market-oriented industries as a result of a steep decline in consumer purchasing power caused by steep inflation. Moreover, these industries are largely assembling industries that still rely to a large extent on imported inputs. For example, despite the mandatory “deletion programs” (local content programs) introduced since the late 1970s for the engineering goods industries, including the automotive industry, car assembling in Indonesia still depends for 60–90 per cent of its inputs on imports

(Yusmaliani and Nugraha, 1999, p. 4). The cost of these imported inputs skyrocketed when the rupiah depreciated steeply in 1997/98.

Not surprisingly, the production of motor vehicles, including commercial vehicles (buses and trucks), passenger cars, and even motorcycles, Indonesia's most popular and cheapest mode of motorized transport, declined steeply in 1998, as most middle-income households, the major buyers of cars were, like the rest of society, hard hit by the crisis and deferred the purchases of cars, motorcycles, and other less essential consumer durables, such as consumer electronics. Data supplied by the Association of the Indonesian Automotive Industry (Gabungan Industri Kendaraan Bermotor Indonesia, GAIKINDO) shows that total sales of commercial vehicles and passenger cars dropped from 392,185 units in 1997 to 68,809 units in 1998, a decline of 82 per cent.

Another important factor which adversely affected the sales of motor vehicles during 1998 is the fact that most vehicles are purchased on credit. In view of this fact, potential buyers experienced a sharply reduced capacity to purchase new cars when new credit lines, including the "in-house" lines of multi-finance operations of automotive firms, dried up following the crisis (Evans 1998, pp. 22–23). Another factor which also adversely affected the demand for cars was the rising cost of finance for car purchases as interest rates rose steeply following the radical rupiah depreciation (Pardede 1999, p. 11).

However, as the economy slowly recovered in 1999 and interest rates dropped, demand for motor vehicles gradually increased again, although not to pre-crisis levels. According to data supplied by GAIKINDO, in 1999 total sales (domestic sales plus exports) of four-wheeled motor vehicles (commercial and passenger vehicles) rose to 125,469 vehicles. Of this figure, 93,814 vehicles were sold domestically, while 25 per cent, or 31,655 units (all commercial vehicles) were exported. Comparing these figures with those of 1997, we find that out of the total sales of 392,185 units, only 5,494 units (1.4 per cent of total sales) were exported. However, even during 1998 the automotive industry was able to offset to some extent the steep decline in domestic demand by exporting a larger proportion of its output. Data supplied by GAIKINDO show that out of the total output of 68,809 cars, 10,506 cars (15 per cent of the total) were exported. This implies a tenfold increase in the percentage of cars being exported within a period of only one year. Assuming that economic recovery will continue, GAIKINDO has projected that total sales of four-wheeled motor vehicles could rise to around 200,000 in 2000.

These figures show that the slight recovery of the automotive industry in 1999 has to a large extent been due to the successful effort on its part to shift a considerable portion of its output to the export market. However, it should be borne in mind that all of Indonesia's automotive firms are either joint ventures with foreign companies or domestic firms producing cars under technical licensing agreements with foreign firms. Since such technical licensing agreements generally carry some re-

strictive clauses, including export restrictions, it can be assumed that overseas principals allowed licensees some leeway in exporting output in order to assist Indonesian partners during the crisis years.

Like the car-assembling industry, the automotive components industry was also adversely affected by the crisis, particularly those firms producing for the domestic market. This domestic market includes both domestic car-assembling firms and the after-sales replacement market. Findings of a recent field survey, however, indicates that component firms which had access to trade networks, either through their own efforts or through their foreign partners in the case of joint ventures, were less adversely affected by the crisis than firms which did not have such access. The reason that the few firms having access suffered less was that they were able to shift their market orientation from the domestic to the export market (Feridhanusetyawan, Aswicahyono, and Anas, 2000, p. 49).

The contraction of local basic metals industries was caused by the sharp decline in demand from their major customers in the metal goods industries. This is reflected by the fact that machinery production during the period from second quarter 1997 to second quarter 1998 contracted by 71.0 per cent, while iron and steel production contracted by 32.0 per cent (Evans 1998, p. 21).

The large contraction of the cement and nonmetallic minerals industries was largely due to a sharp decline in demand for cement and other building materials from the construction industry which, as Table III shows, was by far the hardest hit. As a result, cement production from second quarter 1997 to second quarter of 1998 declined by 24.0 per cent (Evans 1998, p. 21). Cement sales declined from 2.4 million tons in June 1997 to 1.5 million tons in December 1998, but unlike the rise in motor vehicle sales, in April 1999 cement sales remained the same at slightly less than 1.5 million tons. This figure is not so surprising, since many analysts predicted that the badly hit construction sector, particularly property, would be the last sector to recover (Pardede 1999, pp. 11–12).

The contraction of the largely export-oriented wood products industries in 1998 was to a large extent caused by a decline in plywood exports, one of Indonesia's major manufactured exports, due to reduced demand from major export markets in Japan and Korea (Johnson 1998, p. 20).

The contraction of the food, beverages, and tobacco industries in 1998 was minor compared to the other manufacturing industries. This minor contraction may be attributed to the relatively inelastic demand for their products, particularly food.

