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1

The Issues

Eric D. Ramstetter and Fredrik Sjöholm

1.1 Multinationals and the questions they raise

Much of the interest in the effects of foreign-owned multinational corporations (MNCs), aside from their broad impacts on growth and development, concerns the effects on labour markets.¹ Indeed, the assertion that MNCs unfairly exploit workers in developing economies is one of the core concerns expressed by anti-globalization activists (Stiglitz 2003; Bhagwati 2004). One clear example of labour management failures was the 1993 fire at the Kader Industrial (Thailand) factory, where poor safety standards contributed to the deaths of at least 188 employees and the injury of many others (Brown 2001). On the other hand, among academics who have researched the activities of MNCs in developing economies (e.g. United Nations Conference on Trade and Development 1994; Moran 2001; Moran et al. 2005), there is a growing consensus that MNCs impart substantial direct and indirect benefits to workers and local firms in developing economies. The most obvious way in which MNCs could benefit workers is by paying relatively high wages. Correspondingly, the chapters in Part II of this book examine the effects of manufacturing MNCs on wages in Indonesia and Thailand.

Effects on labour markets are also closely interrelated to other important effects of MNCs. For example, productivity levels are generally thought to be relatively high in MNCs compared to local firms or plants. Moreover, positive productivity spillovers are hypothesized to result in relatively high productivity in local firms or plants which operate in industries where there is a relatively large MNC presence. In addition to being important in their own right, these productivity effects can also facilitate higher labour productivity and thus higher

wages in both the MNCs and local firms or plants. Thus, Part III of this book analyses the effects of MNCs on productivity.

Exporting is another important activity to which MNCs impart important effects and yet another channel through which MNCs affect labour markets in host economies. Part IV of the book analyses MNCs' contributions to host economy exports, focusing on the question of whether MNCs have higher export propensities than local firms or plants. Because these Southeast Asian economies are still quite labour-abundant, their exports tend to be labour-intensive, as do the exports of MNCs operating in them. Consequently, any increases in exports from MNCs, or indirectly through local firms, are likely to lead to a relatively rapid increase in the demand for labour relative to other factors of production, and thus increases in wages relative to the prices of other factors of production.

Indonesia and Thailand are the two largest economies in Southeast Asia. Moreover, Indonesia and Thailand are two of the most important hosts to MNCs, especially manufacturing MNCs, in Southeast Asia and the developing world. This makes the studies in this volume of keen interest, both within the region and elsewhere. By the mid-1990s, manufacturing MNCs became conspicuous, attracting a lot of attention in these economies and elsewhere. For example, the World Bank (1993) identified rapid industrialization, export growth, and increases in foreign direct investment (FDI) by MNCs as key elements of the so-called 'Asian miracle', and Indonesia and Thailand as two major beneficiaries of the so-called miracle. Discussions of FDI's contributions to the diffusion of technology also became prominent in the analysis of economic growth.² At the micro level, Dobson and Chia (1997) highlighted how the manufacturing MNCs contributed to increasing trade and greater integration in the East Asian region during the first half of the 1990s.

In 1997–98, the Asian financial crisis had severe effects on both Indonesia and Thailand. However, manufacturing FDI continued to grow in Thailand for years after the crisis and manufacturing MNCs continued to expand production and employment in Indonesia (see details in section 1.3). Thus, acquiring a better understanding of MNCs in these two countries continues to be a priority for academics, policy-makers and business professionals alike.

In the late 1990s and the early part of the twenty-first century, increased access to micro data led to a number of rather technical papers, several of them written as part of the research project that led to this book, which analysed manufacturing MNCs in both Indonesia and

Thailand.³ The primary contribution of this book is to systematically and succinctly analyse the important results of several papers written by the authors as part of a research project focusing on micro analyses of manufacturing MNCs for Indonesia and Thailand in the 1990s. The chapters in this volume have also been written to be accessible to a wide audience, including academics in all related fields, policy-makers and business professionals alike. As far as we know, this is the first volume to focus on micro analyses of MNCs in Southeast Asia, which facilitates investigation of several important questions in much more detail than previously possible:

1. Do MNCs pay higher wages, have higher productivity levels or have higher export propensities than locally owned plants? Do these differences exist after accounting for factors such as a plant's industry affiliation, geographical location, factor intensities, trade orientation and worker education levels?
2. Do wage levels, productivity levels and export propensities in MNCs have any relationship to the foreign ownership share in the MNC? Alternatively, is there any relationship to the home country of the parent?
3. Are there wage or productivity spillovers from MNCs to local plants? In other words, does the extent of foreign ownership or changes in the extent of foreign ownership in an industry affect wage levels or productivity levels in locally owned establishments in that industry?
4. Do the plants acquired by MNCs tend to have high wages or other distinguishing characteristics before the takeover? How does takeover by an MNC affect wages in the plant taken over or other plants in the industry and/or region? How does this compare with wages in plants established by greenfield investment?

1.2 Multinationals and host developing economies: some analytical principles

MNCs can have profound effects on the economies of host developing countries, some of the most obvious occurring in the labour market. For instance, MNCs will typically expand employment in the formal labour market. Governments in developing countries often have trouble generating enough employment to absorb rapidly increasing labour forces and might therefore encourage inflows of FDI from MNCs. This has been an important consideration in both Indonesia and Thailand, and an especially pressing one in Indonesia after the 1997–98 crisis, when

growth slowed markedly. The formal-sector jobs created by MNCs are often coveted by workers (and policy-makers), not only because they pay more than informal sector jobs, but because they often pay more than formal-sector jobs in local firms.

MNCs may choose to pay relatively high wages for several possible reasons. For example, Dunning's (1988, 1993) popular theory of the multinational corporation stresses the importance of ownership advantages as a determinant of a firm's competitiveness in foreign markets. At the most basic level, ownership advantages influence a firm's ability to overcome numerous cost disadvantages relative to local firms in host markets and become an MNC. Ownership advantages include the possession of firm-specific assets (Markusen 1991) such as patents, proprietary marketing networks and brand names, as well as specific technologies, management techniques and distribution systems. Knowledge regarding many of these assets becomes embodied in a firm's workforce and MNCs may seek to reduce the risk of losing control over firm-specific assets by paying high wages and minimizing labour turnover. These considerations are likely to be most important regarding various white-collar workers, especially top-level employees and various specialists.

Other theorists (e.g. Casson 1987; Rugman 1980, 1985) argue that ownership advantages are not required for a firm to become an MNC, and that internalization advantages (Dunning's terminology) constitute the key determinant.⁴ However, theorists generally agree that MNCs do tend to possess relatively large amounts of the firm-specific assets described above. Moreover, to the extent that the ability to internalize transactions depends on the skills of a firm's labour force, internationalization can also explain MNCs' desire to reduce turnover and thus pay relatively high wages.

