4 Indonesian industrialization and industrial policy

Catching up, slowing down, muddling through

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1. Introduction

This chapter provides a policy-oriented analytical narrative of Indonesian industrialisation, examining the period since the 1960s but with particular emphasis on the 'reformasi era' this century. We focus on four broad sets of issues, which constitute the main themes of the chapter.

The first is the episodic nature of Indonesian industrialisation, driven in turn by three sets of factors: latecomer catch-up, particularly in the first half of the Soeharto era; the swings in policy regimes reflecting government priorities and interest group pressures; and external circumstances, especially commodity prices and global economic shocks. We also examine here the factors explaining the slower industrial growth recorded since the Asian Financial Crisis (AFC), including the sometimes muddled debate concerning the 'deindustrialisation' issue.

The second issue is the policy environment, and in particular the absence of a coherent industrialisation strategy over most of this period. While Indonesian macroeconomic management has generally been effective, as in most countries microeconomic policy has often been hostage to powerful vested interests. Significant sections – perhaps the majority – of the influential Indonesian policy community remain ambivalent about the merits of globalisation, and economic liberalism more generally. Combined with a largely unreformed bureaucracy, a complex regulatory environment, and a sizeable state enterprise sector, economic nationalism has always been a powerful factor in policymaking. As a result, economic policy has swung between periods of reform and regress, depending on the quality of national economic leadership and on which groups are in the political ascendancy. Although the modalities of policy influence and reform differ, these debates and outcomes transcend both the 32 years of authoritarian Soeharto rule and the subsequent democratic era.

Third, Indonesia does not easily fit into the 'East Asian' model of outward-looking economic development. Its polity has been less willing to unambiguously embrace export orientation. Unlike most of its neighbours, it is a resource-rich economy, and therefore it is more subject to the political economy challenges of resource abundance, not least of which are widespread rent-seeking and occasional periods of exchange rate volatility. Indonesia is also an extremely

DOI: 10.4324/9781315161976-4

large and heterogeneous geographical entity, which poses particular challenges for regional and global economic integration. Indonesia is therefore a good deal less open than its immediate neighbours, Singapore and Malaysia (and also Thailand). Apart from brief periods of openness, mainly in the decade from the mid-1960s and during the 1980s reforms, the attitude towards foreign investment has been cautious and hesitant. The Korean (and earlier Japanese) models of 'guided' industrial policy, led by dynamic, internationally oriented conglomerates, have always had great intellectual appeal. But the supportive policies that underpin this successful strategy, including high-quality education, public support for research and development (R&D), strict performance conditionality associated with industry assistance, and highly efficient physical infrastructure, have rarely been present to the requisite level (Thee, 1994).

Fourth, these issues in turn inform the policy agenda for reform. Although our focus is on the industrial sector, most of these reform issues are economy-wide by definition. That is, they relate to the business environment, the labour market, the education system, commercial policy, and so on. Our discussion of policy issues is based on the premise that that there is nothing 'special' about the manufacturing sector. In fact, theory provides very little guidance as to whether there is a case for sector-specific interventions. At undistorted prices, a priori, a dollar of value added arguably generates the same social welfare whether it originates from agriculture, industry, or services, and from import-competing or exporting activities, keeping in mind also that protection for one sector is a tax on other sectors. That is, unless there are specific distributional or externality considerations that would justify special promotion of one sector over another, and moreover, that this industry policy intervention is a more effective means of achieving the specified distributional or externality objective. We recognise that this is a controversial assertion in some quarters, particularly the school of thought that maintains that industrialisation is the 'accelerator' of economic development.[1]

One general observation needs to be emphasised at the outset. It is not an exaggeration to characterise Indonesian economic performance as a 'miracle', as the World Bank did for several East Asian economies in the early 1990s: at the three key points of its history, when the outlook appeared exceptionally gloomy, Indonesia proved the pessimists wrong. After the sudden declaration of independence in 1945, the country was able to forge a sense of national identity and to preserve its territorial integrity. In 1965–1966, during a period of hyperinflation and horrendous political and social turmoil, and against a backdrop of decades of economic stagnation and decline, the new regime ushered in three decades of unparalleled economic growth and prosperity. In 1998, during one of the deepest economic crises in modern economic history, and without a roadmap for the transition from authoritarian to democratic rule, Indonesia not only managed to restore economic growth but it also evolved into the most vibrant democracy in Southeast Asia. More than anything else, these macroeconomic and political observations should dominate any analysis of Indonesia's past achievements and future prospects. It is important to keep this consideration in mind as we switch from the remarkable achievements of the big picture to the complex and challenging minutiae of industrial policy.

This chapter is organised as follows. Section 2 reviews the structure and performance of Indonesian industry, while section 3 provides an analysis of salient policy issues. Section 4 draws out some policy implications.[2]

2. An analytical survey of Indonesian industrialisation

Indonesian industrialisation is a well-documented story. In the mid-1960s, the country was one of the least industrialised among the major developing countries, lagging behind not only the Asian giants – China and India – but also most of its Association of Southeast Asian Nations (ASEAN) neighbours (McCawley, 1981; Hill, 1997). After decades of stagnation, the country then began to experience very rapid industrialisation following the major political changes and economic reforms of 1966–1967. Annual industrial growth was at least 9 percent in all but two of the 27 years during the period 1970–1996 (Figure 4.1). Initially, catch-up and import substitution were the principal drivers. There was a decade of oil-driven growth, and the beginnings of a brief and costly heavy industry strategy. From the mid-1980s, labour-intensive exports became a significant engine of growth. This growth came to an abrupt halt with the crisis

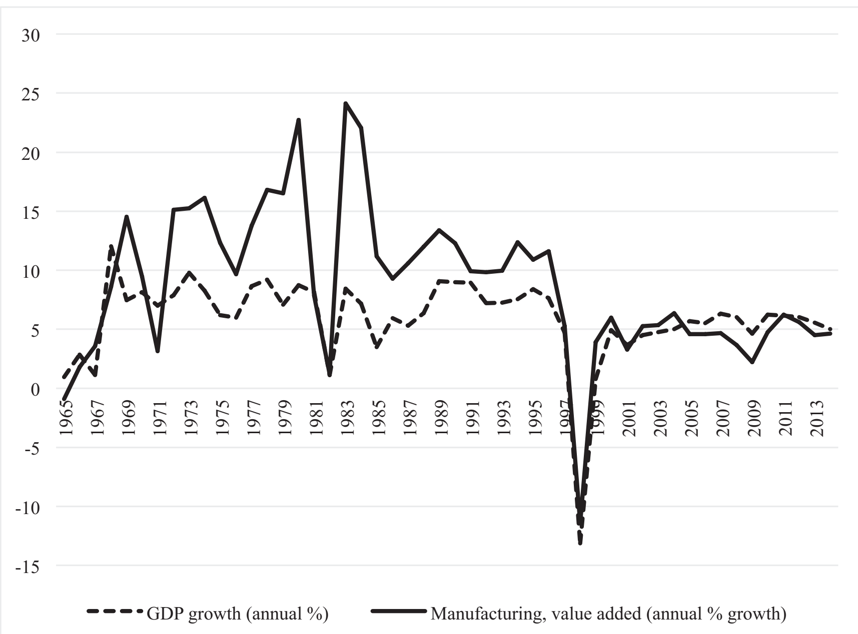


Figure 4.1 Economic and industrial growth, 1965–2015 (annual growth of GDP and manufacturing value added)

Source: Authors' calculations based on World Development Indicators, World Bank.

of 1997–1998. The contraction in the manufacturing sector was about the same as for the economy as a whole, at 13 percent. Thereafter, positive growth has been recorded from 1999, but at lower rates than pre-crisis. For reasons we will discuss, the AFC appears to have been a turning point for the industrial sector, with its growth falling below the economy-wide average for the first time since the 1960s. As a result of this rapid growth, from 1965 to 1997 the share of the manufacturing sector in gross domestic product (GDP) more than trebled (Figure 4.2). Since the crisis, the share of manufacturing has tended to decline slightly, triggering fears of a premature 'deindustrialisation'.