The more export-oriented textile, leather products, and footwear industries were badly affected by the crisis, although to a lesser extent than the domestic market-oriented industries. The data in Tables V and VI show that since 1995 the growth rate of these industries had already started to decline, even turning negative in 1997. Actually, growth of the textile and garment industries was, as noted earlier, already slowing down in 1993 and 1994, as a result of the slower growth of textile and

TABLE VII

INDONESIA'S TEXTILE AND GARMENT EXPORTS, 1990–99

(U.S.$ million)

Year	Yarn	Fabrics	Garments	Other Textile Products	PEBT[a]	Total[b]
1990	100.8	908.2	1,591.9	268.6		2,888.9
1991	180.5	1,296.3	2,278.6	227.9		4,010.4
1992	296.7	2,054.4	2,943.5	616.4		5,957.3
1993	359.1	2,739.8	2,857.3	29.4		6,021.1
1994	788.1	1,797.7	3,100.5	19.2		5,784.9
1995	813.1	1,703.3	3,241.2	196.4		6,063.8
1996	912.0	1,898.4	3,591.5	23.8		6,572.6
1997	763.3	1,473.4	2,754.9	136.9	2,046.2	7,310.4
1998	889.5	1,454.9	2,517.9	127.3	2,298.0	7,433.9
1999 (Jan.–Mar.)	210.0	292.4	545.3	29.4	281.9	1,376.3

Source: Chamroel Djafri, "Perkembangan TPT Indonesia" [The development of Indonesian textile and textile products industries], presented at a seminar in Jakarta, August 12, 1999, Table 4.

[a] PEBT = textile and related products.

[b] Rounded figures.

garment exports during those years (James 1995, p. 21).

However, data provided by the Indonesian Textile Association show that while fabric and garment exports declined slightly in 1998 as compared to 1997, yarn and related textile products exports increased in 1998 (see Table VII).

Although total textile and garment exports in 1994 declined slightly, in subsequent years up through the crisis year of 1998, exports steadily increased. Hence, the relatively small contraction of the textile, leather products, and footwear industries in 1998 may be attributed to the fact that several textile and textile products companies felt compelled to offset the decline in domestic demand for their products by shifting part of their production to export markets. In fact, textile industry circles attributed enhanced export competitiveness of the industry to the sharp depreciation of the rupiah (Tanudjaja 1999, p. 7).

One interesting example of a successful switch from domestic market to export orientation following the crisis is PT Great River International (GRI), one of the largest, if not the largest, garment firms in Indonesia, which makes brands of men's shirts under license from the likes of Arrow, Van Heusen, Choya, etc. Following the crisis, GRI successfully transformed its production from an overwhelming domestic market orientation to exports. While in 1997 GRI's export earnings accounted for only 25 per cent of its total revenues, by 1999 they already accounted for 70 per cent of total earnings. Moreover, while GRI was forced to undergo a painful restructuring process following the crisis, having to lay off 2,000 of its 13,000 work-

ers in 1998, by late 1999 it increased its workforce back to 13,000 again in order to meet rising export orders (Tanudjaja 1999, p. 8).

On the other hand, the export-oriented footwear industry was badly hit by the crisis when American and European importers of brand shoes switched their orders to other countries out of concern that their Indonesia-based suppliers would not be able to deliver their products on time (Booth 1999, pp. 16–17). In fact, this concern was also evident with the orders for other export products, such as garments, in view of the deterioration of safety after the crisis.

B. *The Impact on Large and Medium-Sized Manufacturing Enterprises*

The adverse impact on Indonesia's manufacturing sector is also reflected by the sharp reduction in the number of large and medium-sized manufacturing enterprises (i.e., firms employing more than 100 and more than 20 workers, respectively), as shown in Table VIII.

Table VIII shows that the number of large and medium-sized manufacturing enterprises declined slightly from 22,997 in 1996 to 22,386 in 1997 (a decline of 2.7 per cent), and then by 8.8 per cent to 20,422 in 1998, when the full impact of the crisis was being felt. Hence, by the end of 1998 there were about 2,500 less large

TABLE VIII

NUMBER OF LARGE AND MEDIUM-SIZED MANUFACTURING ENTERPRISES BY SUBSECTOR, 1996–98

Subsector	1996	1997	1998
Food, beverages, and tobacco	5,608	5,544	5,178
	(24.4)	(24.8)	(25.4)
Textile, leather products, and footwear	5,230	4,942	4,574
	(22.7)	(22.1)	(22.4)
Wood and wood products	3,145	3,069	2,777
	(13.7)	(13.7)	(13.6)
Paper and printing	1,035	1,004	877
	(4.5)	(4.5)	(4.3)
Fertilizers, chemicals, and rubber products	2,581	2,561	2,386
	(11.2)	(11.4)	(11.8)
Cement and nonmetallic minerals	2,158	2,064	1,715
	(9.4)	(9.2)	(8.4)
Iron and basic steel	182	200	197
	(0.8)	(0.9)	(0.9)
Transport equipment, machinery, and apparatus	2,596	2,543	2,298
	(11.3)	(11.4)	(11.3)
Other manufacturing products	462	459	420
	(2.0)	(2.1)	(2.1)
Total	22,997	22,386	20,422
	(100)	(100)	(100)

Source: Indonesia, BPS (1999a, p. 32, Table 4.1).
Note: Figures in parentheses denote percentages.

and medium-sized enterprises in operation then in 1996. This decline occurred across the board in all the subsectors, as firms experiencing great financial difficulties or severe losses had to terminate their operations or just go out of business.

C. *The Impact on Employment in Large and Medium-Scale Industries*

As was to be expected, the sharp fall in manufacturing output by almost 13 per cent (or 14.5 per cent in the case of non–oil and gas manufacturing output) in 1998 led to a sharp contraction in manufacturing employment, particularly in the large and medium-scale industries, which accounted for the bulk of manufacturing output. However, the decline in the number of workers employed in manufacturing was not only confined to these industries but, as we will see later, to small and cottage industries.