On the other hand, MNCs' affiliates often report difficulties securing adequate labour supplies. These difficulties were conspicuous in Thailand in the mid-1990s when shortages of skilled labour were particularly severe (Ramstetter 1997). Part of the reason for this could be that differences in business culture in MNCs and local firms make it difficult for MNCs to harmonize their labour management practices with local norms. Problems can become especially acute when the MNCs involved use management techniques that vary from perceived international norms such as in the case of Japanese MNCs in Southeast Asia during the 1980s (Koike and Inoki 1990; Yamashita 1991). Apprehension regarding MNCs can create a preference for local firms among workers and make it necessary for MNCs to pay relatively high

wages to woo workers away from local firms that use more commonly accepted labour management practices. Still other studies suggest that the tendency for MNCs to pay relatively high wages is related to rent-sharing arrangements among MNCs (Budd et al., 2005), relatively volatile labour demand in MNCs (Fabri et al., 2003), and compensation for a higher closure rate among MNCs (Bernard and Sjöholm, 2003).

If MNCs possess ownership advantages or relatively large amounts of firm-specific assets, productivity will be higher in MNCs than in local firms in countries like Indonesia and Thailand because local firms are predominantly non-MNCs. MNCs possess most of the world's advanced technologies, they conduct almost all of the private research and development in the world, and they are typically more capital-intensive than locally owned firms are. All of these characteristics suggest that MNCs should have relatively high levels of labour productivity or total factor productivity, which is another reason why they could pay higher wages than local firms with lower productivity. However, this does not explain why a wage differential might persist after accounting for differences in productivity or related factors such as factor intensities.

MNC presence is also hypothesized to affect productivity in local firms. Such effects, often called spillovers, can arise if technologies in MNCs become available to local firms. Although MNCs may try to prevent the leakage of technologies as described above, there are also instances where MNCs encourage the spread of technologies, for instance through support of local suppliers. Labour mobility between MNCs and local firms is another means through which knowledge of technologies and other firm-specific assets can be spread. A final means by which MNCs can facilitate spillovers is by increasing competitive pressure to the point that local firms are forced to put greater emphasis on increasing productivity themselves. In this context, it is important that technologies used by most firms in Indonesian and Thai manufacturing, including MNCs, are still relatively standardized. This makes it very difficult for MNCs to keep their technologies proprietary and at the same time makes it relatively easy for local firms to imitate MNCs. Accordingly, the magnitude of spillovers is often hypothesized to depend on the extent of the technological gaps between MNCs and local plants, among other factors (see Chapter 4, for example).

If MNCs are more productive than local plants they may also be better able to produce products that can compete on export markets. Perhaps more importantly, some of the most important firm-specific assets controlled by MNCs relate to their international marketing

networks or access to networks controlled by trading firms and the like. This lowers the transactions costs related to exporting in MNCs compared to local firms. Transactions costs associated with exports are substantial and include costs related to adapting to consumer preferences in foreign markets, identifying major competitors, and securing distribution channels. Moreover, many MNCs utilize their networks of affiliates to gather related information and minimize these transactions costs. This is another important reason why MNCs are more likely to export larger portions of their output than local firms and the growth of MNCs is likely to lead to relatively rapid growth of exports. In addition to being an important direct contribution itself, this change can also affect wages, as mentioned above. Because exports tend to be relatively labour-intensive in labour-abundant countries like Indonesia and Thailand, the growth of exports leads in turn to increases in the demand for labour relative to the demand for capital, and thus to an increase in wages relative to the price of capital, through a mechanism described in the *Stolper-Samuelson Theorem*.⁵

MNCs are also thought to restrict the access of uncontrolled affiliates to the MNC's firm-specific assets as another means of preventing the leakage of those assets or ownership advantages. For example, it is often argued that MNC parents are more reluctant to share their technology-related assets with minority-owned affiliates than with their majority-owned or wholly-owned affiliates (Chapters 4–5).⁶ There is also a growing empirical literature suggesting that parents restrict the access of Southeast Asian affiliates in which the parent has relatively small foreign ownership shares to the MNC's exporting networks (Chapter 8).⁷ Thus, in addition to asking whether the behaviour of MNCs differs from that of local firms, it is also important to ask if behaviour among MNCs depends on the foreign ownership share. This question is particularly important in some of the analyses of productivity and export effects of MNCs.

MNC parent behaviour has also been argued to differ depending on the home country of the parent. If the quality of MNCs' firm-specific assets or ownership advantages is somehow related to the nationality of the MNC parent, the standard theory would suggest a link between nationality and MNC behaviour. For example, one might expect MNCs from the most advanced industrial economies (e.g. Europe, Japan, North America) to have relatively sophisticated firm-specific assets related to technology or international marketing.⁸ If that is the case, there may be a tendency for MNCs from these home countries to be more productive or export-oriented than others. Also, as mentioned

above, there may be cultural considerations that affect the adaptability of MNCs to host country labour markets that vary by the nationality of both the parent and the host country.

Finally, it should be emphasized that the analytical principles described above and the empirical analyses to follow generally imply partial equilibrium models that examine one dimension of MNC involvement at a time. In other words, there is no general equilibrium attempt to simultaneously model the effects of MNCs on wages, productivity and exports, for example. Although this partial equilibrium approach represents an important conceptual shortcoming, it is probably the only practical way to utilize the advantages of the micro data assembled to analyse the issues at hand.

1.3 Multinational presence in manufacturing and economic policies

MNCs have played rather large roles in the manufacturing sectors of both Indonesia and Thailand, though patterns of MNC presence have differed somewhat between the two economies and it is not always easy to measure the extent of MNC presence. Indonesian and Thai economic policies have also influenced the patterns of MNC presence in important respects, as well as affected other aspects of MNC operations. This section reviews how MNC presence has evolved and how host country policies have affected MNCs in the two countries, because an understanding of these issues is important when interpreting the results of the micro analyses in the following chapters.