Within manufacturing, structural change has been equally rapid (Table 4.1). Since the 1970s, there has been a shift towards a more diversified industrial structure, away from the earlier dominance of simple consumer goods and resource processing. The major labour-intensive and footloose industries grew rapidly during the switch towards export orientation in the mid-1980s. Textiles, garments, and footwear were the major drivers of this export growth. Wood products expanded fast in response to the prohibition on the export of unprocessed timber, before encountering environmental constraints in the 1990s. Heavy industry grew quickly through to the mid-1980s in response to protection and major state investments. Within machinery and equipment, the automotive

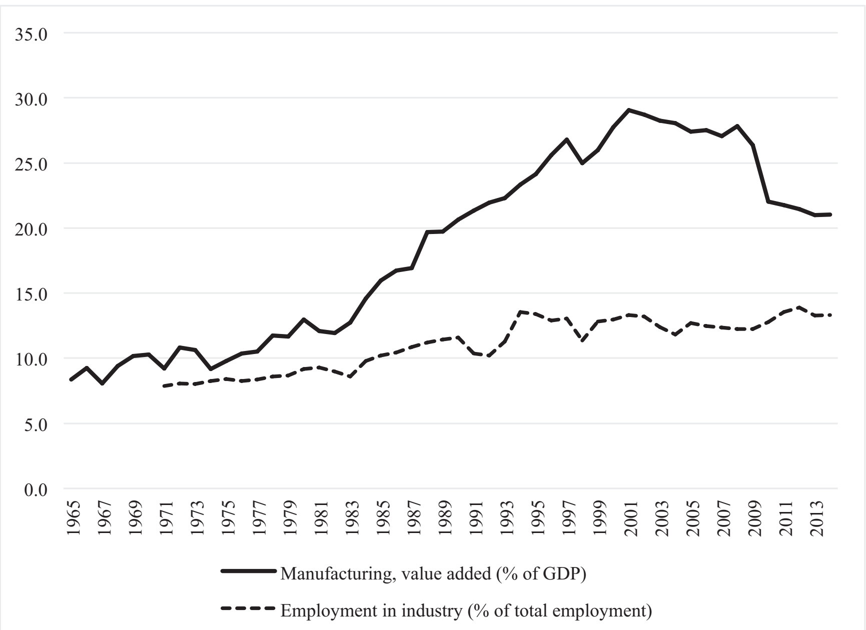


Figure 4.2 Share of manufacturing, 1965–2015 (annual share of manufacturing in GDP, employment)

Source: Authors' calculations based on World Development Indicators, World Bank.

Table 4.1 The changing structure of manufacturing, 1975–2015 (as percentage of MVA, by two-digit ISIC)

	1975	*1980*	*1985*	*1990*	*1995*	*2000*	*2005*	*2010*	*2013*
31. Manufacture of Food, Beverages and Tobacco	44.4	38.2	32.6	23	22.3	21.2	24.7	25.6	27.4
32. Textile, Wearing Apparel and Leather Industries	10.7	13.3	14	19.7	17.8	16.1	11.9	9.7	7.3
33. Manufacture of Wood and Wood Products, and Wood's Derivative	2.4	5.7	8.7	12.1	8.2	5.4	3.9	2.8	2.3
34. Manufacture of Paper and Paper Products, and Printing and Publishing	4.7	4	3.8	4.7	4.8	6.3	7.7	6.1	5.2
35. Manufacture of Chemicals Rubber and Plastic Products	22.4	18	16	12.8	13.1	14.8	17.2	19.4	19.1
36. Manufacture of Non-Metallic Mineral Products	2.6	4.2	5	3.8	3.6	3.5	5.1	3.8	3.4
37. Basic Metal Industries	0.7	3.1	7.2	8	7.5	3.6	2.7	6.8	8.1
38. Manufacture of Fabricated Metal Products, Machinery and Equipment	12.1	13.4	12.5	15.5	21.9	27	24.8	25.0	26.6
39. Other Manufacturing Industries	0.1	0.1	0.2	0.5	0.7	2.1	1.9	0.9	0.7

MVA = manufacturing value added.

Source: Authors' calculations based on Statistic Industry.

industry grew rapidly under the impetus of prohibitive protection for most of the Soeharto period, but collapsed in 1998–1999. Electronics has become increasingly important and export-oriented, but never as prominent as in neighbouring East Asian economies.

Indonesia became a significant industrial exporter from the mid-1980s (Figure 4.3). In retrospect, the 1980s was a crucial period in Indonesian economic history. At the beginning of the decade, as oil prices first tapered off and then fell sharply, the country was highly exposed to the international oil market. Oil, gas, and related minerals provided about two-thirds of government revenue and almost three-quarters of merchandise exports. Indonesia could well have followed other major developing OPEC (Organization of the Petroleum Exporting Countries) members – notably Mexico and Nigeria – into a debt crisis. Instead, the decline in oil prices triggered a major reassessment of trade and industry policy. The political economy pendulum swung in favour of the technocrats and their supporters who advocated a more liberal economic agenda, including reduced protection, a more open posture towards foreign investment, and simplified export procedures (Basri, 2001).

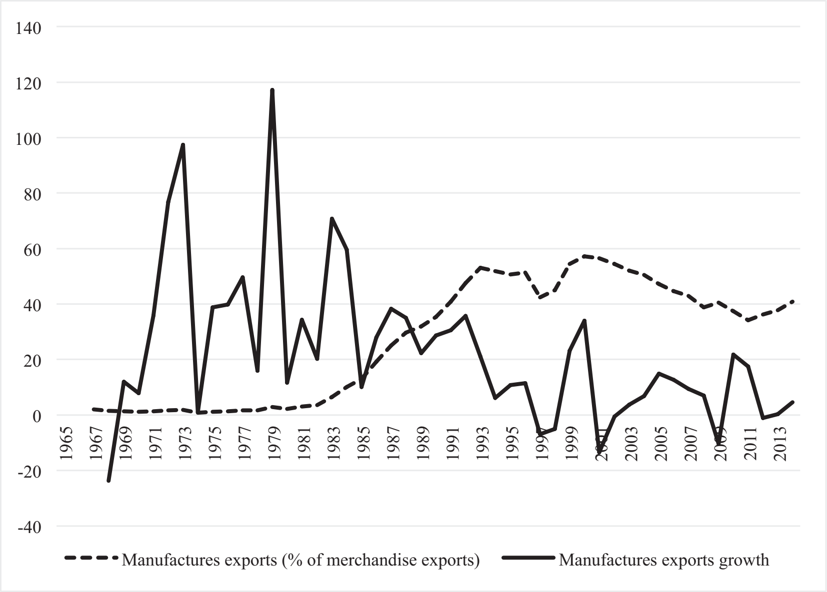


Figure 4.3 Manufactured exports, 1965–2015 (manufacturing export growth and shares, annual)

Source: Authors' calculations based on World Development Indicators, World Bank.