Since many of large and medium-sized manufacturing firms had to terminate their operations and an even larger number reduce their operations, a large number of workers had to be laid off or suspended temporarily. As a result, the number of workers employed by large and medium-sized firms in 1998 declined by about 634,000 compared to 1997 (Table IX).

TABLE IX

NUMBER OF WORKERS IN LARGE AND MEDIUM-SIZED MANUFACTURING ENTERPRISES BY SUBSECTOR, 1996–98

Subsector	1996	1997	1998
Food, beverages, and tobacco	810,221	791,393	672,579
	(19.2)	(19.0)	(19.0)
Textile, leather products, and footwear	1,354,716	1,334,587	1,116,056
	(32.1)	(32.0)	(31.6)
Wood and wood products	562,231	560,533	522,992
	(13.3)	(13.4)	(14.4)
Paper and printing	165,390	167,568	128,209
	(3.9)	(4.0)	(3.6)
Fertilizers, chemicals, and rubber products	485,701	470,388	430,792
	(11.5)	(11.3)	(12.2)
Cement and nonmetallic minerals	190,308	183,993	131,712
	(4.5)	(4.4)	(3.7)
Iron and basic steel	50,420	53,663	40,941
	(1.2)	(1.3)	(1.2)
Transport equipment, machinery, and apparatus	523,438	521,929	418,994
	(12.4)	(12.5)	(11.5)
Other manufacturing products	72,542	86,039	73,483
	(1.7)	(2.1)	(2.1)
Total	4,214,967	4,170,093	3,535,758
	(100)	(100)	(100)

Source: Indonesia, BPS (1999a, p. 33, Table 4.2).
Note: Figures in parentheses denote percentages.

The data in Table IX shows that the largest decline in the number of workers took place in the more labor-intensive food-processing and textile industries, as well as in the more capital-intensive transport equipment and machinery (metal goods) industries. In these three industries alone a total of about 440,000 workers were laid off in 1998.

Manufacturing-sector employment fell most sharply in Java, since the bulk of the non–oil and gas manufacturing industries are located there, particularly in the major industrial centers of Jakarta, West Java, and East Java, where manufacturing employment fell by almost 15 per cent. The decline in manufacturing employment was not only confined to male workers, but also included female workers (Manning 1999, pp. 17–18). This was particularly the case in the labor-intensive industries, including the textile, garment, footwear, and consumer electronics industries, which employed a large number of female workers.

Since Indonesia's labor market is more flexible than the labor markets in the advanced countries, the contraction in manufacturing unemployment has not had such a dramatic effect on the welfare of the workers laid off, since many were able to find employment in agriculture and the urban informal sector (Manning 1999, pp. 20–21). Moreover, as Indonesia, unlike Korea, for example, did not experience a huge influx of rural workers into manufacturing employment in urban areas, even during the period of rapid export-oriented industrialization in the late 1980s and early 1990s, the relatively large agricultural sector was able to provide a cushion for displaced workers, which was no longer available in Korea (Manning 1999, p. 21).

D. *The Impact on Capacity Utilization in Large and Medium-Scale Industries*

Even before the crisis, Indonesia's large and medium-scale industries were not operating at full capacity, as shown in Table X.

In 1996 total capacity utilization amounted to only 77.9 per cent of total installed capacity. With the onset of the crisis in mid-1997, total capacity utilization dropped to 73.6 per cent, and then to 72.1 per cent in 1998, as domestic demand contracted severely.

The data in Table X show that capacity utilization in large-scale industries both before and after the crisis was in general higher than in medium-scale industries. The steepest declines in capacity utilization were recorded among the large-scale industries by the paper and printing, cement and nonmetallic minerals, iron and basic metals, and transport equipment and machinery (metal goods) industries. Among the medium-scale industries the largest declines in capacity utilization were recorded by the chemical and the basic metals industries.

That most manufacturing industries were not operating at full capacity even before the crisis may be attributed to buoyant domestic and foreign direct investment (FDI), which had been expanding very rapidly since 1993. Although a significant

TABLE X

CAPACITY UTILIZATION LEVELS IN LARGE AND MEDIUM-SIZED MANUFACTURING ENTERPRISES BY SUBSECTOR, 1996–98

Subsector	1996			1997			1998		
	L	M	T	L	M	T	L	M	T
Food, beverages, and tobacco	78.4	64.4	76.7	74.6	66.2	73.5	69.3	64.9	68.6
Textile, leather products, and footwear	82.1	73.4	81.7	80.1	70.9	79.7	79.1	72.8	79.0
Wood and wood products	75.6	66.9	74.9	73.7	62.7	72.8	70.6	67.0	70.3
Paper and printing	76.1	67.2	75.4	74.6	67.5	74.0	59.3	71.9	60.0
Fertilizers, chemicals, and rubber products	77.9	67.9	77.0	72.5	68.1	72.1	71.5	60.3	70.3
Cement and nonmetallic minerals	85.3	69.0	83.1	80.8	68.4	79.5	66.1	68.3	66.3
Iron and basic steel	79.6	84.6	80.1	76.3	75.0	76.1	66.6	67.4	66.6
Transport equipment, machinery, and apparatus	78.2	63.5	77.6	70.0	59.4	69.5	72.4	61.4	71.5
Other manufacturing products	63.7	61.6	63.5	60.9	72.3	61.5	70.3	65.9	69.6
Total	78.8	68.3	78.0	74.3	66.9	73.6	72.6	65.1	72.1

Source: Indonesia, BPS (1999a, p. 36, Table 4.5).
Note: L = large enterprises; M = medium-sized enterprises; T = total.

part of this investment took place in export-oriented industries, much of it also took place in domestic market-oriented projects in response to rising demand fuelled by rapid economic growth. However, like in other countries experiencing booms, the investment boom in capacity expansion in Indonesia eventually exceeded the growth of demand. As a result of the crisis, manufacturing capacity in Indonesia now far exceeds demand (Castle 1999, p. 3).