1.3.1 Patterns of multinational presence and data characteristics

It is far easier to trace how MNC presence has changed in Indonesia than in Thailand or in most other developing economies because Indonesia has conducted annual industrial surveys of large- and medium-sized manufacturing plants with twenty employees or more since 1975. These surveys have always required plants to report information on a number of key variables, including employment, value added, input usage, wage payments and foreign ownership shares.⁹ Other variables, such as fixed capital stocks and export propensities, have been collected for shorter periods of time.¹⁰

The annual average of value added in manufacturing MNCs first increased 122 per cent between 1975–85 and 1986–91, and then skyrocketed another 249 per cent to reach US\$8.1 billion in 1992–96 (Table 1.1).¹¹ Although there was a sharp drop in 1998 after the crisis

Table 1.1 Value added of manufacturing MNCs in Indonesia 1975–2001 (US\$ millions, except per cent as noted)

<i>Country, variable, industry</i>	<i>1975–85</i>	<i>1986–91</i>	<i>1992–96</i>	<i>1997–99</i>	<i>2000–01</i>
Manufacturing	1,045	2,323	8,097	8,050	9,788
% of manufacturing GDP	11.31	12.23	18.92	20.46	26.94
Food, beverages, tobacco	132	235	620	786	708
Food	70	169	442	687	615
Textiles, apparel, leather, footwear	142	323	1,379	1,583	1,321
Textiles	125	262	622	829	601
Wood, furniture	42	159	375	288	233
Paper, printing	13	115	399	333	506
Chemicals, rubber, plastics	219	467	1,525	1,672	1,485
Chemicals	158	352	1,200	1,350	1,150
Non-metallic mineral products	105	94	329	276	390
Basic metals	46	249	761	338	318
Metal products, machinery	219	613	2,439	2,449	4,536
Metal products	62	177	548	403	421
General machinery	22	41	148	206	215
Electric & precision machinery	95	120	767	1,216	2,082
Electric machinery	94	118	742	1,146	2,031
Transportation machinery	40	276	977	624	1,819
Miscellaneous manufacturing	127	67	271	324	291

Note: General machinery includes a few plants in office and computing machinery, for example, 8 in 2000 and 9 in 2001, with average value added amounting to US\$1.8 million in 2000–1.

Sources: BPS-Statistics (various years); International Monetary Fund (2005); Takii and Ramstetter (2004: Appendix Tables 3d, 3e).

broke (to US\$5.7 billion; Takii and Ramstetter 2004; International Monetary Fund 2005), the average for 1997–99 was only slightly (1 per cent) lower than the previous period. Subsequently, there was another small increase (22 per cent) to US\$9.8 billion in 2000–01. Trends in the value added of MNCs were similar to trends in overall manufacturing. Changes in MNCs' share of manufacturing GDP were thus less pronounced, increasing only slightly from 11 per cent in 1975–85 to 12 per cent in 1986–91, for example. Subsequently, the share rose to 19 per cent in 1992–96 and 20 per cent in 1997–99, and then to 27 per cent in 2000–01. Recent trends also reflect a decline in the US dollar value of manufacturing GDP after the crisis, which was related to the large currency depreciation.

Metal products and machinery has always been the largest major industry category of MNC production in Indonesia and its share of the total increased from about one-fifth in 1975–85 to 26–30 per cent in

1986–99 and then almost one-half in 2000–01 (Table 1.1). Electric and precision machinery and transportation machinery have always been the largest industries in this category and accounted for the vast majority of the growth in the industry. By 2000–1, these two industries each accounted for about one-fifth of all MNC value added, a substantial increase over previous years. MNC production was also large in chemicals, accounting for about one-sixth of the MNC total in most of the 1975–2001 period. MNC production was also substantial in food, textiles and metal products.

In the Thai case, the only official compilations of data on the activities of manufacturing MNCs refer to FDI inflows as reported in balance of payments statistics (Bank of Thailand 2005). The recipient MNC affiliate can use an increase in the stock of FDI (the stock of equity and loans remitted from the MNC parent and affiliated companies) to finance purchases of fixed assets or other (usually financial) assets, or to finance reductions in equity or loans from other sources. Thus, FDI is more an indicator of investor confidence among MNC parents and related companies than an indicator of real activity (e.g. production or employment) in the MNCs operating in Thailand.

In Thailand, FDI stocks in manufacturing were still rather small as late as 1985 – only US\$0.8 billion – but they grew rapidly in the following years to reach US\$4.7 billion in 1991 and US\$7.3 billion in 1996 (Table 1.2). Relative to the size of Thai manufacturing, the first increase was particularly large as the ratio of FDI stocks to manufacturing GDP almost doubled, reaching 17 per cent in 1991. Slower growth of FDI and high growth of manufacturing GDP then led to a decline in this ratio, to 14 per cent in 1996. After the crisis, there was another very large boom in FDI and by 2000, FDI stocks had risen to US\$14 billion or 38 per cent of manufacturing GDP. As in the Indonesian case, exchange rate depreciation led to a fall in the US dollar value of GDP after the 1997–98 crisis, and this contributed to the rise in the ratio of FDI stocks to GDP.

The only production-related indicator available for a reasonably long period of time in Thailand is an estimate of sales by large manufacturing MNCs from Ramstetter (2003a), which reveals rather different trends than the FDI stock data (Table 1.2). The US dollar value of large MNCs' sales nearly doubled between 1991 and 1996, to reach US\$56 billion in the latter year, then declined sharply to US\$41 billion in 1998 and rebounded to US\$51 billion in 2000. The ratio of large MNC sales to manufacturing GDP was remarkably stable in 1991, 1996 and 1998, but then increased sharply in 2000. The most comprehensive estimates of MNC production come from large samples of MNC plants

Table 1.2 Manufacturing MNC activities in Thailand 1985–2000 (US\$ millions, except per cent as noted)

<i>Country, variable, industry</i>	<i>1985</i>	<i>1991</i>	<i>1996</i>	<i>1998</i>	<i>2000</i>
Manufacturing, FDI stocks	780	4,690	7,300	11,329	14,410
% of manufacturing GDP	8.98	16.75	13.64	29.10	37.70
Food	57	327	544	844	1,031
Textiles	142	370	541	708	757
Chemicals	94	618	1,195	1,583	1,974
Petroleum products	106	193	-269	70	108
Non-metallic mineral products, metals	66	471	883	1,441	1,797
Electric machinery	209	1,643	2,554	3,422	4,145
General & transportation machinery	64	324	695	1,752	2,813
Manufacturing, MNCs' value added	-	-	17,241	6,900	2,568
% of manufacturing GDP	-	-	32.22	17.72	6.72
Food, beverages, tobacco	-	-	1,509	1,020	538
Food	-	-	963	514	213
Textiles, apparel, leather, footwear	-	-	1,154	511	129
Textiles	-	-	792	278	99
Wood, furniture	-	-	231	32	26
Paper, printing	-	-	771	88	37
Chemicals, rubber, plastics	-	-	2,428	829	260
Chemicals	-	-	1,203	426	121
Non-metallic mineral products	-	-	377	583	86
Basic metals	-	-	285	106	22
Metal products, machinery	-	-	10,144	3,499	1,397
Metal products	-	-	677	173	98
General machinery	-	-	951	833	212
Electric & precision machinery	-	-	3,905	1,557	899
Office & computing machinery	-	-	939	395	306
Electric machinery	-	-	2,573	1,100	556
Transportation machinery	-	-	4,611	936	188
Motor vehicles	-	-	4,517	909	170
Miscellaneous manufacturing	-	-	343	231	72
Jewellery	-	-	160	25	35
Manufacturing, MNCs' output-a	-	-	64,919	23,320	18,090
Manufacturing, large MNCs' sales	-	28,949	55,656	40,715	50,673
% of manufacturing GDP	-	103	104	105	133

Note: FDI stocks are the cumulative value of FDI inflows from 1970 forward.