Initially, manufactured exports were concentrated in resource-based activities, especially plywood, reflecting the country's natural resource endowments and the prohibition of unprocessed commodities (Table 4.2). Indonesia's industrial export base began to widen significantly as the reforms took hold, with textiles, garments, footwear, electronics, furniture, sporting goods, and toys also registering rapid growth. The share of labour-intensive products in total manufactured exports increased in the wake of the 1980s reforms, from about 45 percent in the mid-1980s to 61 percent in 1996. These reforms 'worked' in the sense that there was the strong and immediate export response observed as noted earlier. Indonesia grew quickly out of the early 1980s recession and, although external debt rose sharply in the mid-1980s, debt/GDP ratios remained comfortable, and began declining from the end of the decade. The reforms were also good for equity, as employment expanded significantly in the new export-oriented factories on Java. For the first time in its history, Indonesia became 'East Asian' as it emerged as a major industrial exporter. Since around 1990, export performance has been more erratic. Growth began to slow in the early 1990s as a result of increased competition in export markets, a slackening in the reform momentum, slower productivity growth, and the real rupiah appreciation. In the post-crisis era, export growth has also generally slowed, around an increasingly volatile trend, for reasons discussed later.

Table 4.2 Composition of manufactured exports, 1980–2015 (top five manufactured exports, and as percentage of total)

		1980	*1985*	*1990*	*1995*	*2000*	*2005*	*2010*	*2014*
Unskilled Labour-Intensive		170,867,605	663,259,237	4,201,370,665	10,573,314,468	13,429,432,792	13,786,811,938	18,356,727,995	23,818,339,496
8510	Footwear	1,450,026	7,919,363	561,207,936	1,998,139,264	1,605,066,354	1,348,462,400	2,428,728,651	3,972,412,556
8973	Jewellery of gold, silver or platinum	124,218	7,004,954	54,982,616	330,312,704	105,737,378	84,981,844	223,271,938	2,116,980,607
8459	Other outer garments and clothing, knitted	2,103,163	3,122,774	198,342,496	282,293,792	397,843,933	713,000,284	1,059,983,083	1,491,798,603
8219	Other furniture and parts	1,186,770	6,225,885	126,605,040	501,273,824	917,715,187	1,247,117,236	1,427,880,859	1,255,611,495
6514	Yarn contain. 85% by wgt. of synth. fibres, not for. sale	2,764,149	8,560,236	45,377,344	351,002,176	710,047,176	865,986,165	1,034,971,827	1,081,330,496
Resource-Based	Labour-Intensive	77,048,960	957,163,001	3,083,587,579	4,721,953,724	3,413,556,228	2,904,563,213	1,994,889,436	2,164,730,666
6342	Plywood consisting of sheets of wood	55,376,452	797,002,880	2,606,712,576	3,233,867,008	1,790,107,447	1,193,502,623	1,064,748,624	1,262,323,035
6353	Builders' carpentry and joinery	2,991,013	3,441,262	196,696,256	643,897,344	640,617,279	726,969,594	340,410,915	354,335,344
6354	Manufactures of wood for domestic/decorative use	870,336	2,477,956	61,949,276	96,207,200	175,067,031	206,169,113	226,861,152	157,777,857
6639	Articles of ceramic materials, n.e.s.	2,930	1,771	173,817	2,907,539	20,020,025	36,830,143	92,594,367	109,853,308
6624	Non-refract. ceramic bricks, tiles, pipes and sim. prod.	98,966	46,022	3,015,787	13,639,762	70,852,346	114,143,886	97,009,532	88,201,752
Resource-Based	Capital-Intensive	115,360,526	241,790,057	997,855,745	2,406,003,121	4,749,442,339	5,975,016,922	10,689,891,198	11,729,668,068
6415	Paper and paperboard, in rolls or sheets, n.e.s.	–	1,652,727	82,626,640	369,856,416	650,620,270	1,048,673,056	2,116,686,978	1,957,760,682
6251	Tyres, pneumatic, new, of a kind used on motor cars	–	–	20,312,040	40,470,712	173,539,903	496,532,692	1,145,005,354	1,276,954,771
6911	Structures and parts of struc.; iron/steel; plates	1,580,352	–	6,202,197	48,869,576	35,468,644	60,555,220	211,248,016	691,707,486

(*Continued*)

Table 4.2 (Continued)

		1980	*1985*	*1990*	*1995*	*2000*	*2005*	*2010*	*2014*
5146	Single or complex oxygen-function amino-compounds	1,667,757	8,069,969	39,628,316	128,514,680	221,978,768	241,332,893	468,763,074	630,968,171
5112	Cyclic hydrocarbons	–	24,147	630,000	20,498,434	131,616,805	111,534,580	739,704,542	555,664,886
Electronics		97,123,929	80,937,000	205,353,892	2,944,291,072	9,072,153,628	10,050,176,797	12,525,408,327	11,579,183,559
7518	Office machines, n.e.s.	–	179	4,000	43,610	965,446	2,059,815	1,039,712,272	1,279,947,020
7731	Insulated, elect. wire, cable, bars, strip and the like	61,051	429	6,229,828	71,499,264	327,704,728	503,067,482	894,994,675	1,155,503,016
7611	Television receivers, colour	–	177,701	2,077,636	23,409,448	313,997,402	274,276,702	1,159,189,446	970,432,086
7721	Elect. app. such as switches, relays, fuses, plugs etc.	547,520	2,820	365,692	89,817,824	255,072,388	381,620,342	633,599,878	948,781,582
7638	Other sound recorders and reproducers	74,050	–	1,931,316	686,186,176	788,529,569	1,270,537,243	1,887,291,105	855,366,646
Footloose Capital-Intensive		38,555,759	100,622,408	552,675,080	2,311,227,939	4,576,104,910	7,448,033,955	13,475,091,881	19,926,163,690
7810	Passenger motor cars, for transport of pass. and goods	2,114	47,675	7,036,486	21,355,660	7,275,072	245,790,340	1,025,835,182	2,637,306,227
7849	Other parts and accessories of motor vehicles	3,571,006	183,909	6,442,776	48,084,336	221,753,676	757,861,852	1,170,713,940	1,619,938,904
5989	Chemical products and preparations, n.e.s.	6,103	57,833	9,752,755	36,422,360	94,470,219	133,605,518	672,873,443	1,368,837,817
5121	Acyclic alcohols and their halogenated derivatives	6,139,348	5,969,280	12,711,179	96,242,088	247,758,450	433,181,985	741,434,906	1,145,412,756
7239	Parts of the machinery of 723.41 to 723.46	–	437,700	10,364,912	30,847,606	83,363,398	260,777,423	551,619,939	681,488,419

Source: Authors' calculations based on UN Comtrade.