E. *The Impact on Small and Cottage Industries*

The economic crisis of 1997/98 also had an adverse impact on the small and cottage industries (establishments employing less than twenty and less than five persons respectively), as shown in Table XI.

The data in Table XI show that in 1998 the number of small and cottage enterprises (SCEs) and the number of workers they employed declined substantially, compared to 1996. Both male as well as female workers suffered from these reductions.

Although it is widely believed that many SCEs, particularly those engaged in resource-based or export-oriented activities, weathered the crisis well, the data in Table XI indicate that at least in regard to the number of SCEs and the number of people employed in these enterprises, the crisis did have a significant adverse effect. Reductions in the number of SCEs and number of their workers undoubtedly

TABLE XI

SMALL AND COTTAGE MANUFACTURING ENTERPRISES, 1996–98

	1996	1998	Growth Rate (%)
1. No. of enterprises	2,867,241	2,196,899	–23.4
2. No. of workers	6,613,848	5,303,204	–19.8
Male workers	3,669,881	2,946,175	–19.7
Female workers	2,943,967	2,357,029	–19.9

Source: Indonesia, BPS (1999a, p. 42, Table 4.10).

reflect reductions in their output brought upon by the economic crisis. Unfortunately, no reliable data are available on the extent of the reduction in SCE output.

However, anecdotal evidence from government agencies, research institutes, and non-governmental organizations suggests that the crisis has adversely affected small enterprises in different ways, depending on such factors as the type of products produced, enterprise size, and market orientation ("The Crisis and Beyond" 1998, pp. 1–2).

The crisis affected small enterprises in two ways: first, by sharply reduced domestic demand for their products, and secondly, by major disruptions in the banking sector, affecting the cost and availability of credit to these enterprises. Although overall domestic demand may have shrunk in 1998, a number of small enterprises may have benefited by consumers shifting their demand from more expensive imported products to cheaper products produced by small enterprises. Export-oriented small enterprises also appear to have benefited from the sharp rupiah depreciation of 1998 ("The Crisis and Beyond" 1998, p. 2).

A recent study on Indonesia's trade performance during the crisis (Magiera 1999, p. 8) has found that industries with smaller exporters did better than those dominated by larger firms. This study found that exports from industries with smaller exporters (e.g., the garment and leather and travel goods industries) rose by 3.6 per cent in 1998, compared to only an 0.8 per cent rise in industries dominated by larger firms. Although exports from both sectors declined in 1999, the decline for smaller export-oriented firms was much less (2.1 per cent) than for industries dominated by larger firms (13.1 per cent). However, it is most probably that these "smaller exporters" were small and medium-sized enterprises (SMEs) rather than SCEs.

Another recent survey (Sandee 1999, pp. 1, 14) on a number of small enterprises operating in selected industry clusters (i.e., geographically concentrated areas where similar small enterprises are operating) has found that a number of these clusters were able to perform well during the crisis, particularly those which were export-oriented; for example, the furniture industry in Jepara, Central Java. The reason why these clusters performed better than geographically dispersed small enterprises

is that the former enabled the small firms to collaborate (for example, in technological upgrading) to enable them to adjust to changing preferences of consumers. This collaboration enabled these small firms to share the costs and risks associated with technological change. Operating in clusters also enabled the small firms to participate in wider trade networks that allowed them to access markets beyond their traditional local markets (Sandee 1999, p. 14).

It should be pointed out, however, that it is not clear whether the favorable effects of operating in clusters like in Jepara's furniture industry are also present in other small enterprise clusters. Jepara's furniture industry has for a long time been export-oriented due to the presence of foreign buyers who often also act as technical and marketing consultants to its enterprises. Aside from the above advantages of operating in clusters, access to overseas markets through the presence of foreign buyer/consultants has also been a crucial factor in fostering technological upgrading.

That enterprise clusters are not always able to yield substantial positive effects for their small enterprises is evident from a recent study on metal-casting SMEs in Ceper, Central Java (Sato 2000, pp. 159–62). This study found little evidence that these SMEs shared information or were engaged in joint action. Instead, they found it more beneficial to foster their development by establishing subcontracting and putting-out linkages with firms outside the rural cluster.

F. *The Impact on Capital Investment*

In view of sharply reduced demand for manufactured products and a consequent reduction in output, many manufacturing industries were saddled with considerable excess capacity (see Table X). This, in turn, led to a sharp reduction in capital investment in these industries. The fact that capital investment has steeply declined in the aftermath of the crisis is clearly reflected by a drop in the index of real capital investment expenditures from 161.2 (1993 = 100) in 1997 to 95.4 in 1998 and then to 82.3 in 1999 (Indonesia, BPS 1999b, p. 111; 2000a, Table 14). This steep decline was to a large extent caused by lower capital investment in the manufacturing and construction sectors (Indonesia, BPS 1999b, p. 39).