Sources: Bank of Thailand (2005); National Economic and Social Development Board (various years); Ramstetter (2003a: Table 1; 2003b: Appendix Tables 2a–2c).

covered in the industrial census of 1996 data. These estimates suggest that the sales of large MNCs amounted to about 86 per cent of the gross output of all manufacturing MNCs and that the value added of manufacturing MNCs was about 32 per cent of manufacturing GDP in that year.

The FDI stock data show that electric machinery was the largest industry of MNC activity in 1996, followed distantly by chemicals, non-metallic minerals and metals, and then general and transportation machinery (Table 1.2). Electric machinery remained the largest industry in 2000, though its share fell slightly. In contrast, the share of general and transportation machinery rose markedly between 1996 and 2000, reflecting the rapid expansion of MNCs in motor vehicles (Chapters 6 and 8). However, according to the value added data from the industrial census, motor vehicles was already the largest industry in 1996, accounting for a little over one-quarter of the total. Electric and precision machinery (including office and computing machinery) was also large, accounting for just under one-quarter of the total. These two industries were followed distantly by chemicals, food, general machinery and textiles.

In order to examine the extent of MNC presence relative to the size of the local industry, it is necessary to use samples from the Indonesian industrial surveys, the Thai industrial census for 1996, and smaller samples from Thai industrial surveys for 1998 and 2000. These samples, which are identical or very similar to the samples used for the micro analyses in the following chapters, have three important characteristics. First, they exclude smaller plants with nineteen employees or less. Second, although sample coverage is not comprehensive, the samples are thought to cover large plants, and especially MNC plants, relatively well. In other words, the ratios of MNCs' value added to GDP for Indonesia in Table 1.1 and for Thailand in 1996 in Table 1.2 are probably relatively good estimates of MNC presence in the manufacturing sector overall. Likewise, MNCs' shares of the value added of sample plants are larger than shares of total manufacturing mainly because these samples exclude many local plants, especially the smaller ones (Table 1.3). Although this is not a large problem in most of the analyses in the following chapters, it does mean that MNCs' shares of sample plants overestimate actual MNC presence. Third, the coverage of the Indonesian surveys has apparently improved over time, which means that the extent of overestimation is probably larger in earlier years.¹² On the other hand, samples from the Thai industrial surveys for 1998 and 2000

Table 1.3 MNCs' shares of value added in sample plants (per cent)

<i>Industry</i>	<i>Indonesia</i>					<i>Thailand</i>		
	<i>1975–85</i>	<i>1986–91</i>	<i>1992–96</i>	<i>1997–99</i>	<i>2000–01</i>	<i>1996</i>	<i>1998</i>	<i>2000</i>
Manufacturing	27	22	28	36	36	52	59	47
Food, beverages, tobacco	24	16	19	25	21	20	37	27
Food	15	13	15	24	19	25	31	30
Textiles, apparel, leather, footwear	29	22	26	37	34	45	41	34
Textiles	30	24	20	33	27	57	45	40
Wood, furniture	18	13	15	14	11	24	13	19
Paper, printing	12	25	29	23	31	36	24	14
Chemicals, rubber, plastics	35	30	40	49	37	45	54	49
Chemicals	37	35	47	57	40	58	57	49
Non-metallic mineral products	46	21	29	34	34	24	60	30
Basic metals	30	30	33	44	31	46	37	33
Metal products, machinery	37	40	41	56	65	84	89	85
Metal products	43	42	50	53	44	60	50	56
General machinery	44	32	39	62	55	72	92	85
Electric & precision machinery	55	39	48	74	75	90	93	89
Office & computing machinery	–	–	–	–	–	100	99	99
Electric machinery	56	39	48	74	76	86	93	87
Transportation machinery	18	41	34	39	64	87	92	86
Motor vehicles	–	–	–	–	–	89	93	91
Miscellaneous manufacturing	13	5	8	14	9	52	74	61
Jewellery	–	–	–	–	–	50	44	73

Notes: samples include plants reporting positive employment and value added; for Indonesia, office and computing machinery is included in general machinery, but the office and computing machinery industry is very small in the Indonesian case.

Sources: Takii and Ramstetter (2004: Appendix Tables 3d, 3e); Ramstetter (2003b: Appendix Table 2a).

are much smaller than the 1996 census sample and the differences in coverage are so large as to make it impossible to use these data to analyse changes over time. This is why the Thai chapters in this book focus primarily on analysis of 1996 data.¹³

In both countries, MNC shares tend to be larger in electric and precision machinery than in other industries, reaching three-quarters in Indonesia in 1997–2001 and 90 per cent in Thailand in 1996 (Table 1.3). MNCs literally dominate this industry in Southeast Asia and in most countries worldwide, largely because costs related to the development of firm-specific assets are relatively large and production technologies allow for the production process to be broken up into distinct stages with different factor requirements. In Indonesia and Thailand, MNCs are primarily engaged in labour-intensive assembly operations, for example. MNC presence is also relatively large in general machinery and transportation machinery (primarily motor vehicles) in Thailand, and in chemicals, metal products, general machinery, and less frequently in transportation machinery in Indonesia.¹⁴ On the other hand, MNC presence was always relatively small in food as well as wood and furniture in both countries. This was also true less frequently in paper and printing in both countries, as well as in non-metallic mineral products and basic metals in Thailand.¹⁵ Here again the relative importance of costs related to the development of firm-specific assets is an important reason for the variation in the importance of MNCs across industries, but it is certainly not the only reason.

1.3.2 Economic policies and manufacturing multinationals

Economic policies are also related to the variation of foreign presence across industries and over time.¹⁶ For example, high import tariffs and non-tariff trade barriers have kept imports of motor vehicles very low and encouraged MNCs to produce for the local market in both countries (James and Ramstetter 2005). Indeed, several of the MNCs now operating in Indonesia and Thailand set up operations years ago, when both countries encouraged import substitution with high levels of import protection and subsidies to firms in targeted industries such as motor vehicles. On the other hand, relatively low levels of import protection or exemptions on import duties for imported inputs encouraged MNCs in export-oriented processing industries such as electric and precision machinery. Moreover, a trend towards lower levels of import protection encouraged export-oriented MNCs in both countries and was an important reason why export-oriented MNCs grew rapidly in the late 1980s and early-to-mid-1990s.