Indonesia's ownership patterns warrant attention as they are unusual in some respects. Reliable estimates are now dated, and relate to the pre-1997 period, but are still broadly indicative of the patterns. There are high levels of ownership concentration, both in terms of corporate conglomeration and seller concentration. Claessens et al. (2000) document the former, finding that Indonesia exhibited the highest level of corporate concentration in East Asia in 1996, with the top 10 families owning 57.7 percent of listed corporate assets.[3] In terms of plant-level industrial concentration, Bird (1999) finds high levels of concentration, typical of those in relatively small, late-industrialising economies. Over the period 1975–1993, concentration levels were declining steadily, though in the latter year the simple average four-firm concentration ratio was still 54 percent. Concentration ratios were significantly lower once allowance is made for imports. Indonesia's industrial ownership patterns reflect the interplay of history, policy, and industrial organisation factors (Table 4.3). In the mid-1960s, no foreign capital was present, and the 'commanding heights' of the economy, such as they were, were in state hands. The state-owned enterprise (SOE) sector continued to be important throughout the Soeharto era. The oil boom period financed a major expansion in the SOE sector, initially in heavy industry, and later in several costly high-tech projects that have since been largely dismantled. Meanwhile, foreign investment returned to the country from the late 1960s in response to the newly liberal policy regime and generous fiscal incentives (Lindblad, 2015). As is the case in most countries, domestic firms are the major players in Indonesian industry, accounting for more than 50 percent of manufacturing value added in most two-digit industries. Among domestic firms, SOEs are important in certain 'strategic' industries, such as fertiliser, steel, and cement, together

Table 4.3 Ownership patterns in manufacturing, 1975–2015 (as percentage of MVA by foreign, government, private, joint ventures)

	P	*G*	*F*	*PG*	*PF*	*GF*	*PGF*		*P*	*F+PF*	*G+PG+ GF+PGF*
1980	54.4	14.9	5.3	1.2	22.5	1.7	0.1	1980	54.4	27.8	17.9
1985	57.6	19.5	1.3	1.0	17.5	2.2	1.0	1985	57.6	18.7	23.7
1990	63.0	14.3	2.4	0.9	17.1	1.0	1.4	1990	63.0	19.4	17.6
1995	60.7	9.5	3.7	0.9	23.7	1.3	0.2	1995	60.7	27.4	11.9
2001	50.3	15.0	8.7	0.6	20.9	4.0	0.5	2001	50.3	29.6	20.1
2005	54.2	7.3	9.0	1.3	25.4	1.6	1.3	2005	54.2	34.3	11.5
2009	44.2	4.9	17.2	1.8	29.7	1.3	0.9	2009	44.2	46.9	8.9
2011	48.0	4.9	17.4	3.0	25.0	0.9	0.8	2011	48.0	42.5	9.6
2013	59.0	2.7	15.2	1.9	20.4	0.7	0.1	2013	59.0	35.6	5.4

F = foreign; G = government; P = private; MVA = manufacturing value added; JV = joint venture.

Source: Authors' calculations based on Survey on Large and Medium Enterprises, Statistics Indonesia.

with some firms that were inherited from the pre-1966 nationalisations (e.g. sugar processing) and never subsequently relinquished. During the AFC, the SOE sector in general contracted, especially in the case of the prestige projects, which were heavily dependent on direct government support. Foreign ownership has risen steadily since the economy was opened up in the late 1960s. The share of these firms in non-oil manufacturing value added rose from about 23 percent in 1975 to 37 percent in 2005. The share rose higher still in the wake of the crisis, in response to policy liberalisations and the opportunity for foreign firms to buy distressed local assets. Moreover, foreign firms were better able to endure the crisis. As is evident in the two-digit ownership data, and consistent with industrial organisation theory, multinational enterprises are important in ISIC 38, dominated by electronics and the automotive industry. They are also important in basic metals (principally steel and related products), the chemical industries, and a few labour-intensive activities (textiles, garments, footwear, and miscellaneous manufactures) where knowledge of export markets is important.

3. Development policy issues and challenges

With this overview as context, we now examine seven key and interrelated policy issues. The industrial policy debate touches upon practically every aspect of development policy, and so the orientation of our discussion is directed more to breadth than to depth. Owing to the space constraint, our analysis is necessarily abbreviated. The references contain more detailed information.

3.1 Slower industrial growth and 'deindustrialisation'

Should the slower industrial growth noted earlier be a cause for concern? The first point to note is that the focus should be the aggregate rate of growth, and not the sectors. A priori, achieving the same rate of growth but with different sectoral contributions is no cause for concern. Moreover, the factors explaining the slower industrial growth need to be unpacked. As would be expected, this is a multi-factor story. The first is the role of China as a manufacturing export superpower in lowering the global price of manufactures, especially at the middle and lower end of the factor intensities. This is also a factor contributing to the slower growth in other Southeast Asian economies.[4] Second, Indonesia's buoyant terms of trade has had the familiar 'Dutch disease' effects of squeezing the non-commodity tradable goods sectors, especially manufacturing (although the question of why the 1970s oil boom did not result in markedly slower industrial growth still needs to be asked). A third factor has been various aspects of the post-crisis policy environment that have adversely affected the international competitiveness of Indonesian manufacturing. Among the latter have been uncompetitive labour market regulations, poor infrastructure, and an uncertain business environment. We return to these issues shortly.

This slower industrial growth has triggered a vigorous policy debate about the alleged 'deindustrialisation'. Technically the use of the term is misleading, as the manufacturing sector continues to register positive, albeit slower, growth. There have also been widespread calls for a renewed emphasis on 'industry policy', which are generally couched as demands for increased manufacturing protection. However, proponents of old-fashioned industry policy in Indonesia overlook the fact that, according to our unpublished estimates, the share of manufacturing value added in GDP is actually larger than what would be expected on the basis of Indonesia's per capita GDP.

3.2 The macroeconomic policy environment

Indonesia's macroeconomic environment has generally played a supportive role in the sense that, except for the positive economic growth that has been maintained almost continuously since 1966, inflation has rarely been out of control, and the exchange rate has generally not been seriously misaligned. Inflation was brought under control surprisingly quickly in the late 1960s, and a moderately strong inflation-aversion bias has been built into macroeconomic policy settings ever since. Except for the enormously costly bank bailouts during the AFC, fiscal policy has been prudent for most of the period through the 'balanced budget rule' adopted during the Soeharto period and the 2003 Fiscal Law subsequently. During the era of fixed exchange rates, the government on occasion employed exchange rates proactively to maintain competitiveness for tradable sectors, particularly with the large devaluations of 1978, 1983, and 1986. The post-AFC monetary policy regime of inflation targeting and a floating rate has been implemented quite effectively, with the result that the nominal exchange rate has accommodated the country's variable terms of trade and investment expectations as manifested in international capital movements.

3.3 Small and medium-sized enterprises and firm mobility

The size distribution of firms and their mobility across different size groups are important indicators of economic development – the former of a country's broader industrial organisation, the latter of general business flexibility. Indonesia's industrial structure shows the typical pattern of large firms producing most of the output, while small firms and household enterprises employ most of the workforce. There is also the usual pronounced clustering by firm size across sub-sectors. For example, within the manufacturing sector, smaller firms are generally located within the more labour-intensive and less scale-intensive industries, such as food processing and garments.

A feature of rapid industrialisation and well-functioning product and factor markets is high levels of firm mobility across size groups. In our earlier research on Indonesia, we found there was considerable evidence of this mobility, in particular of firms 'graduating' to larger size groups. In a subsequent paper (Aswicahyono et al., 2010), we repeat the exercise through to the year 2005. That is, we trace through each firm over the period 1990–2005, and assign it to a firm size grouping. These groupings are chosen arbitrarily but plausibly as firms with 20–99 workers, 100–499 workers, and more than 500 workers. We then estimate output by the three size groups, based on each firm's size in the current year and the initial year, with the latter being either 1990 or the year the firm commenced operation. There is little change in the size share based on current size, with the share of small firms rising slightly pre-crisis, then falling somewhat, while the largest firms were most affected by the economic crisis. However, based on size in the initial year, the small firm share rose quite quickly through to the crisis, but then began to decline from 2001. Thus the crisis and its immediate aftermath appear to have marked a turning point in this process of firm mobility. Until the crisis, smaller firms maintained their dynamism. However, after the crisis, the pace of graduation slowed, and the small firm share in both series declined.