In view of the fact that Indonesia's relatively underdeveloped capital goods industries are in general still unable to produce sophisticated machinery and heavy machine tools, capital investment in the manufacturing sector largely goes to imports of capital goods. The sharp decline in capital investment in manufacturing since the crisis is therefore also reflected by sharp declines in capital goods imports in 1998 and 1999, as shown in Table XII.

Another indication of a reduced incentive to invest in the manufacturing sector after the crisis is the steep reduction in approved domestic and foreign direct investment in this sector in 1998, both in terms of the number of approved projects and approved amounts, as shown in Tables XIII and XIV.

TABLE XII

CAPITAL GOODS IMPORTS, 1993–99

Year	Capital Goods Imports (U.S.$ Billion)
1993	7.1
1994	7.4
1995	8.7
1996	9.6
1997	9.3
1998	5.8
1999 (Jan.–Oct.)	2.3

Note: Rounded figures.
Source: Indonesia, BPS (2000c, p. 106, Table 6.14).

Approved domestic investment in manufacturing in 1997 was still substantially higher than in 1996, as quite a few domestic investment applications must have been submitted in 1996 or early 1997 when Indonesia's economic prospects still seemed bright. It was only in 1998 that approved domestic investment declined sharply, both in terms of the number of projects and amount of investment. This decline took place in most subsectors, except for the wood products, paper products, and "other" manufacturing industries. However, in 1999 approved domestic investment rose slightly as Indonesia slowly emerged from its political and economic crises, although the number of approved projects was still lower than in 1998.

Approved FDI in manufacturing in 1998 declined even more sharply than domestic investment. This decline took place in virtually all subsectors, but most sharply in the paper and paper products, chemical, nonmetallic minerals, and metal goods industries. However, unlike domestic investment, approved foreign investment in 1999 continued to decline, although the number of approved projects rose slightly. Apparently, a number of these approved projects were relatively small-scale projects. The continued decline in approved FDI suggests that potential foreign investors were deterred more by political instability, lack of security and legal certainty, and outbreaks of violence than domestic investors, who were more familiar with the conditions in their country.

While not much new FDI has entered the country, there have been no large outflows of FDI, either. In the case of Japanese FDI, which constitutes the largest portion of investment in the non–oil and gas sectors, there has been little evidence of Japanese firms withdrawing from Indonesia, even after the riots of 1998. To overcome the problem of a shrunken domestic market, a number of Japanese-affiliated firms that cater to the domestic market successfully diverted their products to export markets. While export-oriented firms experienced less difficulties, they often had to turn to their parent firms for financial support (Konno 1999, p. 3).

TABLE XIII

APPROVED DOMESTIC INVESTMENT IN MANUFACTURING, 1996–FEBRUARY 29, 2000

(Rp Billion)

Sector	1996		1997		1998		1999		2000	
	Projects	Amount	Projects	Amount	Projects	Amount	Projects	Amount	Projects	Amount
1. Food industry	53	13,748.3	53	13,048.6	32	6,711.8	28	12,727.9	8	1,121.1
2. Textile industry	28	3,365.8	44	6,831.3	27	1,137.6	25	2,561.5	3	1,423.8
3. Wood industry	21	1,128.9	15	762.2	18	1,971.9	19	1,229.0	2	10.4
4. Paper industry	29	12,763.9	26	11,841.9	9	12,754.1	7	20,244.1	2	34.0
5. Pharmaceutical industry	2	57.6	5	72.2	0	124.3	0	13.9	0	0.0
6. Chemical industry	77	13,335.1	68	22,425.0	28	15,458.9	25	2,467.0	0	155.9
7. Nonmetallic mineral industry	38	7,964.8	35	11,638.7	10	3,469.0	1	70.4	1	453.1
8. Basic metal industry	15	4,460.7	12	8,021.5	2	1,786.3	1	6,354.2	1	11.1
9. Metal goods industry	49	2,375.9	45	4,683.9	17	960.9	17	1,070.7	6	340.1
10. Other industry	2	16.7	1	9.0	4	533.2	3	6.8	0	0.0
Total	314	59,217.7	304	79,334.3	147	44,908.0	126	46,745.5	23	3,549.5

Source: Indonesia, the Office of the Minister of State for Investment and State-Owned Enterprises (2000).
Note: Excluding oil and gas, banking, nonbank financial institution, insurance, and leasing (revised figures).

TABLE XIV

APPROVED FOREIGN DIRECT INVESTMENT IN MANUFACTURING, 1996–FEBRUARY 29, 2000

(U.S.$ million)

Sector	1996		1997		1998		1999		2000	
	Projects	Amount	Projects	Amount	Projects	Amount	Projects	Amount	Projects	Amount
1. Food industry	37	691.4	26	572.8	32	342.0	48	680.9	6	31.1
2. Textile industry	37	514.6	56	372.6	80	216.9	121	240.2	9	18.9
3. Wood industry	39	101.1	30	69.7	56	70.8	66	113.2	10	12.6
4. Paper industry	16	2,907.3	14	5,353.3	12	40.8	15	1,411.8	1	0.3
5. Pharmaceutical industry	3	43.3	2	37.2	0	5.5	1	1.8	0	11.5
6. Chemical industry	91	7,361.3	93	12,339.2	73	6,173.3	75	3,266.4	10	108.7
7. Nonmetallic mineral industry	28	789.7	17	1,457.3	15	237.1	7	110.4	0	0.0
8. Basic metal industry	14	650.9	14	357.0	13	394.4	9	501.3	0	0.0
9. Metal goods industry	186	2,938.6	190	2,331.7	119	890.5	85	593.0	20	58.7
10. Other industry	9	73.9	8	126.5	10	16.9	12	10.2	1	0.5
Total	460	16,072.1	450	23,017.3	410	8,388.2	439	6,929.2	57	242.3

Source: Indonesia, the Office of the Minister of State for Investment and State-Owned Enterprises (2000).
Note: Excluding oil and gas, banking, nonbank financial institution, insurance, and leasing (revised figures).