The shift to export promotion was particularly abrupt and far-reaching in Indonesia during the mid-1980s. For example, in 1986, the Indonesian government relaxed a large number of import licensing restrictions, replaced a large number of non-tariff barriers with tariffs,

and lowered tariffs markedly. This was one of the first major steps in what became a highly successful campaign to increase non-oil exports from only one-fifth of the total in 1985 to over three-fifths in 1993–96 and just under two-thirds in 1999–2000 (Ramstetter and Takii 2005: Table 1).¹⁷ In 1989, further liberalization of import licences, as well as further reductions in tariffs and non-tariff barriers, followed.

Thailand began its shift away from emphasis on import substitution towards export promotion earlier in the 1970s and gradually reduced tariffs and non-tariff barriers thereafter. As a result of these changes, as well as the lack of substantial natural resources to export, non-oil exports already accounted for over two-fifths of the total in 1973 (Ramstetter 1997: 111). The share subsequently increased to three-fifths in 1980 and then four-fifths in 1990.¹⁸ There was also a marked reduction in tariffs in the early 1990s, although this change was far less significant than the Indonesian reduction that began a few years earlier. In addition, many MNCs were able to get exemptions on import duties for intermediate goods and some capital goods through the Thai Board of Investment (BOI).

Both countries have also tried to encourage FDI with incentives, while at the same time restricting the operations of MNCs in various respects. Restrictions on MNCs were related to nationalism in both countries. Negative sentiment towards MNCs has a particularly long tradition in Indonesia and was most conspicuous during the 1950s when several MNCs were nationalized. Negative sentiment was also evident in both countries in the early 1970s, when there was a particularly strong backlash against MNCs. This reaction was targeted mainly at Japanese MNCs, which had grown rapidly in the previous years, and involved sizeable demonstrations in Bangkok and Jakarta. Recently, there are also signs of a new wave of economic nationalism in the wake of the 1997–98 crisis, which is partly a reaction to the liberalization that followed the crisis. The Thaksin government has been quick to espouse nationalist sentiment in Thailand, at times resisting efforts to restructure the debts of Thai firms when the restructuring might benefit foreign parties. There have also been several recent cases where foreign takeovers of domestically owned firms have been blocked or delayed by various Indonesian authorities (Athukorala 2002). However, recent nationalism has yet to result in substantial new restrictions on MNCs or a reversal of trends towards more open policies.

The policy effects of nationalism are perhaps most obvious in the closing of certain industries (e.g. some agricultural activities) to FDI and restrictions on foreign ownership shares in industries where FDI was allowed. Both countries have employed such policies in the past, and

Indonesia has also imposed divestment requirements. In Indonesia, foreign ownership restrictions and divestment requirements were first relaxed for export-oriented projects in 1985–86. Foreign investors were allowed to own 100 per cent of the equity in certain projects in 1992 and the list of eligible projects was expanded in 1993. Then in 1994, divestment requirements were abolished for all but a few projects, most ownership restrictions were eliminated, and the list of industries closed to FDI was reduced as a part of a sweeping liberalization of FDI policy.¹⁹

Thailand also had foreign ownership restrictions, which were enshrined in its Alien Business Law of 1972, and formally limited foreign shares to 49 per cent until the promulgation of the Foreign Business Act of 1999, which removed most of these restrictions. On the other hand, the Thai BOI, which was established by the Investment Promotion Act of 1977, had wide discretion to offer various incentives, including exemptions to foreign ownership limits. Other incentives included tax reduction, exemptions to limits on the hiring of foreign workers, as well as exemptions on import duties for intermediate and some capital goods. These incentives were offered to MNCs that met criteria such as investing a large amount of capital, using sophisticated technology, creating a large number of jobs, exporting a large percentage of output, and locating plants in priority regions outside the Greater Bangkok area. Although most FDI in Thailand went through the BOI in order to obtain one or more of the aforementioned incentives, MNCs were not required to get BOI approval to invest if they did not want to apply for incentives. US MNCs in particular tended to shy away from the BOI because a bilateral treaty between the United States and Thailand made them exempt from foreign ownership requirements and a few of the other constraints facing MNCs from other countries.

In contrast, all FDI in Indonesia's non-oil manufacturing industries required the approval of the Indonesian Investment Coordinating Board (BKPM). The BKPM also offered incentives to some MNCs, including some generous fiscal incentives, but was generally less flexible than the Thai BOI, especially with respect to ownership and divestment requirements before the early 1990s.

Macroeconomic fluctuations were also related to changes in the policies affecting MNCs, especially in the Indonesian case. Following the installation of former President Soeharto's 'new order' government, Indonesia imposed very few restrictions on MNCs for a brief period in the late 1960s and early 1970s, primarily because the economy was struggling to recover from some severe macroeconomic imbalances and

badly needed investment of any type.²⁰ However, a subsequent increase in oil revenues allowed President Soeharto to appease the nationalist sentiments and impose new restrictions on MNCs in the mid-1970s. Conversely, in the early 1980s, falling oil revenues were a major factor in the decision to promote non-oil exports with the liberalization of imports and FDI. The severe economic crisis starting in 1997 also led to further liberalization and deregulation in both Indonesia and Thailand. This included the effective suspension of foreign ownership requirements by the Thai BOI in 1998 and the eventual elimination of most formal ownership restrictions in 1999.

The effects of these policies are readily apparent from the data. For example, MNC shares tend to be larger in Thailand than in Indonesia (Tables 1.1, 1.2, 1.3), partly because Thai policies have generally been more consistent and favourable towards inward FDI than Indonesian policies. The rapid increase in FDI in Thailand after the crisis was also related to the suspension and subsequent removal of ownership restrictions, which made it easy for MNCs to increase equity in joint ventures, many of which ran into financial difficulties after the crisis.²¹ Similar problems also affected many joint ventures in Indonesia where the earlier removal of most ownership restrictions also gave MNCs the option of increasing equity in struggling affiliates.

The effects of liberalizing foreign ownership restrictions and the economic crisis are also apparent from trends in the share of heavily-foreign MNCs (MNCs with foreign ownership shares of 90 per cent or more) in the value added of sample plants in Indonesia (Table 1.4). In overall manufacturing, the shares rose from a low of 2 per cent in 1986–91 to 5 per cent in 1992–96, and then to 13–15 per cent in subsequent years. In Thailand, the share of wholly-foreign MNCs was already 11 per cent in 1996, which was nearly twice the corresponding share of heavily-foreign MNCs in Indonesia (5.9 per cent, Takii and Ramstetter 2004: Appendix Tables 3c, 3e). This suggests that the Thai ownership restrictions were not particularly strict in practice and/or that the effects of the 1994 liberalization were yet to be realized in Indonesia.