We then calculate transition matrices of the size distribution of firms, compute for the pre- and post-crisis periods, defined here as 1992–1996 and 2001–2004, respectively. These support the conclusion that the speed of firm mobility slowed after the crisis. They show the distribution of firms for the same three size groups according to the initial and final year of each sub-period. Thus, of the small firms in 1992, by 1996 90.6 percent were still small, while 8.8 percent and 0.6 percent had graduated to the medium and large groups, respectively. A clear result over the two sub-periods is that there was less mobility: more small firms remained small after the crisis as compared to before it. We earlier conjecture that this outcome could well be explained by the fact that the barriers to smaller firms increasing their scale have risen since the crisis, particularly in access to finance. This arises due to the credit rationing devices that are commonly put in place after crises – they invariably support larger firms with better collateral and credit histories. Indonesia's post-AFC banking reforms appear to have had the unintended consequence of limiting the access of small enterprises to formal sector financial institutions (Rosengard and Prasetyantoko, 2011). Pending further research, we conjecture that this outcome is still a plausible characterisation of Indonesian manufacturing.

3.4 Commercial policy – precariously open?

In its international orientation, Indonesia has ranged from isolation and disengagement to highly open economic policy settings (Pangestu et al., 2015). Underpinning these variable outcomes has been the interplay of two broad influences. On the one hand, there is an enduring and widespread community distrust of globalisation and economic liberalism. But on the other, there was the disastrous experience of turning inwards during the 1950s and early 1960s, combined with the pragmatic reality of outward-looking East Asian economic integration, including also Indonesia's commitments to its ASEAN neighbours. The result has been that, for most of the period, Indonesia has been moderately open, if somewhat uneasily so.

Table 4.4 provides summary proxy indicators of revealed trade and investment openness since the 1960s, indicators that are subject to the usual well-known

Table 4.4 Indicators of economic openness, Indonesia and neighbours, 2014

	(X + M)/ GDP	*Stock FDI/ GDP*	*Tariff*	*Trade Freedom Ranking*
Indonesia	39.9	28.5	2.3	75
China	41.5	10.5	3.6	110
India	38.3	12.3	7.0	124
Malaysia	131.0	39.6	4.3	72
Thailand	112.5	49.2	6.2	87

Source: Authors' calculations. Data on trade an investment openness, and tariff are from World Development Indicators, World Bank, 2014, and data on trade freedom ranking is from Trade Freedom Heritage.

caveats. Perhaps surprisingly, Indonesia did not turn inwards during and after the AFC. The International Monetary Fund (IMF) programme was one obvious constraint, but there were other factors at work. As in the 1960s and 1980s, the crisis empowered the technocrats, at least in the Ministry of Finance. The large currency depreciation ameliorated some of the pressures for protection. Also no other countries in the neighbourhood turned inward at that time; indeed, the two developing Asian giants – China and India – continued to reform. However, as in the 1970s the pendulum began to swing back towards greater interventionism as the commodity boom of the 2000s developed. This led again to intensified protectionist pressures and a more restrictive approach towards foreign investment. Whether the earlier relationship between the country's terms of trade and trade openness still exists remains to be seen. The declining terms of trade from around 2013 appears to have halted the trend towards increasing economic nationalism, but a major reversal is not yet evident (Patunru and Rahardja, 2015). The series of packages released from September 2015 are at least a hopeful beginning.

3.5 Governance and the regulatory environment

While Indonesia has experienced a dramatic remaking of its political institutions, in many respects there has been surprisingly little change in the economic institutions that govern the business environment. Indeed, the investment climate has arguably become less certain and predictable. The main driver of this change has of course been the diffusion of political power, and therefore rents, both within the central government and between the central and local governments. That is, whereas the allocation of rents was tightly controlled and centralised during the New Order (*Orde Baru*), with the Soeharto family, its close associates and the military the principal arbiters, the more diffused and open political systems since 1999 have reshaped the business environment. To some extent, post-Soeharto Indonesia perhaps illustrates the proposition that 'the only thing worse than organized corruption is disorganized corruption.'

Table 4.5 Governance and business indicators, Indonesia and neighbours

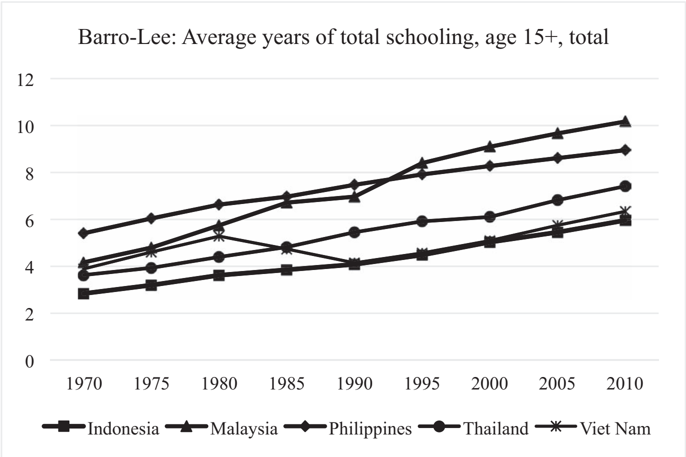
	Corruption Perception Index	*Ease of Doing Business*	*Global Competitiveness*	*Governance Index*
Indonesia	88	109	37	95
India	76	130	55	115
China	83	84	28	71
Malaysia	54	18	18	35
Thailand	76	49	32	72

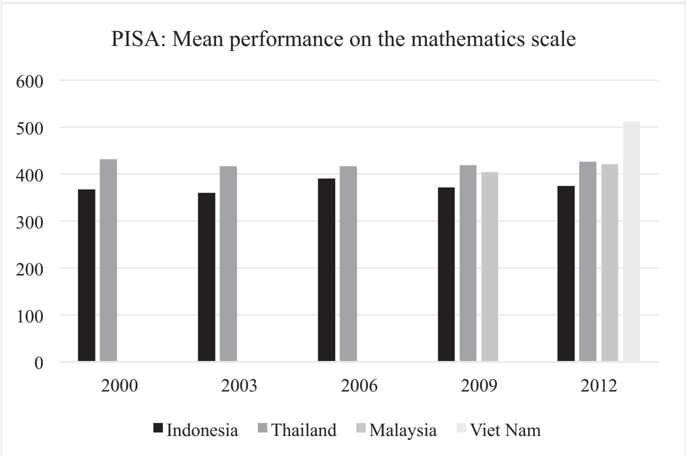
Source: Authors' calculations based on: Corruption Perception Index 2015: Transparency International; Ease of Doing Business: Doing Business 2014, World Bank; Global Competitiveness: The Global Competitiveness Report 2015, World Economic Forum; Governance Index: The Worldwide Governance Indicators Governance Effectiveness 2014, World Bank.