The sharp decline in approved FDI in 1998 and 1999 contrasts sharply with the foreign investment boom of the mid-1990s, when approved FDI surged from U.S.$8.1 billion in 1993 to U.S.$27.4 billion in 1994 and then to U.S.$39.9 billion in 1995. The bulk of this investment occurred in the manufacturing sector (Bank Indonesia 1997, p. 141).

The FDI boom of the mid-1990s was driven by the "push" factor of a worldwide boom in FDI (World Bank 1997, p. 12). Besides this "push" factor, "pull" factors were also at work, like the country's rapid economic growth and the substantial liberalization of Indonesia's foreign investment policy in June 1994 (Thee 1999, pp. 5–6). To meet the rising demand of Indonesia's growing middle class, transnational companies (TNCs) from the United States, Western Europe, and Japan, and to a lesser extent from Korea and Taiwan since the early 1990s, invested large amounts of funds in the manufacturing sector, which led to a considerable expansion of capacity. However, with the steep drop in domestic demand following the crisis, Indonesia's manufacturing capacity came to far exceed demand (Castle 1999, p. 3). This applies in particular to those manufacturing industries and firms which were largely oriented towards the domestic market.

In view of this considerable excess manufacturing capacity, it is likely that in the next few years TNCs will not be much interested in investing in new manufacturing capacity in Indonesia, except perhaps in agro-business. On the whole, foreign investors are unlikely to invest on a large scale in Indonesia as long as political and macroeconomic stability is still fragile and the lack of physical safety is still a problem.

In lieu of global TNCs, however, there are new investors, specifically venture capital funds, who are not interested in increasing new manufacturing capacity, but rather in buying distressed assets at current low market values (Castle 1999, p. 4). These investment funds are run by expert financial managers with fresh capital to assist Indonesia's distressed manufacturing firms in restructuring their operations and nurturing them back to profitability. However, since these investors are not manufacturing experts, they are unlikely to stay in Indonesia for the long haul, content to sell their assets within a few years (Castle 1999, pp. 4–5). This will no doubt be the case if they can sell these assets at a reasonable profit once the distressed manufacturing firms they purchased at bargain prices have appreciated after successful restructuring.

G. *The Impact on Manufactured Exports*

The impact of the economic crisis of 1997/98 on the manufacturing sector is also reflected by the changes in Indonesia's manufactured exports during the past three years, as shown in Table XV.

The data in Table XV show that while total exports in 1998 declined by 8.6 per cent compared to 1997, manufactured exports declined by only 1.1 per cent. How-

TABLE XV

INDONESIA'S MANUFACTURED EXPORTS, 1993–99

Year	Manufactured Exports[a] (U.S.$ Billion)	Total Exports (U.S.$ Billion)	Manufactured Exports as a Percentage of Total Exports (%)	Manufactured Exports (U.S.$ Billion)
1993	22.9	36.8	62.3	22.7
1994	25.7	40.1	64.2	25.7
1995	29.3	45.4	64.6	29.3
1996	32.1	49.8	64.5	32.1
1997	35.0	53.4	65.5	34.9
1998	34.6	48.9	70.8	34.5
1999 (Jan.–Nov.)	30.4	44.2	68.8	24.3

Sources: For data on 1993–98, Indonesia, BPS (2000c, p. 98, Table 6.7). For data on 1999, Indonesia, BPS (2000b, p. 23, Table 11).

Note: Rounded figures.

[a] Indonesia's central statistical agency (the BPS Statistics Indonesia) uses a broad definition of manufactured exports which also includes processed primary commodities.

ever, this decline was significant, because it was the first time manufactured exports declined since their initial surge in the late 1980s. The relatively larger decline in total exports in 1998 was primarily due to the decline in oil and gas exports due to a weakening of the world oil market.

However, during the first eleven months of 1999 manufactured exports declined by 5.0 per cent over the first eleven months of 1998, while total exports over the same comparable period declined by only 1.7 per cent (Indonesia, BPS 2000b, p. 23). This time the relatively smaller decline in total exports was largely due to significant increases in oil and gas exports as a result of the strengthening of the world oil market.

The available export data, however, indicate that the volume response of some manufactured exports to the rupiah depreciation of 1998 and in 1999 was much better than the value response (Table XVI).