The relatively large importance of electric and precision machinery in Thailand is another reason why the overall Thai share is larger, because shares of heavily- or wholly-foreign MNCs tend to be relatively large in this industry in both countries (Table 1.4). The observation of high shares in this industry is also suggestive of policy effects, because the industry was targeted for early removal of ownership restrictions in Indonesia and for the promotion of export-oriented investments in Thailand. Shares were also relatively high in general machinery after 1997. Part of the reason for the observation of high shares for heavily-foreign or

Table 1.4 Heavily-foreign (Indonesia) or wholly-foreign MNCs' (Thailand) shares of value added in sample plants (per cent)

Industry	Indonesia					Thailand, 1996
	1975-85	1986-91	1992-96	1997-99	2000-01	
Manufacturing	4	2	5	13	15	11
Food, beverages, tobacco	4	1	3	8	7	1
Food	3	1	2	7	5	2
Textiles, apparel, leather, footwear	4	4	6	14	16	3
Textiles	3	3	3	11	11	5
Wood, furniture	0	1	1	5	7	1
Paper, printing	0	0	2	7	1	0
Chemicals, rubber, plastics	9	3	5	13	14	6
Chemicals	10	2	4	13	15	11
Non-metallic mineral products	0	0	0	1	4	1
Basic metals	0	4	2	8	11	1
Metal products, machinery	5	0	8	28	31	24
Metal products	3	1	3	13	11	8
General machinery	2	0	4	22	23	33
Electric & precision machinery	16	1	23	57	60	54
Office & computing machinery	-	-	-	-	-	76
Electric machinery	16	1	23	59	60	43
Transportation machinery	0	0	2	5	10	1
Motor vehicles	-	-	-	-	-	1
Miscellaneous manufacturing	3	1	3	6	3	13
Jewellery	-	-	-	-	-	16

Notes: samples include plants reporting positive employment and value added; for Indonesia, office and computing machinery is included in general machinery, but the office and computing machinery industry is very small in the Indonesian case.

Sources: Takii and Ramstetter (2004: Appendix Tables 3c, 3e); Ramstetter (2003b: Appendix Table 2a).

wholly-foreign MNCs in these machinery industries is also technical. In other words, MNCs in these industries are probably more concerned with preventing the leakage of firm-specific assets to competitors than are MNCs in other industries, which tend to use more standardized technologies and export less of their output.

1.4 Multinationals, wages, productivity and exports

Changes in MNC presence and related economic policies have important implications for the relationships studied in this book. In particular, analyses of Indonesia prior in the 1970s and most of the 1980s must take account of numerous policy distortions that became far less severe in subsequent years. Conversely, analysis of Thailand is probably less affected by policy distortions, even though several rather strict, formal restrictions remained in effect in 1996, the year on which the analyses in this book focus. Second, primarily because the Indonesian data cover a longer period, greater attention to cyclical considerations is required. The effects of the economic crisis in 1997–98 were particularly large and mandate caution when interpreting results that span the crisis years. Similar caution is also required when interpreting results from the small Thai samples for 1998 and 2000. Keeping these factors in mind the remainder of this section summarizes some of the major results of the chapters to follow.

1.4.1 Manufacturing multinationals and wages

Simple compilations in Chapter 2 reveal rather large wage differentials in Indonesia, which have tended to decline over time. In all manufacturing, blue-collar workers in foreign plants earned 180 per cent more per worker in 1975 than in local plants and this wage differential then fell rather steadily to 127 per cent in 1985 and 44 per cent in 1999. Wage differentials for white-collar workers were much larger in 1975 – 211 per cent – but declined very rapidly to 81 per cent in 1985, and then more slowly to 68 per cent in 1999. In the nine industries for which wage differentials were calculated, negative differentials were rare and positive differentials exceeding 10 per cent were common.

Similar calculations for Thailand in 1996 in Chapter 3 suggest wage differentials were smaller in Thailand – 36 per cent for all workers in a sample of 10,494 plants. Calculations from a somewhat smaller sample of 8432 manufacturing plants revealed differentials of 25 per cent for blue-collar workers and 53 per cent for white-collar workers. As in Indonesia, negative wage differentials were rare and positive differentials exceeding 10 per cent were common in these samples. Wage differentials were somewhat smaller in samples of large plants: 21 per cent for all workers, 5 per cent for blue-collar workers, and 23 per cent for white-collar workers. Negative differentials were more common and positive differentials exceeding

10 per cent were rarer in the samples of large plants, especially for blue-collar workers.

This discussion highlights how other factors such as plant size might be related to wage differentials. Correspondingly, Chapter 2 reviews calculations for all Indonesian manufacturing plants, which indicate that wage levels for both white-collar and blue-collar workers in 1996 were positively and significantly related to worker educational achievement, energy input per worker, intermediate input per worker, and plant size. However, wage differentials remained positive and statistically significant for both blue-collar and white-collar workers even after accounting for these factors.

Chapter 3 analyses similar calculations showing that wage differentials in Thailand tended to be positively related to labour productivity, export propensities and import propensities, for both blue-collar and white-collar workers in Thailand, but that the correlation with size differed depending on the type of labour: negative for blue-collar workers and positive for white-collar workers. Here again, wage differentials between MNCs and local plants remained statistically significant after accounting for these factors, as well as the effect of industry affiliation and location in Greater Bangkok on intercepts in the wage equations.

Chapter 3 also relaxes the assumption that correlations between wage levels and foreign ownership were identical in all industries by estimating wage equations at the industry level. Results are somewhat weaker, with positive and statistically significant wage differentials remaining in less than one-half the industries examined. Other results also indicate that significantly positive differentials are slightly more common at the industry level if MNCs are distinguished by country of ownership or foreign ownership share. MNCs from Europe, Japan and the United States generally paid relatively high wages. Relatively large overall wage differentials were also observed for majority- and wholly-foreign plants in some industries, as well as for white-collar wages in majority-foreign plants. However, results distinguishing labour types also suggested relatively low (blue-collar) or insignificant (white-collar) wage differentials for wholly-foreign plants and relatively large differentials for wages paid to blue-collar workers by minority-foreign plants.

Both Chapters 2 and 3 also summarize evidence suggesting that foreign MNC presence in an industry is positively and significantly correlated with the wages of local plants in that industry. In other words, there is evidence of positive wage spillovers. For Indonesia, this finding is further reinforced by Chapter 2's findings from a panel for

1975–99 that MNCs did not select high-wage plants to take over and that foreign takeovers, not takeovers in general, led to relatively large wage increases and high wages.