Although highly subjective and subject to well-known limitations, the various comparative indicators do demonstrate the importance of continuing governance reform in Indonesia. Two of the most widely employed indicators are presented in Table 4.5. The former reminds us that Indonesia continues to rank quite poorly in terms of ease of doing business, with no discernible improvement over the past decade. The latter illustrates that the investment community has the perception that levels of corruption remain very high, although the country's ranking has improved in recent years. Taken together, the indicators strongly suggest that, first, the regulatory regime imposes additional costs on Indonesian business, the most efficient solution to which is major regulatory simplification rather than costly tax incentives; and second, that conferring additional discretionary authority on an already corruption-prone bureaucracy is a highly risky strategy. An important determinant of these rankings is the very slow pace of bureaucratic reform (McLeod, 2005), notwithstanding the progress achieved in building independent checks on bureaucratic excess through the operations of the KPK (*Komisi Pemberantasan Korupsi*; Corruption Eradication Commission).

3.6 The supply side: (I) skills and the labour market

Indonesia has achieved impressive gains in education since the 1970s in overcoming the colonial era backlog, with major expansions in enrolments at all levels. The country is now close to achieving universal literacy for its school-age population, and there is a strong commitment to education funding, through a law that mandates that 20 percent of the government's budget shall be allocated to the sector, net of transfers and subsidies. However, the country lags in terms of high post-primary dropout rates, and also according to most comparative 'quality' indicators, such as international examination performance. Figure 4.4 summarises Indonesia's education indicators in comparative perspective. While as noted the quantitative expansion – here proxied by the Barro-Lee years of schooling – has increased significantly, Indonesia continues to lag on quality





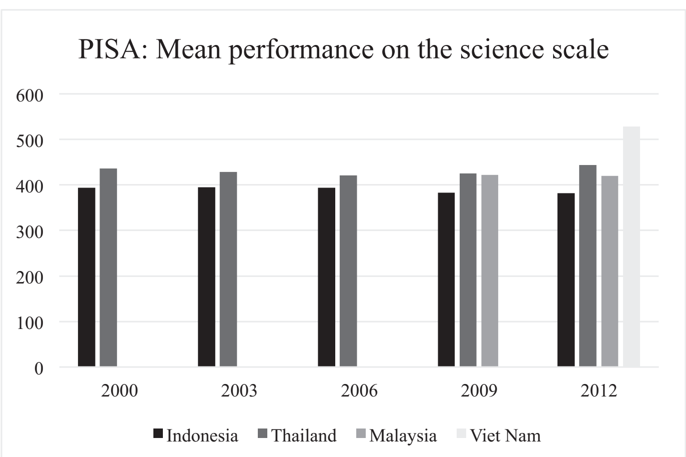


Figure 4.4 Education indicators, Indonesia and neighbours

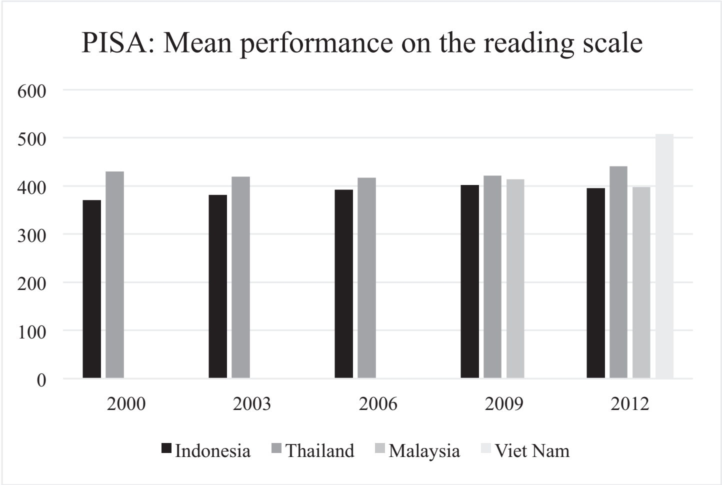


Figure 4.4 (Continued)

Source: Authors' calculations based on the World Bank Education Statistic (EdStats).

indicators. Recent survey research indicates that, while the increased higher funding allocations are important, major policy reforms need to be introduced (Suryadarma and Jones, eds., 2014).

These educational challenges are compounded by related labour market problems of weak formal sector employment growth and skill mismatches.[5] Over the period 1966–1996, formal sector employment and modern sector wages grew strongly. The AFC resulted in a sharp fall in formal sector employment and real wages. Because the labour market was flexible, much of the impact was on the latter. The sudden democratic transition unleashed powerful 'pro-labour' sentiments, which resulted in labour's freedom to organise, rapidly increasing mandated minimum real wages, and punitive severance pay provisions. The first of these changes was of course welcome, but the latter two, combined with slower growth, resulted in anaemic formal sector employment growth for much of the period since 2000, especially in the manufacturing sector, which had been the source of much of the dynamic employment growth (Aswicahyono et al., 2010). Combined with the strong real exchange rate over much of this period, the result was that Indonesia lost competitiveness in international markets for labour-intensive manufactures.[6]

3.7 The supply side: (II) logistics and infrastructure

In contrast to the large-scale transformative infrastructure investments during the Soeharto era, Indonesia also now lags in the efficient provision of physical infrastructure (McCawley, 2015). Infrastructure receives high priority in official policy statements through the formulation of master plans and logistics blueprints to reduce transport costs and increase reliability. There are hopeful signs that the Joko Widodo administration will be able to translate the rhetoric into reality, especially as fuel and related subsidies have been reduced substantially since late 2014. In the meantime, inter-island transport costs are very high in this, the world's largest archipelagic state. High transport costs push up the general cost structure, particularly for more remote regions, and thus there are large inter-regional price differences. For example, Sandee (2016) presents comparative data demonstrating that Indonesian logistics costs are considerably higher than its more efficient neighbours. He also draws attention to the problems at the country's major port, Tanjung Priok, where throughput doubled over the period 2007–2013, but over this period there was no expansion in facilities. For comparative purposes, Figure 4.5 reports the results from the annual World

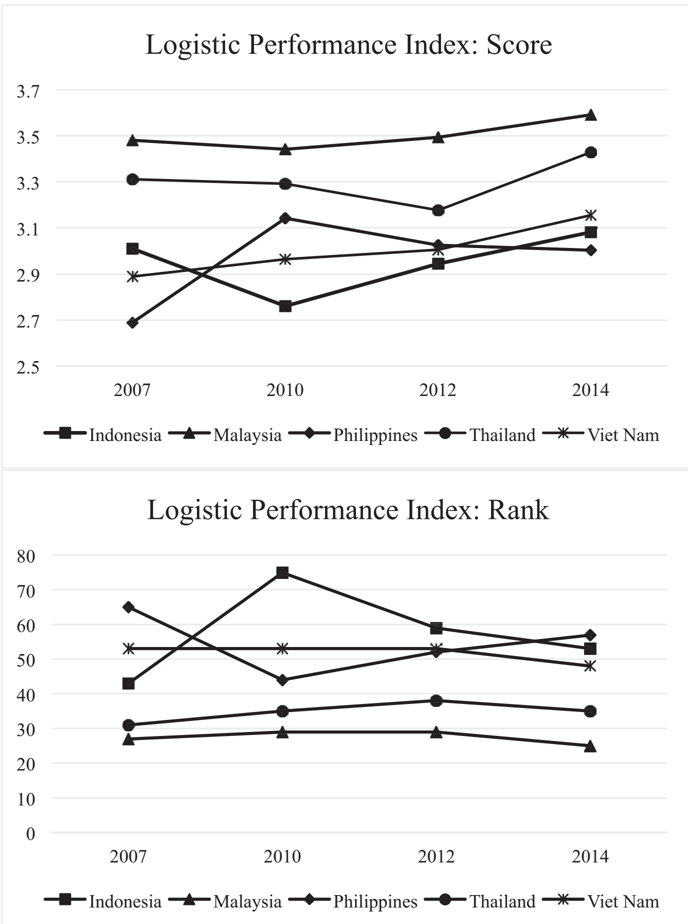


Figure 4.5 Logistics indicators, Indonesia and neighbours, 2007–2014

Source: Authors' calculations based on Logistics Performance Index, World Bank.