The data in Table XVI show that in regard to most of Indonesia's major manufactured exports, the relative volume response both in 1998 and 1999 was better, in some cases much better, than the relative value response. In some cases where export values rose, export volumes rose even more (e.g., textiles, chemicals, leather and leather products). In other cases export values declined, while the export volumes increased (e.g., plywood and "other" manufactured products). In yet a few other cases, declines in export values exceeded declines in export volumes (e.g., garments and fertilizer). In 1999 there were some cases in which relative declines in export values exceeded relative declines in export volumes (e.g., textiles, leather and leather products), while there were other cases where relative rises in export

TABLE XVI

CHANGES IN VALUE AND VOLUME OF SELECTED MANUFACTURED EXPORTS, 1997–99

	Selected Manufactures	Value (U.S.$ Million)					Volume (1,000 Tons)				
		1997	1998	% Change of 1998 over 1997	1999 (Jan.–Nov.)	% Change of 1999 (Jan.–Nov.) over 1998	1997	1998	% Change of 1998 over 1997	1999 (Jan.–Nov.)	% Change of 1999 (Jan.–Nov.) over 1998
1.	Plywood	3,410.6	2,077.9	–39.1	2,051.2	8.2	4,612.0	4,820.6	4.5	3,697.2	–16.7
2.	Textiles	3,658.4	4,739.6	29.6	3,127.9	–28.6	981.1	1,530.3	56.0	1,199.8	–8.3
3.	Garments	2,875.6	2,587.9	–10.0	3,473.1	45.4	223.1	205.4	–7.9	314.6	75.9
4.	Palm oil	1,446.0	745.2	–48.5	1,023.8	59.0	2,891.7	1,479.4	–48.8	3,024.2	133.6
5.	Electrical apparatus	1,370.6	1,490.8	8.8	1,513.9	7.9	402.0	154.2	–247.8	207.6	46.2
6.	Processed food	834.0	755.7	–9.4	872.0	25.1	808.8	626.1	–22.6	906.2	55.0
7.	Chemicals	721.2	1,008.6	39.9	895.4	–2.5	1,710.7	3,728.1	117.9	3,527.4	6.9
8.	Fertilizer	312.4	168.9	–45.9	172.3	4.2	2,104.5	1,579.4	–25.0	1,909.9	23.7
9.	Leather and leather goods	104.5	174.4	66.9	83.9	–47.2	7.0	19.2	174.3	10.5	–39.6
10.	Paper and paper products	938.5	1,425.5	51.9	1,778.1	33.7	1,780.1	2,650.6	48.9	3,336.3	35.9
11.	Other manufactured exports	14,183.5	14,038.4	–1.0	7,059.1	–26.6	11,723.7	19,876.3	69.5	7,214.3	–51.4

Sources: Indonesia, BPS (2000c, pp. 92–93, Table 6.5.1; pp. 94–95, Table 6.5.2) and BPS (2000b, pp. 26–27, Table 13)

values were less than the relative rises in export volumes (e.g., garments, palm oil, electrical goods, fertilizer, and paper and paper products). This data indicates that the price elasticity of various manufactured exports remains quite high.

Despite the severe rupiah depreciation in 1997/98, manufactured export values declined rather than surged after the crisis, disappointing many observers. In view of this relatively poor export performance, the hope that buoyant export markets could offset the depressed domestic market has not yet been realized.

Various factors have been advanced to explain why improved export competitiveness has not materialized:

—International rejection of letters of credit (LCs) issued by Indonesian banks, reflecting a loss of international confidence in Indonesia's banking system;
—Lack of working capital, as distressed local banks had to adopt more stringent lending policies;
—Failure by exporters to meet delivery schedules or fulfill orders in 1998 (and in several cases also in 1999), due to poor security in the production and transport of export goods;
—Increased export competitiveness of the other East Asian countries which had also experienced their own currency depreciation;
—Collapse of demand for imports by other East Asian countries also hit by economic crisis (Pardede 1999, pp. 12–13).

Another important factor which has held back any surge by Indonesia's manufactured exports has been the continued sluggish, sometimes even negative, growth of the Japanese economy during the past decade. As a result, the world's second-largest economy has largely failed to act as a crucial absorber for the manufactured exports from Indonesia and the other East Asian economies adversely affected by economic crisis.

Aside from such factors external to the manufacturing sector which have adversely affected the present export competitiveness of its exports since the economic crisis, many manufacturing firms, including large private, domestic firms, foreign-controlled joint ventures, state-owned enterprises (SOEs), and SMEs, were even before the crisis not internationally competitive due to weak technological, managerial, and marketing capabilities. In general, neither FDI projects nor Indonesian private conglomerates and SOEs were able to harness the foreign technologies and know-how to improve the efficiency and competitiveness of domestic manufacturing production (UNIDO 2000, p. 5).

The major factors which even before the economic crisis had generally held back Indonesia's industrial technological development include an inadequate incentive system, particularly various restrictions on domestic competition, inadequate human resources, technology support services, and fiscal and financial mechanisms, and undue focus on "mission-oriented" strategic industries, particularly the high-technology aircraft industry (Thee 1998, pp. 117–35). So, aside from assisting manu-

facturing firms in overcoming short-term difficulties caused by the crisis, the Indonesian government should also put high priority on the medium-term need to raise the technological capabilities of these firms in order to improve their international competitiveness. This could be achieved by tackling the inadequacies of the incentive system and of the factors affecting the "supply-side capabilities" of these firms, including the human resources, technology support services, and access to finance.

In regard to the immediate concerns caused by the crisis, the serious difficulties faced by the banking sector have hurt exporters of manufactured products, particularly due to a shortage in trade finance. Securing adequate trade finance for the import of raw materials, parts and components needed by the manufacturing sector thus warrants a high priority status in enabling the recovery of the manufacturing sector. To solve this problem the Indonesian government has established the Bank Ekspor Indonesia (BEI, Indonesian Export Bank), which started operations in September 1999 with a paid-up capital of Rp 3 trillion. The bank will not raise funds from the public, but rather obtain all its capital from multilateral aid organizations, including the World Bank, and the Asian Development Bank (ADB), and Japan's official aid institution, the Japan Bank for International Cooperation (JBIC), which has provided a two-step loan to help finance BEI. The bank's newly appointed president informed the media in late August 1999 that the BEI's products will include loans for working capital and guarantees on LCs issued for finance imports by local exporters (Booth 1999, p. 17; JICA 1999, p. 22).