1.4.2 Multinationals and productivity

Perhaps the simplest and most common measure of productivity is value added per worker or average labour productivity. In the context of this project, this measure of productivity is also one of the most important because labour productivity is an important determinant of wage levels. In short, one reason MNCs may pay higher wages is because they are generally expected to have a higher labour productivity. Productivity differentials between MNCs and local plants are also expected to be largest for wholly-foreign or heavily-foreign MNCs and smallest for minority-foreign MNCs, as explained above.

The results summarized in Chapters 4 and 5 suggest that the evidence on this latter hypothesis is mixed for Indonesia and not very consistent for Thailand. Calculations of average labour productivity for all manufacturing industries in Indonesia indicate that majority-foreign MNCs generally had the highest average labour productivity, while minority-foreign MNCs had the highest level in a few cases examined and heavily-foreign MNCs had the lowest labour productivity in a number of cases. However, the Indonesian evidence is consistent with the first hypothesis, as all foreign ownership groups generally had markedly higher labour productivity than local plants in all years.

In Thai manufacturing in 1996, labour productivity was highest on average in majority-foreign MNCs, followed by minority-foreign MNCs and wholly-foreign MNCs, but productivity differentials were generally much smaller than corresponding differentials in Indonesia. Majority-foreign MNCs had the highest labour productivity in most industries, while minority-foreign MNCs had the highest labour productivity in most of the remaining industries. In Thailand there were also a few industries in which MNCs had lower labour productivity than local plants.

As with wage differentials, productivity differentials may result from other characteristics of the plants involved. Correspondingly, Chapters 4 and 5 first examine labour productivity differentials after removing the influences of factor intensities, plant size and plant vintage on those differentials. For Indonesia in 1986–2001, the results suggest that statistically significant differences were most common in chemicals and electric and precision machinery, and least common in apparel,

footwear and transportation machinery. Significant differences were most common between majority-foreign MNCs and local plants. Similar calculations for Thailand in 1996 suggest a weak tendency for wholly-foreign MNCs to have relatively high productivity in the few cases significant productivity differentials were observed, but these results and those of numerous previous studies suggest that MNCs did not have significantly higher labour productivity than local plants in most of the cases examined.

One reason that differences in labour productivity were not statistically significant could be the use of unduly restrictive assumptions about technology. Thus, Chapters 4 and 5 also made comparisons using general assumptions about technology for Indonesia in 1995 and Thailand in 1996, respectively.

Assuming the relationship between technology and foreign ownership (and other control variables) is the same in all industries (i.e. using results from samples of all manufacturing plants combined), results for Indonesia suggest that foreign-owned plants had higher productivity levels than locally-owned plants, and wholly-foreign plants tended to have higher productivity levels than other foreign-owned plants if plant vintage is accounted for. Relatively new foreign-owned plants tended to have relatively low productivity levels. However, if the relationship between productivity and foreign ownership is allowed to vary across industries (i.e. results from individual industry samples are used), productivity differentials between all MNCs and local plants are usually positive, though there is wide variation across industries and differences among MNC ownership groups are not statistically significant.

All results for Thailand assume the relationship between productivity and foreign ownership varies across industries (an assumption supported by large variation in results across industries), focusing on tests of whether production functions differ between MNCs and local plants at the industry level. Although this approach generates a few more statistically significant differences between MNCs and local plants than previous studies using more restrictive assumptions (e.g. those comparing labour productivity), results are consistent in suggesting that differences in technology in MNCs and local plants are statistically insignificant in most of the cases examined.

Chapter 6 provides a detailed industry-level study of automobile plants in Thailand in 1996 and Indonesia in 1990–99. For Thailand, simple comparisons suggested relatively high labour productivity in MNCs but that after differences in capital intensity and other control variables are accounted for, differences between MNCs and local plants

become statistically insignificant. Comparisons of total factor productivity (TFP) levels in foreign and local plants also reveal no evidence that foreign plants have relatively high TFP in Thailand after accounting for the effects of other control variables. At a more disaggregate level, MNCs in Thailand tended to have relatively low capital productivity in the motor vehicle bodies and trailers and the motor vehicle parts and accessories industries, while MNCs in the motor vehicle assembly industry had relatively high labour productivity, capital productivity and TFP.

Results for Indonesia suggest that labour productivity was relatively high in MNCs but there were no statistically significant differences in TFP levels between MNCs and local plants. In Indonesia, both foreign and local plants exhibited increasing returns to scale and capital utilization was extremely inefficient in MNCs. The largest portion of TFP growth in Indonesia is explained by changes in scale and capacity utilization, while the technological change effect was negligible both for foreign and local plants. The chapter thus concludes that the small size of the Indonesian and Thai automobile markets prevented both MNCs and local plants from exploiting scale economies.

Chapter 4 examines productivity spillovers in Indonesia, using panel data for 1990–95.²² Similar to other results, these results suggest the existence of positive productivity spillovers. However, these results differ from others by suggesting that the magnitude of spillovers tended to be smaller in industries where the share of majority-foreign plants was relatively large or in industries where technological gaps between foreign- and locally-owned plants were relatively large. Chapter 5 also indicates that productivity spillovers were positive for Thailand in 1996, and examines the possibility that the existence of extremely rapid spillovers might be one reason for the lack of significant productivity differentials in Thailand.

1.4.3 Multinationals and exports

Chapters 7 and 8 first emphasize that MNCs in Indonesia and Thailand (and other Southeast Asian economies) have made perhaps their largest direct contributions to these host economies in terms of exports. This is reflected in relatively high average export propensities among MNCs in Indonesian manufacturing and a much higher frequency of high export propensities in Thai manufacturing. In Indonesia, the average export propensity of MNCs in manufacturing rose from 28 per cent in the early 1990s to 40 per cent in the mid-1990s, and then fell back to 26 per cent in the crisis period before recovering to 36 per cent in 2000. These export

propensities were always more than three times larger than corresponding levels in local plants. Export propensities were particularly high among MNCs in textiles, apparel, footwear and leather as well as wood and furniture and then other manufacturing. In Thailand, the percentage of local plants that exported half or more of their output was only 15 per cent for all manufacturing in 1996, which was much lower than for MNCs. Moreover, among MNCs, this percentage was relatively low for minority-foreign plants – 41 per cent – and much higher for majority- or wholly-foreign plants – 70 per cent and 81 per cent respectively. Similar patterns were observed in most industries.