Bank's Logistics Performance Index (LPI), confirming the fact that Indonesia lags its ASEAN neighbours except for the Philippines. The problems derive from both limited infrastructure investment and regulatory barriers. The under-investment in infrastructure since the late 1990s has contributed to the low quality and quantity of roads, ports, and railways. As a percentage of GDP, Indonesia's infrastructure expenditure is about half of that in the Soeharto era. Regulatory constraints on competition and efficient service provision compound the problems.

4. Looking forward: industrial policy options for Indonesia

In light of this analysis, what sort of industry policy might Indonesia contemplate? Our conclusions are premised on five general observations. First, the major challenge is to achieve high economic growth in the aggregate, consistent also with distributional and environmental objectives. The sectoral origins of this growth are of secondary concern. Second, as a corollary, the emphasis needs to be on productivity and efficiency, and thus on 'policies for industrial progress', rather than 'industry policy'. Third, it is important to keep in mind the Tinbergen 'assignment principle', that the number of independent instruments (i.e. policy levers) must be at least as great as the number of targets. In other words, policies need to be directed towards specific targets rather than vague catch-all objectives. Fourth, the policies need to be administratively and politically feasible, in the sense of having a realistic prospect of implementation.

Related to the latter point, fifth, Indonesia has had a very mixed record with industry policy. For example, there is no compelling evidence that any of the historically most protected industries in Indonesia, such as the automotive, steel, petrochemical, and other heavy industries, subsequently became spearheads of industrial growth. In fact, on the contrary, using export growth or productivity growth as a performance indicator, not surprisingly the most dynamic sectors have been traditional labour-intensive industries. These industries were historically penalised by the protection accorded to the upstream sectors, and they have performed best when liberal trade and investment reforms have been in the ascendancy.[7]

Such a result should not be surprising to any serious student of the political economy of import protection in Indonesia. According to the most detailed study of the subject, by Basri (2001), the most important determinant of variations in inter-industry protection has been what he termed the 'crony' variable. Basri's study is for the period through to the mid-1990s, which was also the period of rapid industrialisation. Whether this analytical framework has the same explanatory power for the democratic period, when political power was rapidly diffused and patterns of corruption much less systematic, remains an open question. There is however persistence in the patterns of protection, with the most protected industries in the latter period similar to those of the earlier period (Marks and Rahardja, 2012).

A second instrument of industrial policy has been state-owned enterprises. Indonesia has traditionally had a large SOE sector, partly as a result of the nationalisations during the Soekarno period and partly those financed during commodity booms. Measuring their performance accurately is hindered by the lack of reliable financial data, and the many implicit subsidies received and exactions imposed on them. By any indicator, however, these SOEs have generally performed poorly, owing to political interference, multiple (and sometimes conflicting) objectives, and a reluctance to delegate managerial autonomy. Moreover, there is no evidence from the case study material that they have played a catalytic role, directly or indirectly, as technological innovators.

Third, fiscal incentives have been employed intermittently, but with limited impact. They were introduced from 1967 onwards when Indonesia sought to re-establish its international commercial reputation. The investment regime became more restrictive from the mid-1970s, and the Investment Coordinating Board, known by its acronym BKPM, attempted to impose conditionality in the granting of incentives. However, it lacked the analytical expertise to implement any sort of formal industry policy. Its effectiveness anyway was diminished by widespread corruption and cumbersome administrative procedures. Fiscal incentives were largely abolished during the major tax reforms of 1984, and they played no role in the successful period of export-oriented industrialisation during that decade. Some incentives have been reintroduced in recent years, but with little impact.

A fourth tool of industry policy has been the provision of subsidised finance. State-owned banks dominated the financial sector until 1983, and they offered a range of subsidised lending programmes. Command lending to politically well-connected borrowers was widespread, as was bribery to secure this cheaper credit. Studies of these programmes generally concluded that there was no systematic difference in commercial success between recipients of subsidised and non-subsidised loans. This was because the value of the subsidies was diluted by the illegal payments, and because, in the system of credit rationing, loans were extended as much on the basis of political connections as commercial viability.

Finally, from the early 1980s, the Indonesian government embarked on a range of ambitious 'high-tech' projects under the direction of Research and Technology Minister (and later President) B.J. Habibie. The most important of these was the *Industri Pesawat Terbang Nusantara* (IPTN), or Indonesian Aerospace Industry project to develop Indonesia's first domestically produced airplanes. There was a range of other projects, including shipbuilding and munitions. These were mostly cases of 'back-to-front' industrialisation, in that Indonesia then possessed a very limited industrial base of supplier firms with advanced engineering competence. Therefore, the aircraft factory was somehow intended to leapfrog the process of technological development. These projects collapsed during the AFC, when the government was no longer able to bankroll them. The country had little to show for the estimated 3 billion US dollars invested in these high-tech projects.[8]

Bearing these observations in mind, we now briefly discuss a range of issues related to Indonesian industry policy debates.

4.1 Connecting to global production networks

These vertically integrated, many-country, cross-border production and buying operations are now the major form of intra-East Asian trade. Within ASEAN alone, they account for almost 50 percent of trade within the region (Athukorala, 2010). Although concentrated principally in the electronics and automotive industries, they are an organisational structure that is relevant to any products that combine discrete production processes with diverse factor intensities. Most of this trade is intra-firm in nature, and thus it is dominated by multinational enterprises. Indonesia is a relatively minor participant in these networks, and is thus missing out on major commercial opportunities and employment creation. In 2010–2011, for example, it accounted for 0.5 percent of global 'network trade', much lower than its Southeast Asian neighbours, Malaysia (2.6 percent), the Philippines (1.2 percent), and Thailand (1.6 percent). A key feature of these networks is the range of factor intensities of activities within them, from highly technology-intensive to simple assembly operations, and thus facilitating the potential entry of reforming latecomers.

The reasons for this under-performance are both well-known (Soejachmoen, 2012), and amenable to policy intervention. Participation in the *global production networks* requires open trade and investment policies, because the parts and components frequently cross international boundaries, and much of the production occurs within multinational enterprises. They also require highly efficient logistics infrastructure, including port movements, customs procedures, and port-to-factory transport. Competitive labour inputs have to be available, across the range from unskilled to managerial staff. In these three key areas, Indonesia lags, as demonstrated by the comparative indicators presented in the previous section. Yet they are all amenable to relatively straightforward policy reforms, of the sort that Indonesia undertook during the 1980s.

4.2 Trade policy and regional architecture

The absence of progress with the Doha Round has led to a proliferation of preferential trading arrangements. Apart from the special case of ASEAN, Indonesia has not been an active participant in these arrangements. The impact of these preferential trading arrangements is mixed. In some circumstances, they may offer preferential market access. But frequently this market access is limited by the many exemptions clauses and by rules-of-origin requirements. In any case, network trade in electronics occurs largely outside these preferential deals, because the former is fundamentally incompatible with them. Progress with broader region-wide trading arrangements is also problematic.