H. *The Impact on Industry Performance*

To gain a better understanding of how manufacturing firms were affected by and tried to cope with the economic crisis, the World Bank in late 1998 sponsored firm-level surveys of large samples of manufacturing firms in the five worst-affected East Asian countries of Indonesia, Malaysia, the Philippines, Thailand, and Korea. The firms selected for the survey were operating in those industries which were most important for production and exports; namely, food processing, textiles and garments, chemicals, auto parts, machinery, and electronics (Colaco, Dwor-Frecaut, and Hallward-Driemeier 1999, p. 6). In Indonesia the survey was conducted by the National Planning Agency (BAPPENAS) and the BPS-Statistics Indonesia with advice and technical assistance from the World Bank. Altogether, about 1,200 firms were selected for the survey, and were operating in: food processing (ISIC 31), textiles (ISIC 321), garments (ISIC 322), chemicals and processed rubber (ISIC 35), and electronics (ISIC 383) industries. The samples included large, medium-sized, and small firms; export-oriented and domestic market-oriented firms, domestic firms and foreign-affiliated (FDI) firms.

The survey yielded several interesting findings. First, the impact of the crisis on firm performance turned out to be mixed. While many firms were adversely affected by the crisis, export-oriented firms fared well because of the sharp rupiah

depreciation. In general, domestic market-oriented firms experienced greater reductions in capacity utilization rates and employment levels compared to large and medium-scale export-oriented firms and foreign-affiliated (FDI) firms. However, even among the domestic market-oriented firms, responses to the crisis were mixed. For example, firms in the food-processing industry generally experienced smaller reductions in capacity utilization rates and employment levels compared to domestic market-oriented firms operating in the other industries, particularly the electronics industry. Firms located on Java experienced greater reductions in capacity utilization rates and employment levels than firms operating outside of Java (Widianto 1999, pp. 1, 28).

The survey also found that highly leveraged firms and firms with foreign currency liabilities generally experienced smaller reductions in capacity utilization rates and employment levels compared to firms with low debt-equity ratios. The reason for this was that a large proportion of the highly leveraged firms, or firms with foreign debts also happened to be relatively efficient large and medium-sized export-oriented firms (Widianto 1999, p. 2).

Thirdly, in pinpointing the major causes of the decline in their output levels in 1998, firms in the survey mentioned the sharp decline in domestic demand and the adverse effect of the sharp rupiah depreciation on the costs of (imported) inputs. Another important cause was the high cost of capital. However, in general the firms did not consider access to credit and the lack of guarantees for LCs to be major causes of the decline in output (Widianto 1999, pp. 2, 29). It should be pointed out, however, that this finding does not imply that lack of access to credit and trade finance were not causes of output decline, but that this factor was not as important a cause for the firms included in the survey in late 1998 as the sharp decline in domestic demand and sharp rupiah depreciation.

IV. CONCLUDING REMARKS

The severe financial and economic crisis of 1997/98 has seriously hurt the Indonesian economy, including the manufacturing sector. Speedy economic recovery has been seriously hampered by the slow progress in restructuring the devastated banking system and the even slower progress in restructuring corporate debt, thus delaying speedy recovery of the manufacturing sector. Hence, a more determined effort to speed up bank and corporate debt restructuring will speed up economic recovery, including the recovery of the manufacturing sector.

However, since consumer spending has increased during the past year, the manufacturing sector has made a slight recovery, as unused capacity is now being put back into production to meet the increased demand for manufactured products. Continued industrial recovery will also require a more determined effort to increase manufactured exports, which should have benefited from the steep rupiah deprecia-

tion. In this connection it has been pointed out that difficulty in obtaining trade financing has been a major problem for many manufacturing firms, including export-oriented firms, thus hampering them from importing the raw materials, parts, and components needed to restart or maintain their production lines.

Once Indonesia's manufacturing sector has recovered sufficiently, it also needs to pay greater attention than it has so far to improving its international competitiveness, specifically by developing its industrial technological capabilities.

International experience, especially the experience of the East Asian NIEs, has shown that macroeconomic stability, pro-competition policies, and diligent, disciplined, and highly trained human resources have been the *basic conditions* required to promote the development of a country's industrial technological capabilities (World Bank 1996b, p. i). While macroeconomic stability was largely maintained during the Soeharto era, and trade reforms since the mid-1980s steadily reduced the "anti-export bias" in Indonesia's trade regime, various government interventions in the domestic market severely hampered competition. Without strong but fair competition in the domestic market, manufacturing firms did not have a proper incentive to improve their competitiveness through the development of their industrial technological capabilities. Moreover, while Indonesia has made rapid educational progress during the past three decades, it needs to do much more to raise the quality of its human resources, which still lag behind their East Asian neighbors.

To promote Indonesia's industrial technology development, greater effort must also be made to improve the country's *enabling* conditions through policies which would facilitate a firms' access to foreign technologies, technology support services, and finance (World Bank 1996b, p. i). In facilitating access to foreign technologies, Indonesian firms need to learn to make better use of FDI than they have so far as a channel to access and master more advanced technologies. Indonesia's domestic science and technology infrastructure also needs to be revamped to make it more effective as a source for crucial technology support services to its manufacturing firms, including its SMEs.

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