Chapter 7 then examines the determinants of export propensities in a panel of all manufacturing for 1990–99, focusing on the role of foreign ownership and the import of intermediate products as avenues into exporting networks. After controlling for the effects of related plant characteristics such as previous exporting experience, electric power consumption, skill intensity, size, labour productivity, and the effect of industry affiliation on intercepts, the findings suggest that MNCs had significantly higher export propensities than local plants, but that imports of intermediate products have no impact on export propensities. They find no difference between export propensities in majority- or wholly-foreign plants and minority-foreign plants. In contrast, results for Thailand in Chapter 8 (1996) emphasize that there is positive correlation at the industry level between foreign ownership shares and the probability that plants will export or have relatively high export propensities, after controlling for differences in factor intensity, size, vintage, and BOI-promotion.

1.5 Conclusion

The results summarized in this book first suggest that there are important differences in wages, productivity and trade propensities between MNCs and local plants. Wage and productivity differentials are largest and most pervasive in Indonesia and these differentials remained large and statistically significant after removing the effects of relevant control variables. The evidence also suggests that MNCs do not appear to target high wage industries or plants for takeovers in Indonesia, and foreign takeovers, not takeovers in general, increase wages in target plants. Wage differentials were smaller in Thailand, though they were usually positive and statistically significant. However, productivity differentials were usually statistically insignificant in Thailand after accounting for the effects of relevant control variables. There is also

evidence of both wage and productivity spillovers to local plants in both Indonesia and Thailand. Finally, there was strong evidence that MNCs had significantly higher export propensities for both countries. In short, MNCs are an important avenue through which both Indonesia and Thailand access export markets.

These findings suggest that MNCs have imparted important positive effects on economic performance in these two developing economies. Moreover, these positive effects have generated important benefits for the Indonesian and Thai economies in the form of higher wages, higher productivity, and exposure to export markets. Of course, these are not the only aspects of foreign MNC involvement that need to be studied. However, the relationships studied in this book are important and the evidence generated provides little or no support for the idea that MNCs exploit their workers in these important developing economies. On the contrary, the evidence strongly suggests that Indonesian and Thai workers, as well as their host economies, would have been substantially worse off in important respects without the presence of the MNCs.

Notes

1. In this book, the term MNC refers to foreign-owned MNCs as opposed to local firms that are also MNC parents. Note that there were relatively few locally-owned MNC parents in Indonesia and Thailand during the period under study.
2. See Barro and Sala-i-Martin (1995: 277–9); Borensztein, De Gregario and Lee (1998) and Carkovic and Levine (2005).
3. Articles from this project include Ito (2004a, 2004b), Lipsey and Sjöholm (2002, 2004a, 2004b), Matsuoka (2001a, 2001b, 2001c), Ramstetter (2002a, 2002b, 2003b, 2004), Takii (2004, 2005), Takii and Ramstetter (2000, 2003, 2004, 2005) and Sjöholm and Takii (2003).
4. Location advantages are the final determinant in Dunning's OLI (ownership, location, internalisation) framework.
5. It is important to note that the possession of firm-specific assets means that MNCs have at least some market power and therefore do not operate in perfectly competitive markets. Correspondingly, one cannot rigorously prove that the *Stolper-Samuelson Theorem* holds in markets where MNCs operate. However, although not perfectly competitive, many of these markets have highly competitive structures (either monopolistic competition or competitive oligopoly) and it is logical to expect a similar mechanism to be relevant in many cases.
6. For example, Moran (2001) suggests that closely controlled MNC affiliates will be more closely integrated with the parent and its network and thus be in a better position to access information about advanced technologies, marketing networks and other intangible assets. See Chao and Yu (1996); Caves (1996: chs 3, 7, 9); Dunning (1993: chs 7–9, 11) for similar arguments.
7. Similar evidence is also available for Indonesia (Ramstetter 1999b; Ramstetter and Takii 2005) and Vietnam (Phan and Ramstetter 2004).

8. This is implied by Dunning's (1988: ch. 5) investment development cycle that relates a country's net FDI position to the level of development. Kojima's (1978, 1990) assertion that Japanese MNCs were more trade-oriented than US or European MNCs in the 1970s and 1980s was perhaps the most famous specific argument regarding nationality-related differences, but it is not well-grounded in standard theories of the MNC and the empirical evidence suggests this assertion was incorrect in most cases examined (Hill and Johns 1985; Naya and Ramstetter 1992; Ramstetter 1994, 1999a, 2004).
9. Compilations of the industrial survey data for MNCs are not published by the Indonesian authorities, however. The most comprehensive compilations of these data that we know of come from appendices to some of the working papers underlying Chapter 4 in this volume and related research (Takii and Ramstetter 2000, 2003, 2004; Ramstetter and Takii 2005).
10. Indonesia does not compile more commonly cited data on FDI inflows in manufacturing using standard balance of payments' definitions. It is possible to obtain some data on realized FDI in manufacturing from the Investment Coordinating Board (BKPM; Ramstetter 2000: 36–8), but these data do not account for FDI withdrawals and exclude investment in the oil and finance sectors.
11. Figures are reported in current US dollars to facilitate comparison with Thai figures below and to remove the effects of exchange rate fluctuations.
12. For example, the ratio of value added in all sample plants to manufacturing GDP rose from 41 per cent in 1975–85 to 55 per cent in 1986–91, 68 per cent in 1992–96, 62 per cent in 1997–99 and 75 per cent in 2000–01 (Tables 1.1, 1.3).
13. The ratio of value added in all sample plants to manufacturing GDP was 62 per cent for the 1996 sample but only 30 per cent in 1998 and 16 per cent in 2000 (Tables 1.2, 1.3).
14. These are industries where MNC shares are 1.3 times the manufacturing average or more.
15. These are industries where MNC shares are 0.7 times the manufacturing average or less.
16. The discussion in this section draws heavily on Hill (1988: 29–33, 134–54) and Pangestu (1996, 2002) for Indonesia and Board of Investment (various years), Sibunruang and Tambunlertchai (1986) and Tangkitvanich et al. (2004) for Thailand. See these sources for further details.
17. These shares refer to a broad definition of non-oil manufactures designed to be consistent with definitions used in the industrial statistics described above.
18. These shares also refer to the broad definition of non-oil manufactures.
19. This liberalization also included the streamlining of investment procedures, reduction of minimum investment requirements, and the elimination of reinvestment requirements.
20. These imbalances were far more severe than those that preceded or followed the 1997–98 crisis. For example, consumer price inflation exceeded 100 per cent for every year from 1962 to 1968 and peaked at over 1000 per cent in 1966; in contrast it never exceeded 12 per cent in 1982–97 or 2000–04, and peaked at 58 per cent in 1998 (International Monetary Fund 2005).
21. In many cases, joint ventures and the local partners involved in the joint ventures ran into financial difficulties simultaneously. In extreme cases,

MNC parents faced a choice between increasing equity to save the joint venture or see it go bankrupt.

22. The use of panel data is another way of reducing the chance that results will reflect a foreign MNC preference for investing in high-productivity industries.

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