The implications for Indonesia are threefold. First, unilateral reform is the only certain way forward to deliver increased productivity. Major trade breakthroughs are not in prospect; even if they were, those of any significance would be open to all countries. Second, there is no case for Indonesia adopting a 'mercantilist' approach to trade policy in the sense of making reform at home conditional on these trade deals. Domestic reform benefits the home country directly. Moreover, Indonesia is too small an economy relative to the majors (US, European Union, China, Japan) to be able to extract significant concessions. The one bilateral deal it has with a major, Japan, has not delivered significant results, even in areas of significant interest to Indonesia, notably labour exports. Third, ASEAN is very likely to continue to be the cornerstone of Indonesia's international commercial diplomacy. The ASEAN Economic Community has already commenced and, although it contains numerous loopholes and exemptions, it will reduce commercial barriers within the region, to which Indonesia will have to adjust. Indonesia will also be bound by other extra-regional ASEAN trade policy agreements, some of which will be significant, such as the ASEAN-China Free Trade Area.

4.3 'Hilirisasi' and the promotion of heavy industry

Over the course of industrialisation, scale, industry composition, and factor intensities change significantly. Should the Indonesian government intervene in this process, for example by directly hastening the transition to an industrial structure that is technologically more advanced, through tariffs, financial incentives, and direct ownership? That is should the government select particular industries, or even firms, for special assistance, on the premise of anticipating changing comparative advantage, or removing the bottlenecks that may be holding back industrial upgrading?

In certain circumstances, there may be a case for this form of intervention, but it should desirably meet the following criteria before a plausible 'public interest' case could be made:

1 Is there a convincing case that the Indonesian bureaucracy has the specialised knowledge of markets and technology, superior to that of major multinational enterprises, to be able to make such a decision?
2 Related, given the widespread vulnerability to capture within the Indonesian bureaucracy, how will the risk of rent-seeking be addressed? What sort of market test, performance requirement, or conditionality will be enforced on the recipients?
3 Is the global industrial structure 'oligopolistic', with relatively few suppliers, and are these suppliers deliberately restricting access to their specialised technology?
4 Is Indonesia's lack of competitiveness in a particular sector the result of some sort of market failure or technology barrier, or is it rather a result of the high-cost domestic economy, inadequate education system, complex regulations, and domestically imposed barriers to international technology transfer? To the extent that it is mainly the latter, the solution is to address the problems at their source, not to embark on costly and risky industry policy.

Any strategy for industrial upgrading also needs to confront the fact that Indonesia currently spends a minuscule amount on research and development, about 0.1 percent of GDP. Its advanced education foundations are under-developed. And the uncertain legal environment related to intellectual property rights deters private sector research and development. A forward-looking industrial policy should therefore address these issues. Moreover, smart industry policy can address the public good arguments for investing in 'non-rival' activities where there are significant externalities that cannot be easily appropriated by a single firm, and which therefore act to deter private investors. Examples include the setting of standards, testing facilities, advanced laboratory facilities that are not necessarily product-related, and other support for advanced scientific research. By definition, these investments are not firm-specific, and in some cases not even industry-specific.

4.4 Finance, especially for small and medium-sized enterprises

Over the past quarter century, Indonesia has made important progress in its financial development in two respects. First, in the wake of the AFC, the formal financial sector has been rehabilitated, through bank recapitalisation (albeit at great fiscal cost to the nation), more effective prudential supervision and regulation, and some liberalisation regulations governing the entry of foreign banks. Second, Indonesia has a history of successful micro-credit innovation. Following the costly and ineffective experiment with subsidised credit programmes in the 1970s and early 1980s, the 1980s financial reforms saw the introduction of an array of flexible, market-oriented innovations tailored to meet the special needs of micro enterprises. Having re-established financial stability, including during the 2008–2009 global financial crisis, the challenge now is to ensure that the country's financial institutions support broader development objectives, including particularly small and medium-sized enterprises, in the directions advocated by Rosengard and Prasetyantoko (2011).

Tax and other investment measures are widely used to attract foreign direct investment, both at the aggregate country level and, to the extent that these incentives are industry or even firm-specific, as a tool of industry policy. Their appeal is obvious, as a signal to business that the country is 'open for business', and to compete with the many other countries offering these packages. The case for offering such incentives is more compelling in transition economies that have recently opened up to international trade and investment, and which have high levels of political and commercial uncertainty. However, Indonesia can hardly be described as a transition economy, while the case against these incentives, or at least for using them sparingly, is compelling. First, they have fiscal implications, to the extent that they erode the revenue base. Second, in comparative surveys, investors typically do not rank these incentives highly, as compared to infrastructure quality, political and legal certainty, labour availability, regulatory simplicity, and other factors. Third, the criteria for granting these incentives are often vague, in conflict with other government objectives, and subject to corruption concerns.

For example, a key objective of the Indonesian government is support for domestic small and medium-sized enterprises, yet investment incentives go overwhelmingly to large, mainly foreign-owned firms. Moreover, investment agencies like Indonesia's Investment Coordinating Board (BKPM) typically do not have the requisite technical skills and deep industry knowledge to guide the selection of industrial projects. In addition, conventional investment criteria are of less utility the more globalised are production processes. One example is the use of domestic value added as a policy objective. The spread of global production networks as a result of the 'slicing up' of production processes inevitably results in less, not more, value added at each production stage.

Indonesia's experience with investment incentives is also relevant. As part of the major tax and liberalisation reforms in the mid-1980s, the government abolished most incentives. The investment response was decisive: by the end of that decade, the country was receiving record levels of foreign direct investment, and most of it was in export-oriented manufacturing and the newly opened services sectors. That is, these flows diversified away from the traditional recipient sectors of natural resources and import-substituting industry.

Notes

1 See Szirmai et al. (eds., 2013) for a recent and comprehensive survey.
2 Note also that we use the terms 'industry' and 'manufacturing' interchangeably. That is, we do not examine other sub-sectors of the formal national accounts definition of industry – utilities, mining, and construction.
3 That is, in terms of the shares of its leading conglomerates in output and capitalisation. Note, however, that the mid-1990s data were dominated by Soeharto-linked conglomerates that have since been largely dismantled. More recent estimates of the dominant conglomerates prepared by Carney and Hamilton-Hart (2015) reflect these changes, while also documenting the continued prominence of several Soeharto-era commercial groups.
4 The story is of course more complicated than this. China's scale has also reordered East Asian production networks, and therefore country competitive advantages need to be realigned with these emerging networks. Indonesia has also benefited greatly from China's industrial appetite, through historically high commodity export prices for most of this century.
5 See Manning (2014) and his earlier writings, on which this paragraph draws.
6 In a separate analysis (Aswicahyono and Hill, 2015), we show that average wages grew significantly faster than labour productivity over the period 2000–2012, resulting in unit labour costs more than doubling. The sharpest increase in unit labour costs occurred in the early 2000s, and again over the period after 2010. Nevertheless, Indonesia was not alone in this growing labour market populism, resulting in rising unit labour costs in several neighbouring economies.
7 These propositions were empirically tested for Soeharto era industry policy by Hill (1996).
8 Meanwhile, the government's non-politicised research institute, LIPI, the Indonesian Institute of Sciences, has been starved of resources since its establishment in the 1950s.

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